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U. S. Nursing Students' Perceptions of Safe Medication Administration

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COLLEGE OF EDUCATION

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Kathy Johnson

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2016

Abstract

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MSN, University of Virginia, 1989

BS, Lynchburg College, 1986

Doctoral Study Submitted in Partial Fulfillment

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Abstract

Medication errors are a global concern that may affect patients' hospital stays, patients' lives after discharge, treatment costs, and mortality rates. Understanding medication errors among nursing students may help in preventing these errors as nurses are responsible for safe medication administration. The purpose of this descriptive phenomenological study was to examine upper-level nursing students' understanding of and experiences with medication administration and patient safety. Benner's nursing theory of novice to expert and Dreyfus's model of skill acquisition comprised the conceptual framework. Research questions focused on students' perceptions of safe medication administration. Face-to-face interviews were conducted with 7 upper-level nursing students from a baccalaureate nursing program in the Southeastern U.S. utilizing convenience sampling. Colaizzi's analysis strategy was followed in determining themes and clustering data into categories. Three major themes emerged from the data that included learning curve referring to the rigor of the pharmacology course, gaining self-confidence, and reliance on preceptor. Two sub-themes were identified from the theme learning curve, which included fear of making a mistake causing harm to a patient, and appreciating the complexity of the working environment and the intricacy of the patients. Using study findings, a hybrid pharmacology and medication administration course for nursing students was developed. The course may improve nursing students' confidence in their skills and knowledge and enable them to provide a safer environment for patients. Implications for positive social change include a potential reduction in medication errors and related adverse outcomes experienced by patients and their families and by health care organization.

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Dedication

The success of this project goes to my husband, Dr. Dan Johnson, and my daughter Katie, who have endured this journey with me. Without my husband's support and encouragement, I would have given up. I would like to thank all of my family members for their love, support, patience, and understanding. God plays a big part in this accomplishment; he led me in this direction and I would not be here without Him. I thank God every day for I am blessed. When life becomes challenging, I read this passage given to me by my husband each day.

> Go gently through this day keeping your eyes on Me. I will open up the way before you, as you take steps of trust along your path. Sometimes the way before you appears to be blocked. If you focus on the obstacle or search for a way around it, you will probably go off course. Instead, focus on me, the Shephard who is leading you along your life-journey. Before you know it, the "obstacle" will be behind you and you will hardly know how you passed through it.
>
> That is the secret of success in my kingdom. Although you remain aware of the visible world around you, your primary awareness is of Me. When the road before you looks rocky, you can trust Me to get you through that rough patch. My Presence enables you to face each day with confidence. (John 10:14-15; Isaiah 26:7)

Acknowledgments

I would like to recognize my chair, Dr. Hollywood, who always supported me along this long journey. I also want to acknowledge my committee member Dr. Hebert; thank you for your expertise and guidance. I want to thank Dr. Sandy Gossler for her support, advice, and encouraging words. She was there when I thought there was no hope of completion. Lastly, I want to acknowledge my University Research Review committee member Dr. Elsie Szecsy; thank you for your support.

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Section 1: The Problem

Introduction

A concern for any health care facility is patient safety, more specifically, the prevention of medication errors. Such errors may result in injury, disability, and, even, the unexpected death of a patient. The Institute of Medicine (IOM) reported that 44,000 and 98,000 people annually die from medical errors (Hamel, 2010; Lamontagne, 2010). According to Hamel (2010), the IOM reported that medication errors caused more deaths than workplace injuries, motor vehicle accidents, or breast cancer in the United States. Fargen and Friedman (2104) reported that as many as 18% of all U.S. hospital stays involved a medical error. The most common medical error was administering the incorrect or improper dose of medication, resulting in harm and adding $5,000 to the cost of each hospital admission (Healey & McGowen, 2010).

Local Problem

The problem in this study was medication errors made by upper-level nursing students. I identified this problem in a mid-Atlantic nursing program that offers a 4-year undergraduate degree as well as an online graduate program. The specific problem that I focused on was medication errors by upper-level undergraduate nursing students in clinical settings during the final semester of their nursing education.

I identified this particular problem based on three reported events involving the program's upper-level nursing students. First, a student did not understand the concept of diluting a medication and could not recall drug interactions when administering two medications at one time. The second event involved a student administering an

anticoagulant medication where the written order was for daily alternating doses. The student also administered the anticoagulant on the wrong day. The final event involved a student administering a double dose of an antiinflammatory medication to a patient. In addition, one of the program's faculty members noted that students often had trouble calculating intravenous drip rates and drug calculations, especially for pediatric patients, in simulations. The nursing program requires remediation as part of classroom and clinical work for students who need to increase their competencies before moving forward in the program. The program's simulation lab provides a safe setting for students to master their medication administration skills under the guidance of a clinical faculty member. Additional remediation provided through a program offered by the Assessment Technology Institute (ATI). ATI is an online program instrumental in helping students learn and improve their outcomes. The program offers pharmacology and medication administration content and allows for remediation as the students progress through the various courses (Assessment Technology Institute, 2016).

Based on my knowledge, no formal investigations have been conducted of the classroom pharmacology course or the medication administration lab component of the nursing program curriculum at my local site. I developed this project study to address this gap in research. It is especially critical, I believe, to identify why these medication errors occur at the upper-level nursing student level, which is right before students graduate and enter practice as a generalist registered nurses. Upon graduation, nursing students are expected to have adequate competence in delivering safe and effective nursing care, which includes safe and appropriate medication administration. Kajander-Unkuri et al.

(2014) define competence as a "functional adequacy and the capacity to integrate knowledge, skills, attitudes, and values in specific contextual situations of practice and as an outcome of general nursing education" (p. 796).

Medication administration is a clinical skill expected of all nursing students. The various techniques and skills are reinforced as students begin their clinical rotations by preceptors, staff nurses, or faculty members who supervise them as they administer medications (Reid-Searl et al. (2010e). As students transition further into nursing education and practice, they further integrate knowledge, skills, attitudes, and values around the quality and safety of medication administration. It is during students' final clinical placement of their senior year, they realize that they will be responsible and accountable for their practice as professional nurses. Kajander-Unkuri et al. (2014) found that students felt more confident and satisfied in their skills when given supportive supervision during their clinical placements.

According to Kajander-Unkuri et al. (2014), a supportive pedagogical environment during the student nurse clinical rotation was an important factor in the development of student competence and confidence. Smeuler, Onderwater, Van Zwieten, and Vermeulen (2014) found that practicing nurses feel that they are in a position to ensure safe medication administration. However, the ability to perform their role depends on their knowledge to assess the risk of medication administration and their work circumstances.

Safe medication administration and management during a nursing education program is dependent on a climate where development of medication administration

skills is supported. In addition, clinical reasoning is a nursing skill that is taught throughout the nursing education program and is critical to safe medication administration. Students continue to develop clinical reasoning skills throughout nursing education and professional practice (Smeuler, Onderwater, Van Zwieten, & Vermeulen, 2014). A study by Vaismoradi, Jordan, Turunen, and Bondas (2014) examined nursing students' perspectives on medication errors. From the study the authors identified two themes based on their data: under-developed caring skills in medication management and unfinished learning of safe medication management. Overall, the students found that the caring skills needed for medication management were not adequately discussed during the program. They also said that the practical component of medication management came too early in the program and long before their clinical work. Also, the fourth year students identified areas that were lacking from the program: monitoring for adverse effects of medications and teaching patients about medications.

Patient education includes jargon-free information, indications for receiving medications, and adverse effects (Vaismoradi et al., 2014). Vaismordi et al. (2014) observed that students develop their knowledge of caring actions based on their observations during clinical experiences and classroom instruction. In addition, the students experienced anxiety during their learning experience and worry over making mistakes; they acknowledged that they were given information about making a mistake but no strategies to increase their confidence with medication administration (Vaismoradi et al., 2014). Additionally, students perceived the classroom environment as ideal for learning, which was very different from clinical settings (Vaismordi et al., 2014).

Additionally, fourth year students addressed the healthcare's staffing pattern and stated that they were taught to administer medications to only one or two patients (Vaismordi et al., 2014). From the study, the students recognized areas that were potentially leaving them open to making a medication error.

Nursing programs are expected to teach their students methods to enhance patient health and ensure patient safety in the U.S., which includes medication administration (Bush, Hueckel, Robinson, Seelinger & Molloy, 2015. However, most student nurses have limited or no experience with the many situations they will encounter concerning patient safety and medication administration (Bush et al., 2015). Medication safety is a skill taught in undergraduate programs. Student nurses learn to administer medications; when placed in clinical situations where they must administer the medication, they carry out the skill with their instructor or preceptor. Additionally, student nurses are expected to follow the nine rights of medication administration: right patient, right drug, right route, right time, right dose, right documentation, right action, right form, and right response (Elliott & Liu, 2010).

In the U.S. our complex health care environment demands multiple responsibilities from practicing nurses within the system. As a result, inadequate medication administration training creates a situation where errors are likely to occur (Choo, Hutchinson, & Bucknall, 2010). Choo et al. (2010) explored professional nurses' role in medication administration and the challenges they face practicing safe medication management. The authors found several factors that contribute to medication errors. These include work environment, lighting, interruptions, poor communication, and

increased workload (Choo et al., 2010). Medication errors are one of the most common errors in the U.S. health care system today (Choo et al., 2010). While the financial costs of these mistakes can be enormous, permanent disability or death of patients represents a more costly and otherwise problematic outcome. I developed this study to address this situation for patients and for student nurse making these potential errors.

Rationale

According to The Joint Commission (2016), medication errors are of a cruical concern to health care organizations. Nurses must create a culture of patient safety with medication administration. Patient medication administration is a nursing domain which requires strict nursing attention. Protocols and steps should be taken to ensure patient safety when delivering a patient's medication regimen.

In this study, I sought to identify actual or potential gaps in practice protocols or in the simulation lab at my study site which prepares students to learn medication administration and management. I wanted to examine the challenges experienced by nursing students in ensuring patient safety. Based on my findings, I recommended development of a comprehensive hybrid pharmacology course for nursing students that, I believe, will improve nursing students' medication administration and pharmacology knowledge, leading to positive outcomes for patients and the local community.

Medication administration among nurses and student nurses is an intervention which carries a high risk of error (Bush et al., 2015). With an increase in the number of drugs available, nurses may experience unfamiliarity with certain medications, inadequacies in math calculations, stressors in the everyday environment, and lack of

pertinent information about the patient and potential equipment problems. These are a few of the issues nurses face when administering medications. My data include students' perceptions of the challenges involved in giving medications that could lead to errors. I also gauged their perceptions of advanced procedures for maintaining patient safety.

This study may provide nursing faculty with insights regarding upper-level nursing students' educational experience regarding medication administration. Such knowledge may assist the faculty in developing an enhanced pedagogy of instruction. Faculty may be better able develop teaching strategies that promote greater student understanding of medication administration. By examining the nursing student perspective, the data may allow faculty to improve procedures and teaching methods used in the medication simulation lab and the pharmacology classroom. Identification and analysis of gaps may provide faculty with various options to adjust curriculum content and modify the medication administration remediation portions of the curriculum before students graduate and enter into nursing practice. Moreover, understanding similarities and differences in the nursing student perspective of medication administration education may promote clearer insight into issues which may affect the nursing program curriculum and may be the catalyst for significant changes in overall medication administration curricula.

Definition of Terms

The following definitions were used in the study:

Environment: The clinical learning setting for clinical skill development and where students learn about the professional practice. (Henderson, Cooke, Creedy, &

Walker, 2012).

Medication administration: A dynamic, interdisciplinary and complex process involving competencies, knowledge, and critical reflection (Orbaek, Gaard, Fabricius, Lefevre, & Moller, 2015). The process includes prescribing, dispensing, administering, and monitoring (Harding & Petrick, 2008). According to Reid-Searl et al. (2010e) medication administration is a skill that should rooted in undergraduate nursing education.

Medication errors: "Any preventable event related to healthcare products, professional practice, and procedures including prescribing, order communication; compounding; dispensing; distribution; administration; education; monitoring that may lead to patient harm" (Vaismoradi, 2014, p. 434).

Supervision: Direct supervision over nursing students during medication administration by a registered nurse, preceptor, or instructor (Reid-Searl & Happell, 2010e).

Significance of the Study

The significance of the problem relates to patient safety and how a lack of knowledge and skill with nursing students' medication administration can potentially present injury. In nursing, safe administration of medication is expected of all nurses and is a skill learned in undergraduate nursing education programs. Nurses are responsible for the safety of their patients as well as the quality of care they provide to their patients at all times. The Institute of Medicine centered its work on recognizing conceptual components of quality, which include safe, effective, patient centered, timely, efficient, and equitable

care (National Quality Forum, 2004). Mitchell (2008) referred to patient safety as the cornerstone of quality health care. Administering medications without the knowledge and skill of medication administration carries a significant risk of error and injury. Injury can occur to patients as a result of a medication error, and the results could be fatal (Elliott & Liu, 2010). Giving medication to a patient is a complex procedure that requires multiple aspects: an understanding of dosage calculation, pharmacology, and routes for administering various medications; knowledge of the appropriate dispensing method; and documentation of the drug administration and adverse drug reactions (Choo et al., 2010). It is essential that nursing students have the knowledge and skill for medication administration before entering into a preceptor experience and eventually into practice. Testing the nursing students understanding of medication administration, patient safety, and patient harm from a medication error can help to reduce medication errors and ensure safety to patients (Choo et al., 2010).

Research Questions

Students' lack of competencies in medication administration indicated a lack of knowledge and understanding of medication management. A literature review was conducted to seek evidence-based research involving nursing students and their understanding of medication management, errors, and patient harm. Five studies using a qualitative method and interviewing techniques provided the foundation for developing the guiding questions in this study. The five studies conducted inquired about nursing students' understanding of their role and responsibility, knowledge and skill in medication administration, experience and feelings when preparing and administering

medications in clinical and simulation, view of their preceptor's or faculty member supervisory role with medication administration, patient safety and consequences, and view of differences in their student experience in giving medications and what is seen in reality (Kajander-Unkuri et al., 2014; Luhanga et al., 2008; Smeuler et al., 2014; Reid-Searl et al., 2010a; Vaismoradi et al., 2012; Valdez et al., 2013).

I developed five research questions to examine upper-level nursing students' medication administration experiences in simulation and clinical settings and their perceptions of their role in providing safe care when preparing and giving medications in these settings. The questions are, as follows:

RQ1. What are the perceptions of student nurses regarding the required knowledge and skills needed for safe medication administration?

RQ2. What is the lived experience of student nurses regarding preparing and administering medication to patients in clinical and simulation settings?

RQ3. What are student nurses' expectations regarding the role of faculty or preceptors during medication administration?

RQ4. What are the perceptions and understandings of student nurses regarding ensuring patient safety as students and as professional nurses?

Review of the Literature

Preventing medication errors is an essential component to creating a culture of safety in healthcare. Creating a culture of safety begins with the first classroom experience with the student being instructed in all aspects of safe nursing care. This information is reinforced and accentuated throughout their nursing education and

continues as a priority throughout their career. Medication errors can account for harm and increase cost to the patient; these errors are a subset of medical errors to the patient (Bush et al., 2015). Medication errors occur at a rate of 1 per day for hospitalized patients, and annually 1.5 million medication events occur (Bush et al., 2015). A concern among nursing faculty and other healthcare professionals relate to mistakes made that are associated with patient safety, specifically medication errors. There are steps in the administration of medications that include prescribing, transcription, administration, and monitoring (Bush et al., 2015). Bush et al., (2015) mentions the administration step as the one that is associated with medication errors (Bush et al., 2015). The administration step is the one that is associated with a higher number of medication errors (Bush et al., 2015). A preceptor/faculty member in the clinical setting supervises the student nurse during this administration step. This step of support allows the student the opportunity to question any part of the administration process. Reid-Searl, Moxham and Happell (2010a) described medication errors occurring among nursing students when the student did not have supervisory support. Ensuring that the students have direct supervisory support when administering medications is an urgent priority (Reid-Searl, et al., 2010a). A proportion of medication errors occurs with the administration and involves nurses (Reid-Searl, et al., 2010a). Nursing students learn the skills and knowledge crucial to administering medications; they are provided the opportunity to practice the skill in a laboratory or simulation setting before administering medications to patients in the clinical setting. Reid-Searl, et al., (2010a) identified a lack of supervision as a consequence of medication errors among a group so senior nursing students (Reid-Searl,

et al., 2010a). A student reported, " I wasn't thinking, I grabbed the wrong pre-dispensed medications out of the drawer of somebody who had a similar name, and gave them to the wrong person… RN wasn't with me" (as cited in Reid-Searl, et al., 2010a, p. 228). A population of patients who experience medication errors more frequently is the pediatric inpatient population; in fact, they are three times higher with the pediatric population (Gonzales, 2010). The hospitalized pediatric population is more susceptible to complications resulting from medication errors (Lin et al., 2014). Intravenous administrations of medications also have a higher risk of error (Westbrook, Rob, Woods, & Parry, 2011). Etchells, Juurlink, and Levinson (2008) described a study of 118 health care professionals who prepared 464 morphine infusions during a simulated experience. The findings showed that 34.7% of the infusions were different from the intended results by 10% (Etchells et al., 2008). Vaismoradi, Jordan, Yurunen, & Bondas (2014) study utilizing a qualitative descriptive methodology of 24 nursing students perception of the causes of medication errors suggest that curriculum development and revision needs to occur (Vaismoradi et al., 2014). Students agreed that the pharmacology course and delivery of content provided the theoretical component, however, the practical component and cautionary measures for the medications were not mentioned in detail (Vaismoradi et al., 2014). The students acknowledged that they were worried about making a mistake and had been warned about making an error. The students agreed that they needed to learn caring actions related to the medication. They felt that medication management included caring actions, knowing adverse effects, and teaching components for the patient (Vaismoradi et al., 2014).

Nazarko (2015) cites that older people are vulnerable to adverse effects of medications, for example knowing about insulin, antiplatelet and anticoagulant medications (Nazarko, 2015). Classroom learning and clinical application are closely tied to the success of the student learning medication administration and medication management. Knowing the medications that have a high risk for error can potentially be brought into the classroom experience. A student suggested that the faculty member teaching in the classroom move into clinical with the students as they administer medications (Vaismoradi et al., 2014). The ability to safely administer medications involves not only the student learning but also the registered nurse in practice (Choo et al., 2010). Medication administration is a complicated process which requires the nurse to have the skill and knowledge to assess the appropriateness of the medication, action, interaction, potential adverse effect, drug dose, route, pharmacokinetics and patient response to the medication (Choo et al., 2010). High-reliability healthcare institutions are implementing measures such as teamwork and training to improve quality care and prevent errors (Baker, Day, & Salas, 2006).

After reviewing current literature, it is documented in the literature that student nurses' view their faculty and preceptors role as a supportive supervisory role (Campbell, 2013; Reid-Searl et al., 2008; Reid-Searl et al., 2010). The literature also supports that the learning environment for the student is one that fosters quality and safety with medication administration, and is free of worry and stress. For the purpose of this study, The National Coordinating Council defines medication errors for Medication Error Reporting and Prevention (NCCMERP, 2007). The definition of a medication error is

"any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in control of the health care professional, patient, or consumer. Such events may be related to professional practice, healthcare products, procedures, and systems, including prescribing; order communication; product labeling, packing, and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use" (NCCMERP, 2016, p. 1).

For this study after a review of current literature relating to medication errors and nursing students, two areas of concern are addressed: faculty/preceptor supervisory support during the medication administration process in the clinical setting and the learning environment. Also, a review of the current literature found minimal studies relating to students' perception of the causes of medication errors.

Theoretical Framework: Benner's Novice to Expert

The conceptual framework utilized for this study is based on Benner's nursing theory of Novice to Expert. This theory proposes that for a student to acquire and develop a skill, the student moves through five levels of learning acquisition: novice, advanced, beginner, competent, and expert (Benner, 1984; Gobet & Chassy, 2008). Student nurses have limited to no experience with the many situations they encounter with patient safety, especially medication administration. Student nurses are taught the "five rights" to administer medications; however, it is not until they are in a clinical setting or simulation experience that they can apply the knowledge. This process represents the novice stage of Benner's theory. The novice stage for the nursing student typically begins during the freshman or sophomore level with the introduction to pharmacology and medication

administration in the classroom and laboratory setting. This initial knowledge acquisition is then applied in a clinical or simulation setting. During the novice stage, students learn the situational facts about a skill and recall is based on these facts. Novice nursing students do not have the experiential learning to base any approach to the clinical situation. Furthermore, beginning nursing students are usually given only one to two patients who are medically stable. The advanced beginner, a further developed beginner, can make an assessment and implement an action, and this occurs with repeated medication administration experiences. For example, a patient is given a pain medication; the advanced beginner would know to assess the pain level before administering the medication and then reassess again thirty minutes later. This student can connect application to the skill after repeated experiences. The third stage of Benner's theory is the competent stage, which develops with further complex experiences and continues to improve after graduation. At this point, the practicing professional nurse has been administering medications for more than two years. According to Lyneham, Parkinson, and Denholm (2008), during the competent stage, the nurse is "has the confidence and the ability to cope with a wide range of situations, but still lacks speed and flexibility" (p. 381.) The fourth stage, proficiency, develops over time and with extensive experience. The practicing nurse can view the situations globally, plan the care for the patients, and establish goals and make patient care decisions by prioritizing. The experienced nurse can react to emergent situations and make rapid decisions to intervene or prevent an adverse situation from occurring. Lyneham et al. (2008) describes the expert stage as one in which the "nurse is not consciously aware of their practice because it has become a

part of their being" (p. 381). In the expert stage, the professional nurse responds fluidly and can intuitively recognize a pending situation and critically react to manage the development of an adverse event. This stage comes from years of experience and expertise in the professional role.

Benner's theory (1984) is the foundational theoretical framework for this study as it relates to the student nurse as he/she progresses from novice through advanced beginner during their educational program. The student develops the knowledge, skills, and proficiency to administer medications and make decisions based on their patient's findings. Once students graduate and begin to practice, the last two stages of proficiency and expert develop as they manage situations and critically make decisions related to patient care. For this study, two concepts were explored: faculty/ preceptor supervision with medication administration in the clinical setting, and the learning environment one of quality and safety, but also one of anxiety and stress all potentially leading to nursing students making a medication error.

Supervision in the clinical setting:

One component of the educational process is to ensure that the nursing students have the knowledge and skills to administer medications safely. Nursing students acquire their knowledge with theory and are given the opportunity to practice the skills in a laboratory or simulation setting. As students transition into the clinical setting, they are provided the opportunity to administer medication to real patients with preceptor/ supervisory support. Ensuring patient safety is critical when nursing students administer medications and direct supervisory support is a significant priority for undergraduate

nursing education. Students typically view their preceptor or faculty member as someone who is in a supervisory role, specifically supervising them during medication administration. Searl, Moxham, Walker and Happell (2008d), using a grounded theory method to describe the experiences of 28 final year undergraduate nursing students from Queensland Australia regarding administering medications in the clinical setting. The researchers evaluated the importance of supervision among the nursing students, which revealed a shifting level of supervision to include "being with" the student during the medication administration process, "being over" the student (as in monitoring over the students' shoulders), "being near" or within visual range of the student, and "being absent" meaning no supervision (as cited in Reid-Searl et al., 2008d). Student nurses responded to preceptors "being with" them as they administered medication as a positive event. The students informed the researcher that they felt that the supervising nurse took the time to conduct the appropriate medication checks (the five rights) with the student. One of the students reported, "the RN who is standing there with you...patiently, smile on her face… you feel comfortable to do it, take your time and do it right" (as cited in Reid-Searl et al., 2008d, p. 2753). Some nursing students also reported that they did not receive direct and appropriate supervision when administering the medications. Additionally, a student reported giving the wrong medication to a patient who had a similar name. The professional nurse in charge of supervising the student was not present at the time the medication was administered. Another student in the same study reported distraction as another contributing factor for a medication error. The student gave the wrong medication because the name of the patient was not on the bed as it should have been.

Fortunately, there were no negative effects on the patient. Student participants in the study described their feelings during medication administration as ones of worry and shock. Another student reported that with supervision during medication administration an error was avoided. The student reported, "I got a bit tired and … made an error, but have the RN beside us… I was giving this fellow antibiotics…but he had to have a heparin flush and I went and put the heparin flush in the burette and had the antibiotic in my hand" (as cited in Reid-Searl et al., 2008d, p. 2755). When the RN intervened, the student realized the error and was able to start the medication process over without harm to the patient (Reid-Searl et al., 2008d). Medication errors were more likely to occur when students were without supervision. The potential for a medication error is a threat to the patient's safety. Health care institutions have a responsibility to protect the patient's safety. Medication administration is part of patient safety and nursing students learning to give medications for the very first time are subject to making an error. Appropriate supervision of the student's clinical instructor or other supervisory support is crucial for the students during medication administration (Reid-Searl et al., 2008d.) In a report on a grounded theory methodology study of nursing students and medication administration, supervision emerged again as a central category (Reid-Searl, Moxham, Walker, & Happell, 2010b). From the study, student nurses acknowledged the need for supervision of medication administration. The students knew that they were not to administer any medications without supervision (Reid-Searl, et al., 2010b). One student spoke of discomfort when expected to administer medications alone. The student "felt really unsure about giving medication without supervision" (Reid-Searl, et al., 2010b).

The impact of giving the right medication to a patient had significant impact on the students, " I shake when I give out medications, I'm that scared…petrified (as cited in Reid-Searl, et al., 2010b). There are over "8000 medications commonly available for administration including 17,000 different medication brand names" (as cited in Hewitt, Tower, & Latimer, 2015). In the acute healthcare setting, the administration of medications consumes a large proportion of the nurse's time. Approximately 40% of the time the nurse is on clinical it is spent with medication administration (Hewitt, Tower, & Latimer, 2015). According to Meechan, Jones, and Valler-Jones (2011), the complexity of medication administration and time needed for the task raises concern about undergraduate curricula sufficiently preparing students for the responsibility (Meechan et. al., 2011).

An exploratory qualitative study conducted to explore nurses' experiences and perspectives on safe medication administration revealed that nurses' feel that they are in a pivotal role and are responsible for the safety of the patient, which includes safely preparing and administering medications (Smeuler et al., 2014). A study of 20 nurses in an academic medical center in Amsterdam revealed that nurses felt strongly about their responsibility to the patient. The nurses reported that, "you just have to look carefully, you always have to look carefully on the medication order, what it says, what is prescribed, what dosage for which patient " "concentration is very important… so that you can work uninterrupted," "the biggest fear is to give something that kills someone" (as cited in Smeuler et al., 2014, p. 278). The study revealed that nurses' ability to work safely with medication administration was influenced by their awareness of the

consequences of a medication error, and the circumstances in which they work (Smeulers et al., 2014). The circumstances or environment in which the nurses worked was perceived as always being hurried. This pace contributed to a lack of concentration. The work environment can impact patient safety, distractions and feeling rushed leads to mistakes being made. Nurses are held accountable for continuous care after the medication is delivered to the patient. Assessment, evaluation and decision-making are viewed as expected skills of all nurses as they coordinate patient care for the shift and continuously assess patient (or groups of patients) status. Another nurse in this study reported that, "sometimes patients have low blood pressure and we still have the prescription for medications to lower the blood pressure. It is our task that we should see that a patient has a low blood pressure, should we give the blood pressure reducer. But sometimes it does go wrong, and a patient ends up in ICU because a nurse didn't see that" (Smeulers et al., 2014, p. 279). Nurses need to use clinical reasoning when giving medications, but they also must be prepared with the knowledge and skills to perform the role. (Smeulers et al., 2014).

Medication errors pose a serious threat to society according and educating nurses in their nursing programs about quality and safety was an initiative set forth by the Quality and Safety Education for Nurses panel (QSEN) to improve patient outcomes and reduce medical errors (Campbell, 2013). The responsibility and accountability of the professional nurse involves the administration of medications to their patients. Nursing plays a significant role in the administration of medications to patients in various health-related environments. Gu (2014) mentioned the impact of medication errors as

multidimensional, “causing the patient discomfort disrupts the facility’s drug delivery and strains the patient and provider relationship” (as cited in Gu, 2014, p. 307). A frequent cause of patients experiencing an adverse medication reaction results from a medication error (Gu, 2014). Prevention of medication errors is a priority of all healthcare workers and health related institutions. Sherwood (2011) found from two focus groups with senior nursing students and new graduates, that the students and graduate nurses know and can master the five rights of medication administration but lack the language and safety concepts related to safe medication administration. The principles of medication administration include the five rights: right patient, right medication, right route, right time, and right dose (Alexis & Caldwell, 2013). However, nurses are expected to administer a medication using the five rights and have an understanding of the pharmacokinetics, pharmacotherapeutics and pharmacodynamics of the medications they administer (Alexis & Caldwell, 2013). Reid-Searl, Moxham, Walker, & Happell, (2010c) presents ‘being absent’ during supervision as being out of the visual range of the student when the student administers the medication to a patient (Reid-Searl, Moxham, Walker, & Happell, 2010c). Students addressed attitudes of the registered nurse reflecting a positive or negative experience and had an effect on wanting a student with them. A student described the positive attitude as one that welcomes the idea of a student and one that was less challenging. The negative experience was when the student was not welcome and every medication administration episode was problematic (Reid-Searl, et al., 2010c). Often the students felt that because they were upper-level then they were expected to administer medications without supervision

(Reid-Searl, et al., 2010c). In addition, the students felt that the university-trained registered nurses were more responsible and aware of the legal requirements and policies surrounding students administering medications than hospital-based program nurses. The environment was often busy and there was limited time for the nurses to supervise the student. The students felt that they were a burden to the registered nurse when the nurse was so busy and they felt guilty to ask for supervision (Reid-Searl, et al., 2010c). Students need quality supervision to achieve the quality learning experience with safe medication administration (Reid-Searl, et al., 2010c). In addition to supervision the environment is crucial for learning to take place. The literature supports that the learning environment is one that supports quality and safety with medication administration, and is free of worry and stress.

Health care is a complex environment, the nurse within the system must manage multiple responsibilities and inadequate medication administration instruction creates a situation for errors to likely occur (Choo et al., 2010). A review of the literature by Choo, et al., (2010) explored the nurse's role in medication administration and the challenges the nurse faces in regard to safe practice with medication management. The researchers reported that factors such as the working environment, lighting, interruptions, poor communication, increase workload contribute, and fatigue and stress lead to medication errors (Choo, et al., 2010). Nurses must concentrate when administering medications; any distraction can contribute to an error being made (Choo, et al., 2010). An important part of the nursing care a patient receives when admitted to the hospital is to be assured that he/she receives safe and effective medication administration. Nurses must be competent

in skill and have the knowledge to administer medication. To be competent, nurses must be educated with the pharmacology and be to integrate their knowledge into clinical aspect of medication administration (Choo, et al., 2010). The safety of medication administration applies to undergraduate students as wells as the registered nurse. "Safe administration of medication is an important skill that should be clearly embedded in the education of undergraduate students" (as cited in Reid-Searl & Happell, 2012e). Student nurses are expected to follow the rights of medication administration, (Elliott & Liu, 2010). Elliott and Liu (2010) found that a common error in medication administration is administering the medication to the wrong patient. Even the simplest and most common medication error can cause harm if given to the wrong patient. For example, the patient may receive the wrong medication, and it may be a drug, which causes an allergic reaction in the patient that can be as minor as a brief rash to anaphylaxis resulting in death. Handling medications correctly makes a significant impact on patient improvement, but on the contrary, incorrect handling can lead to patient harm (Alexis & Caldwell, 2013). Student nurses must also be aware of instances in which a medication order is written, the medication must be for the patient it is written for. A common error is administering the wrong medication to a patient (Elliott & Liu, 2010). Ensuring safety and quality nursing care to patients is a nursing responsibility, medication administration is a task required of nurses and one that carries the greatest risk (Elliott & Liu, 2010). Since most therapeutic interventions involve medication use, medication safety is crucial (Sequeira, 2015). Sherwood (2011) examined health care based upon quality and safety. Sherwood (2011) described the work of the Quality and Safety Education for Nurses

(QSEN) project and described two focus groups. The two groups were comprised of senior nursing students and newly graduate students. The results revealed that the students believe they did not learn the content for some of the knowledge, skills and attitudes recognized by the QSEN panel as competencies for pre-licensure: " for example, while students demonstrated, mastery of the five rights of medication administration they lacked the language and common concepts derived from safety science or quality improvement strategies applied to medication administration safety" (as cited in Sherwood, 2011, p. 234). Since giving the wrong dosage of a medication and omitting a drug are the common types of medication errors made by students, nursing students need time in a safe environment to practice their skills including medication administration. The students should also be introduced to the knowledge, skills and attitudes set forth by the Quality and Safety Education for Nurses (QSEN) project to eliminate any gaps from theory to practice (Campbell, 2013). Campbell, (2013) asserts that the QSEN initiative indicated that all pre-licensure nursing education programs incorporate quality and safety competencies. The aim of incorporating QSEN competencies is to improve patient outcomes. Sherwood (2011) indicated that graduate nurses have the knowledge about medication administration but lack the competency to apply the concepts to safe practice.

The learning environment, which is clinical setting, offers students an opportunity to apply medication administration principles. Students in a study by Vaismoradi et al., (2014) report that their learning experience was one of worry and anxiety (Vaismoradi et al., 2014). Stress is known to have an effect on quality and safety. Students have a sense of fear that they are going to make a mistake when giving medications (Vaismoradi et al.,

2014). Houghton, Casey, Shaw, and Murphy (2012), performed a multiple case study and described experiences of the real world of practice and implementing skills of nursing students. The researcher found that implementing skills was more challenging than expected when put into an actual practice and such factors as stress and anxiety can impact their practice. Even the first experience in the clinical setting can provoke stress and anxiety. Sources of stress include reality shock, fear of harming the patient, making a mistake, and incompetent. Medication administration, understanding the effects of medications, and assessing the patient about the medication effects are key roles for the student to learn. A clinical staff member in the study reported "there was the potential for 'reality shock' for students dealing with 'real-life' patients as opposed to practicing or learning skills in clinical simulation learning" (Houghton et al., 2012, p. 1964). Additionally, in a study utilizing a Q methodology to describe third year nursing students' view of safety in a clinical setting, safety was recognized as an essential role for nursing students (Montgomery, Killiam, Mossey, and Heerschap, 2014). Montgomery et al. (2014) also mention that threats (i.e., lack of medication competencies) and unmanaged stress may impact safety. In the educational process of the nursing student, it is critical to ensure that the students' learn patient safety and protection from harm (Montgomery et al., 2014).

Since the clinical setting is where the major part of a nursing student's learning and application of learning takes place, the perspective of the student regrading confidence is imperative to discover. The literature supports that nursing students experience a sense of stress and feeling of "drifting between being worried and being

careful" (as cited in Vaismoradi et al., 2014, p.436). Many nursing programs have limited opportunity for nursing students to administer medications in a clinical experience and replace the opportunity with a simulation medication administration experience. An evaluative study by O'Neill and Prion (2013) reported calculation concerns with pediatric drugs and miscalculations (O'Neill & Prion, 2013). Also, reported in the study were incorrect infusion rates with intravenous medications leading to medication errors from lack of understanding how to correct set up the problem (O'Neill & Prion, 2013). Simulation, as a teaching strategy for the student, allows the student to clinically reason the situation plus gives the student confidence (O'Neill & Prion, 2013). According to Betts (2014), limited experience in the clinical setting "leads to limited medication knowledge and lack of experience" (Betts, 2014). Simonsen, Daehlin, Johansson, and Farup (2014) note that nurses experience insufficient medication knowledge; particularly in drug dose calculations, but also in management and pharmacology (Simonsen, et al., 2014). Orbaek, Fabricius, Lefevre, and Moller (2014) interviewed 16 pre-graduate nursing students in 2 focus group interviews using a systematic horizontal phenomenological-hermeneutic template methodology. The students were fearful of committing serious medication errors. From the nursing students' perspective, experienced nurses deviate from existing guidelines, leaving them feeling isolated in practical learning situations (Orbaek et al., 2014). Smeulers et al., (2014) reports that a safe environment for medication administration requires a learning and practice climate that develops professional skills and knowledge (Smeulers et al., 2014). Nurses ability to work safely contributes to the circumstances in which they work

(Smeulers et al., 2014). According to Aggar and Dawson (2014), the learning environment has an influence on the student's approach to learning (Aggar & Dawson, 2014). The process for assessing student's competency varies among institutions (Levett-Jones et al., 2011). Positive support and lack of support in the clinical setting have been identified as important components transitioning from a student nurse to practice (Morrel & Ridgway, 2014). According to Morrel and Ridgeway (2014), the clinical setting is a source of stress, and the student should be assisted in developing coping skills for dealing with stress in the training period once they begin to practice (Morrel & Ridgway, 2014). A key finding from the Morrel and Ridgeway (2014) research was the fact that students revealed the need of support in the clinical setting and encouragement from their mentors. In addition, from the study, the students experience a high level of stress especially on their final practice placement, but also specific to documentation opportunity and lack of university support and preparation for qualification (Morrel & Ridgeway, 2014).

The information presented and reviewed in this dissertation was obtained using digital databases, which included Medical Literature Analysis and Retrieval System Online (MEDLINE), Google Scholar, Elton B. Stevens Company (EBSCO), Cumulative Index to Nursing and Allied Health Literature (CINHL), EBSCO Host Interface search, Educational Resources Information Center (ERIC). The search incorporated the disciplines of Health and Medicine and Nursing and Allied Health and utilizing full- text search of peer reviewed journals and texts for the following Boolean terms and phrases listed in the default fields for both separate and combined searches. The key terms searched in this literature review included: medication errors, student nurses, and student

nurses' perception of medication errors, medication administration, and drug and dosage calculation, nursing support for the student nurse. The search resulted in returns for the terms mentioned above. However, there was a paucity of the literature for student nurses' experiences with administering medications.

Implications

The study provides an understanding of the perspectives of the nursing students' experience with medication administration and safety in a simulation and clinical setting. These data will provide the faculty and preceptors with an understanding of how to improve medication administration education to ensure that the student is learning patient safety. When nursing faculty understands factors related to the student experience, strategies can be implemented to improve the support offered during the clinical experience as well as in simulation. The faculty can also address challenges relating to support from the preceptor before the preceptor experiences. By interviewing the nursing students and gathering information about the environment, the nursing program and faculty can implement methods to help the students gain confidence in their ability to perform a skill and decrease the anxiety about committing a medication error. The faculty instructors teaching pharmacology and medication administration can ascertain any knowledge and skills deficits before transitioning the student to the clinical setting. Once knowledge and skills deficits are identified, specific teaching strategies can then be incorporated into the laboratory setting for medication administration. Teaching strategies can include more critical thinking activities to include the disease state and specific medications. Butterworth, Jones, and Jordan (2011) suggest that skills can be taught and

developed preparing the next generation of nurses. Simulation opportunities can also be included specifically pediatric dosage calculations and IV medication administration. The knowledge gleaned from this study better informs the faculty to tailor opportunities for the student to better learn pharmacology and medication administration in the classroom, simulation, and clinical.

Imperative to this research study is also the goal for a positive social change within the nursing education environment that includes the development or enhancement of a pharmacology course that will empower faculty to enhance the students' knowledge, skill and confidence in medication administration and prevention of errors as they relate to patient harm. The investigation of the nursing students' experience with giving medications, their understanding of novice to proficiency in the administration of medications, and their relationship between their training and readiness demonstrates readiness to transition into practice as a graduate nurse. Furthermore, improving the quality of life for the patient by decreasing potential errors with medication generates a more positive social change. Unique to this research, the life of the patient can be significantly improved by the reduction of medication errors in clinical interactions. To achieve this goal, the study has been specifically designed to target upper-level nursing students' experiences with giving medications both in the clinical and simulation setting, their understanding of their role in the administration of medications to provide safety, their relationship between their training and view of their preceptor and faculty instructor role, and their understanding of safe medication administration and ensuring patient safety as a student and after graduation.

Summary

The purpose of this qualitative study was to examine upper-level nursing students' experience with giving medications both in the clinical and simulation setting, their understanding of their role in the administration of medications to provide safety, their relationship between their training and view of their preceptor and faculty's role, and their understanding of safe medication administration and ensuring patient safety as a student and after graduation. The findings of this study add to the body of knowledge in reducing medication errors among nursing students and improve patient safety. Understanding students view, specifically as they relate to medication errors,-better guides nursing educators to develop educational needs for future medication administration. In addition, the information adds to the body of knowledge globally and future nursing curricula.

Section 2: The Methodology

Introduction

A qualitative descriptive phenomenological approach was used to explore upper-level nursing students' lived experiences medication administration. This approach is an appropriate method, I believe, for developing a research-based understanding of the upper-level nursing student experience of giving medications both in a clinical and simulation setting. This study explores students' understanding of their role in the administration of medications and patient safety, perceptions of faculty and preceptor roles, and understanding of safe medication administration.

This chapter includes a discussion of my research instruments, sample selection methods, setting, and data collection procedures. Furthermore, strategies were taken to ensure ethical integrity and trustworthiness of data as well as the confidentiality of student responses. I summarize those strategies in this chapter and also explain my data analysis techniques.

Rationale

The strength of a qualitative methodology is that the researcher can better understand the meanings of the participants (Creswell, 2008). The advantage of using qualitative methods is the rich, detailed data from the participants' perspectives. According to Bogdan & Biklen, (2007), a qualitative approach is considered an umbrella term for characteristics such as naturalistic, descriptive, inductive process. Williams (2007) approaches the term qualitative as occuring in its natural setting providing a comprehensive description of phenomena. The conclusions may be broad, raising an

awareness of an experience or allowing for more understanding of an experience (Ingham-Bromfield, 2014). By using a qualitative method of research, the social phenomenon explored and examined is from the viewpoint and understanding of the participants. The researcher develops a level detail from the narrative of the participant's experience. Williams (2007) describes a qualitative research method as one that is purposeful for describing, explaining, and interpreting the data collected. The qualitative research builds on the premises of inductive reasoning and posing questions that the researcher explains.

The inductive method of inquiry used by qualitative researchers, as with a qualitative study, allows for multiple perspectives to unfold. In this study, multiple viewpoints unfold from the understanding of the student participants' specific experiences with medications administered. The experiences come the participants' role in the administration of medications in clinical and simulation settings, relationships with their preceptor and perceived faculty role, and the understanding of the participants' regarding patient safety.

Key characteristics of qualitative research include the following:

- The study usually occurs in a naturalistic setting (Lodico et al. 2010, p. 264).
- To understand the context, the research uses questions to explore, interpret, or understand (Lodico et al. 2010, p. 264).
- There is a nonrandom selection of participants (Lodico et al. 2010, p. 264).
- The researcher is in close context of the participants through observations or interview (Lodico et al. 2010, p. 264).

- An interactive role may be taken by the researcher (Lodico et al. 2010, p. 264).
- Data collection allows for the hypothesis to be formed and new data will be collected and analyzed throughout the study (Lodico et al. 2010, p. 264).
- Data are reported in a narrative form (Lodico et al. 2010, p. 264).

In this study, I interviewed students to gain rich, descriptive information. Also, I gained knowledge related to safe medication administration, knowledge acquired in the classroom, and the process initiated in a lab setting to prevent a medication error.

In a study by Vaisoradi et al. (2014) respondents felt that their education program was leaving them vulnerable to drug errors. Sherwood (2011) suggest that health care professionals do not come prepared with the principles of pharmacology that are needed when entering professional practice. Orbaek, Gaard, Fabricius, Lefevre, and Moller (2014) suggest that student nurses receive more supervised training in medication administration in clinical settings. Simonsen et al., (2014) suggested that more emphasis be placed on educating about the introduction to medication administration in a clinical setting. Warholak, Queiruga, Roush, and Phan (2011) reported that 2% of patients experience a medication error among all hospital admissions. It is important that nursing students receive adequate medication administration training beginning in the classroom and continuing in the clinical setting whether it be the acute care setting or in a simulated experience.

A potential change or redirection of a pharmacology course will be initiated from foundational information retrieved from the literature and student participants' views on

medication administration. Understanding the responses of the student participants' to the guiding questions of the study is important to understanding why potential medication errors occur. Based on the findings medication errors with nursing students may be prevented ensuring patient safety.

I decided on a phenomenological method for this study based on my desire to study medication errors by upper-level nursing students. This methodology allowed me to obtain descriptive data and examine various patterns, categories, and themes from the student participant responses. A quantitative approach was not considered for this study because I want to learn about the student participants' lived experiences regarding medication errors and their prevention. No experimentation will be conducted. This study allowed for close investigation of the problems and difficulties associated with medication administration among upper-level student nurses. Merriam (2009) describes qualitative research as a way of understanding, and a description of peoples lives; this type of research describes how people interpret what they experience.

The research questions, which were derived from the literature review, are aligned with the study methodology. Research questions in qualitative research examine topics in complexity and in content (Bogdan & Biklen, 2007). Errors in patient care continue to exist despite a more than 16 yearlong effort to improve safety (Chassin & Loeb, 2013). In 1999, IOM acknowledged that the number of patients suffering avoidable harm was between 4% -16% and these numbers have not significantly improved since that time (Bion, Abrusci, & Hibbert, 2010). Medication errors and patient safety are complex

issues that can be examined more thoroughly with qualitative methodology, and the research questions will facilitate the discovery of this information.

Qualitative Research Design and Approach

A qualitative phenomenology study was selected for this study to explore the lived experience of student nurses with medication administration and medication errors and to answer the following questions:

- What is the perception of the student nurse regarding the required knowledge and skills needed for safe medication administration?
- What is the lived experience of the student nurse regarding preparing and administering medication to a patient in the clinical and simulation setting?
- What is the expectation by the student nurse of the role of the faculty/preceptor during medication administration?
- What is the perception and understanding of the student nurse regarding ensuring patient safety as a student and as a professional nurse?

The lived experience of the student nurse is important to improve the body of nursing knowledge in reducing medication errors and improves patient safety. Understanding the lived experience of the student, specifically as it relates to medication errors, can better guide nursing educators to develop educational programs for future medication administration. In addition, discovering the student nurses' experiences lead to the development of a hybrid pharmacology and medication administration course.

The phenomenological approach seeks to understand the meaning of the lived experience of an individual regarding a specific experience. Qualitative inquiry is often

utilized in healthcare as it emphasizes perspectives and experiences of the individual (Todres, Galvin, & Holloway, 2009). Nursing studies often use qualitative research as it links nursing knowledge to evidence-based practice (Miller, 2010). The qualitative design of descriptive phenomenology was used for this study. The participants described their perceptions of safe medication administration. The data collected in the form of descriptive words illustrated how the participants understood safe medication administration and medication errors. The descriptive data allowed the researcher to analyze the results describing the particular perceptions and views in a narrative form rather than numbers as in a quantitative study. This form of data allowed the researcher to determine specific needs for changing medication administration in the undergraduate education curriculum at the college.

Philosophers Edmund Husserl and Alfred Schultz were established philosophers who influenced phenomenological sociology (Bogdan & Biklen, 2007). Husserl was a prominent leader during the second phase of the phenomenological movement (Streubert & Carpenter, 2011). Phenomenologists stress the subjective aspects of people's behavior; they attempt to understand the meaning the person constructs about the experience (Bogdan & Biklen, 2007). By understanding the phenomenon, knowledge is gained and added to existing knowledge. Using the phenomenological approach gave the researcher the opportunity to explore practical details of the student experience with medication administration without any predetermined meaning of the experiences. Phenomenology research does not take for granted that the researcher knows what things mean to the participant (Bogdan & Biklen, 2007).

Researchers utilizing the phenomenological approach bracketing to identify any areas that the researcher takes for granted (Bogdan & Biklen, 2007). By bracketing the researcher remains neutral. The researcher puts aside any personnel beliefs and views about the phenomenon being studied. Husserl believed that the researcher must not have any personal biases, assumptions, presuppositions, values, and beliefs. He viewed the philosophy of seeing the phenomenon as clearly as possible and free of any preconceived ideas (Streubert & Carpenter, 2011). Bracketing must continue throughout the investigative process. The researcher was guided by the Husserl's descriptive phenomenology method. Husserl's method of descriptive phenomenology aimed to understand the human consciousness and experience by establishing an unbiased approached (Shosha, 2012). This phenomenological methodology allowed the researcher to describe the lived experience of nursing students who have had experience with medication administration. By using bracketing, what is known about the phenomenon will be kept aside from the participant's description (Shosha, 2012). Streubert et al. (2011) cite that phenomenology is the "lived experience that presents to the individual what is true or real in his or her life" (p. 74). Balls (2009) stated that nurse researchers are "drawn to phenomenological study as it considers the whole person and values their experience" (Ball, 2009, p. 30). This type of design best supported the inquiry of the student nurses' experience with medication administration and offered discovery and description of their experiences.

Participants

The setting of this study was in a mid-Atlantic collegiate nursing program. Institutional Review Board (IRB) approval for the study site and Walden University approval was obtained. The director of the nursing program offered additional permission to conduct the student and supported the need for this study.

Participants in the study were required to meet the following criteria:

- Currently enrolled in the nursing program as a senior level student.
- Twenty-one years of age or older.
- Voluntarily agreement to be interviewed and recorded; certified by the signing of a consent form.

A convience sampling was used to select research participants; the participants provided in-depth information needed for the qualitative research study (Creswell, 2012). Individuals in a qualitative study are selected based on their experience with a phenomenon and can describe the experince in which they particpated (Streubert et al., 2011). The participants for this study were upper-level nursing students from the college's baccalaureate nursing program. The students had received the same pharmacological and medication administration course instructions. The students were in their last semester of the program and had experience with medication administration. Therefore, the technique used was a homogenous sampling technique. Homogeneous sampling allows for more focused inquiry and this approach is often used by researchers to understand the participants well (Polit & Beck, 2008).

The number of participants for the study were seven upper-level nursing students. Studying a few individuals allows the researcher to provide a in-depth picture (Creswell,

2008). According to Polit and Beck (2008), phenomenologist lean toward a small sampling typically 10 or less (Polit & Beck, 2008). Access to the students was gained through the school email system. Forty-two senior students received an email with a letter of introduction and invitation to in the study and a timeline to respond. The first seven participants who met the inclusion requirements were selected to participate. The participants were upper-level nursing students who have administered medications to patients' in a healthcare setting. The 42 upper-level students had progressed in the curriculum to their final practicum and could best help the researcher understand safe medication administration. Ten students responded to the email invitiation. The seven participants chosen helped the researcher facilitate the expansion of the study. The participant in the study were informed regarding the confidentiality of the information provided. All information will be kept confidential and situations are described in general terms.

All solicited participants in the study were informed of the nature of the study and given an option to participate. No student nurses was coerced into participating in this study. The participants were informed of the purpose of the study and the benefits, risks, and procedures involved, a statement informing the participants that their identity would be protected and that they could withdraw from the study at any time, and contact information for the researcher. The researcher maintained a level of trust by ensuring privacy and confidentiality during the interview process. According to Horn, Edwards, and Terry (2011), privacy and access to information are important concerns of participants and influence trust (Horn, Edwards, & Terry, 2011). The researcher and each

participant met in a private room away from the nursing department and the interviews were audio taped to capture all verbal data. The researcher avoided any situation which seemed as the development of a potential relationship and any which the participant could view as a friendship. Upon written consent to participate in the study, the researcher explained the purpose of the study and anticipated length of the interview and obtained approval to audio tape the session. Once the participant provided verbal consent, the researcher established a date, time, and place for the interview. Each of the participants were sent the questions in advance via email so that they could prepare for the questions in advanced. The participants in the study were respected, and the researcher tried not to be excessively intrusive with participants' time, space, and personal lives. The researcher maintained confidentiality before, during, and after the interview process. All efforts were taken to arrange the interview so that the participants will not see each other leaving the interview room.

Each participant received a consent form which included an explanantion of the study, benefit, risks, an explanation about what is involved in the procedure, approval to tape the interview session, and a statement ensuring that participant identity will be protected and that a participant may withdraw at any time. Each participant received the researcher's contact information. The participants were assigned a pseudonym after the consent was obtained which was used only by the researcher when conducting interviews. This pseudonym ensured that all data were confidential, specifically when data were analyzed. The pseudonym was utilized by the researcher in reference to the participant. Confidentiality was maintained about the participant and any patient name

that might have been mentioned during the interviews. The researcher ensured to maintain confidentiality and autonomy and follow ethical guidelines throughout the entire research process. Privacy was protected because the researcher is the only person who can link names of participants with interviews, and any identity to a healthcare organization the participant mentioned during the intervew session.

Data Collection

Qualitative research examines experiences and events that are informative to a specific subject matter and produce rich meaningful data (Lichtman, 2013). In this descriptive qualitative study, face-to-face semi-structured interviews were used for data collection with seven upper-level nursing students who had successfully completed their pharmacology and medication administration course. A structured interview guide was utilized to gain rich meaningful data surrounding the participant's experiences/stories with medication administration. The researcher conducted interviews at three separate times during the semester. Each interview was expected to last approximately 60 minutes for a total of 3 hours. The first interview was held during the last week of February 2016. The second interview was conducted the last week of March 2016, and the final interview was conducted during the last week of April 2016. The first interview was at the beginning of the student's medication administration experience with a minimal opportunity of giving medications. The second interview was after the student had more experience with medication administration and patient care. The last interview was at the end of the semester after the students had completed their experience with the preceptor during the synthesis practicum (see Appendix D). The nursing program's curriculum

progression is located in Appendix D. The final question utilized in this study invited the participants to share any additional information related to medication administration before the interview closed.

General questions were utilized in this study (see Appendix B). Qualitative research requires the researcher to collect data and end the study with a saturation level (Creswell, 2012). The research questions for this study aligned with the specific interview questions to gain rich meaningful data surrounding the perception of the nursing students' knowledge and skill for safe medication administration, their expectation of the role of the faculty/preceptor during medication administration, and their perception and understanding of patient safety as a student and as a professional nurse.

Each participant was allotted 60 minutes once they commenced. The interviews were conducted in an unhurried approach. Confidentiality and privacy was ensured, as the participant received a pseudonym by the researcher. The researcher is the only person who can link names of participants with interviews. Participants were verbally thanked for their time and contribution to nursing research.

According to Lichtman (2013), data must be analyzed in a manner that avoids misstatements, misinterpretations, or fraudulent analysis; the data represent what you see and hear. The researcher has the responsibility to interpret data and present the evidence for others to decide if it is believable (Lichtman, 2013). All interviews were transcribed within one week of each interview. No names were connected to the transcriptions. After data transcription was complete members checking occurred. The participants reviewed the transcript for accuracy. By having the participants' offer feedback on the accuracy of

the findings, any misinterpretation of what was recorded was ruled out. The participants were asked to review their transcribed data for accuracy and provide the researcher with any inaccurate statements. Any information noted as inaccurate was eliminated from use in the study. Consent forms and recording of interviews and transcripts are stored securely in a locked file in the reseracher's collegiate office.

The researcher addressed ethical issues by bracketing. If the participant revealed any information that they may not have intended to reveal, the information was bracketed and excluded from the analysis. Bracketing allows for the researcher to remain neutral putting aside any previous knowledge or beliefs about the phenomenon being studied (Streubert et al., 2011). Lichman (2013) refers to bracketing as a means of setting aside personal experiences and responses on a topic when conducting the investigation so that it will not influence the philosophical reduction (Lichman, 2013). According to Lichman (2013), bracketing is especially appropriate for a phenomenological study (Lichman, 2013). While qualitative methods are accepted in nursing research, methodological rigor of qualitative work is important. The researcher must have an accurate portrayal of the participants' perceptions (Lodico, 2010). In this study, the researcher used member checking as a method to present accuracy and credibility of participants' responses. The transcribed interviews were sent to the participants and each participant was encouraged to comment or add additions. Transcripts were provided within two weeks of the interviews and the participants were given a week to clarify and elaborate on the findings. Development of themes occurred after members checking.

Bias was anticipated, as it was totally impossible to be free of bias when analyzing responses to the questions. The researcher utilized peer debriefing by having a third party reviewer compare the data with the findings to assure that the information and findings were aligned and credible. Lodico (2010) describes the peer debriefer as someone who examines the field notes and meets with the researcher on a regular basis to reexamine assumptions and determine alternate ways of viewing the data (Lodico, 2010). The peer debriefer compared the data to the findings. This helped establish credibility in the findings as compared to the data. The peer debriefer substantiated emergent themes and patterns. The peer debriefer for this study was a nurse researcher with experience in research and credentialed with a Ph.D. in Nursing. The peer debriefer provided objectivity and additional insight into the themes and theory development and helped the researcher ensure that perspectives were grounded in and supported by data.

Data Analysis

Data analysis refers to an approach to "systematize the analysis of qualitative data" (Lichtman, 2013, p. 261). The researcher must organize data, code data, and identify themes, statements, and phrases. The Colaizzi (1978) strategy of descriptive phenomenology data analysis was utilized for the analysis of this study for each interview. Each transcribed interview of the participants was analyzed utilizing Collaizzi's strategy. This study used the Colaizzi strategy of descriptive phenomenology data analysis to examine the data and develop themes related to nursing students' perception of safe medication administration. The following is the series of steps the researcher used with the data analysis. The researcher employed the following:

1. Read and re-read the participants' transcripts.
2. Identified pertinent phrases that pertained directly to the research phenomena.
3. Recorded phrases separately noting pages and lines.
4. Formulated meanings from the significant phrases and statements.
5. Categorized and clustered themes.
6. Integrated the themes into a description of the phenomenon studied.
7. Described the fundamental structure of the phenomenon.
8. Had participants compare his/her descriptive results with their experiences.
9. Incorporated any new or pertinent information from the participants during members' checking.

The seven participants were given codes and a pseudonym to maintain anonymity and allow the researcher to describe the findings in a narrative form (See Table 1). The following table describes the coding and pseudonyms used for this study.

Table 1

Participant Codes and Pseudonyms

Participant codes	Pseudonym
P1	Grace Lyn
P2	Rose
P3	Allie
P4	Katie
P5	Buddy
P6	Reggie

Data analysis is the point where the researcher "puts into words" the participants "conceptualization of the shared experiences" (Streubert et al., 2011). The researcher conducted the process of analyzing and conceptualizing the experiences shared by the participants. Colaizzi's (1978) procedure of inductive reduction was used to organize and analyze the narrative data in this study. Transcriptions were reviewed several times to gain perception of the data. Each question was reviewed several times to determine if a theme was developing among the participants. Significant statements and phrases that pertained to the study's research questions were identified and extracted from the participants' transcripts. This extraction process can be found in Appendix E. Significant statement/phrases were assigned a meaning such as learning curve, fear of making a mistake, confidence, complex patient and environment, and preceptor reliance. The meanings were arranged into clusters to form a theme and subthemes. The themes and subthemes that emerged reflected the lived experiences of seven nursing students who have completed a pharmacology and medication administration course and progressed in the curriculum at the same time.

Limitations

There are potential limitations in this research study. The type of sampling being used is a limitation since participants are from one institution and, therefore, the findings of the study may not be easily generalizable. Ten participants out of 42 responded to the invitation to participate and the first seven were chosen which the researcher cannot say

with certainty that the number is representative of the group. Each participant was provided 60 minutes to answer the interview questions. The 60-minute time limit did not pose a problem with the interviews. Possibly no time limit would have allowed for the interviews to be conducted in a more relaxed, unhurried environment.

Data Analysis Results

All information gathered from participants in this study will be locked in a fireproof file cabinet in the researcher's office with only the researcher having access to the data and will be stored for the required five-year period. Approvals were obtained from Walden University's Institutional Review Board (IRB) and ****** College's Institutional Review Board. ****** College agreed to serve as the IRB of record for the data collection. Walden University agreed to oversee the capstone data analysis and results reporting. ****** College's Review Reference No: LCHS1516079 and Walden University's IRB approval number for this study is 04-08-160336443.

The qualitative data analysis and coding of significant data began after all interviews were transcribed, reviewed by the researcher, and member checking was completed. Transcriptions were reviewed many times for the researcher to gain an understanding of the data. Significant statements and phrases that pertained to the research questions and phenomena were extracted from the participants' transcripts. This extraction results and coding is illustrated in Appendix E. Three themes emerged from the interview data results: (a) learning curve which focused on the rigor of the pharmacology course, (b) gaining confidence and, (c) reliance on preceptor. Two sub-

themes were identified from the major theme learning curve: fear of making a mistake and appreciating complexity (see Figure 1).

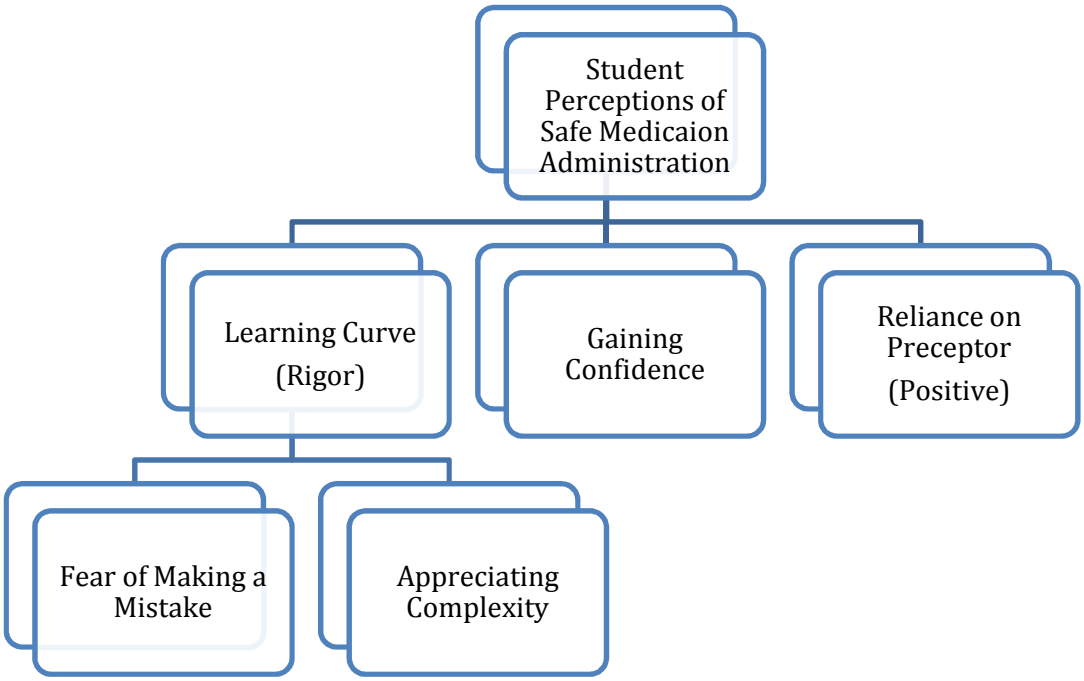

Figure 1. An overview of themes and subthemes from data analysis.

Another step in the analysis and data interpretation was assuring credibility and control of bias by the researcher. To assure truth and value of the data, members' checking was established along with peer debriefing. The participants reviewed their transcripts for accuracy, which further assures credibility of the findings. Member checking is a strategy for ensuring internal validity or credibility (Merriam, 2009). It is a way of ruling out misinterpretation of what the participants say and control the researcher's bias and misunderstanding of any observation during the interview

(Merriam, 2009). Peer debriefing occurred with a Ph.D. Nursing Professor who has conducted qualitative research using a Phenomenology Method.

The following findings presented by themes and student perceptions are discussed. Three major themes and two sub-themes construct the framework of this reported results. The three themes were: learning curve, gaining confidence, and reliance on preceptor. The two sub-themes that align with the learning curve was: fear of making a mistake and appreciating complexity. Each theme and sub-themes are described within the context of the students' perception of safe medication administration experiences during their practicum; transcript excerpts serve to demonstrate and support each theme.

Theme: Learning Curve

The first theme to emerge was a learning curve that the participants referred to as the rigor of their pharmacology and medication administration course. The students felt that learning will be ongoing with pharmacology and that they will constantly be learning about medications. For instance, Allie described her ongoing learning as, "I feel very competent but at the same time, there are a lot of medications that I don't know, so I continue to look them up before I give them." Grace Lyn also spoke of pharmacology as, "I think that pharmacology is kind of an ongoing thing you're always working on." Katie after working with an insulin drip commented, "learning how to do that [mix the medication] and administering the medication was quite a learning curve."

Understanding the basic of medication administration was recognized as critical when administering medications. The basic requirements of accurate drug administration are the rights of medication administration and include the following: right drug, dose,

patient, route, time, reason, and documentation (Frandsen & Pennington, 2014). In addition to the basic rights, the students mentioned that they check and double-check their medications before administering them. Students administering medications must also know about the drug and the patient. They must also be equipped to assess and plan individualized care as needed for the patient (Frandsen & Pennington, 2014). Bedford recounted the need to utilize the six rights of medication administration but also the importance of rechecking the medication before giving it to the patient: "[I] got to remember the six rights of medication administration and double-check everything." The students were taught about making a medication error and feared that this would happen if they were not focused on safe preparation and utilizing the six rights with every medication. One student mentioned that she did not know her cardiac medications but was able to use a "micro-medic system to look them up." Buddy commented, "There is no way for all the information to stick, I've been in the clinical setting and had to give a medication that I may have covered in class, but I can't remember everything. I use my I-pad and look it up."

In general, the students recognized the need to have an understanding of the medication before administering it to their patients. The students mentioned that in the past they have gone to the clinical setting and prepared ahead for their patient assignment. They would go to the clinical setting and look-up information about their patient, which included all patient medications. Going into the clinical setting before the clinical experience changed during their time in the nursing program. As junior students, the nursing class had prepared for clinical before the day that they were assigned. These

seven participants now seniors were no longer required to look up their patients' medications before the clinical experience. Reggie felt that he was more knowledgeable of his patient's medication by looking them up the day before, and he was more comfortable administering medications,

> "…Go in the day before clinical and look up all the drugs that the patient had on file, that was helpful. There have been several occasions that I found the patient's condition deteriorating because of a certain drug and nobody understood. When you come in the day before and you are more knowledgeable."

The importance of student preparation is essential for the clinical setting. Most of the participants commented on the need to review the medication before administering them and the importance of knowing the appropriate care for patients receiving specific medications. This knowledge includes monitoring for adverse effects and teaching the patient about the medication. Buddy mentioned that he was "so nervous" about teaching the patient that he had to learn everything about the patient's medications to be able to answer questions or teach the patient about his medications.

During the interviews, many students stated that they had administered medications via various routes. The students said that they gave oral medications mostly and then intravenous medications seldom did they administer an intramuscular medication. The students' intramuscular medication experiences were mainly in a community health rotation, which consisted of influenza vaccines. The students were able to participate in a community health clinic and administered the influenza vaccine to students and faculty. Grace Lyn reported, "I have given medications through several

routes, oral probably being the most common and then IV." Some students expressed that their patient's problems were complex and that they required many medications. Allie commented on the number of IV medications and the complexity of administering several at one time, "The most difficult experience I had was a patient that had eight different drips running, and trying to figure out the compatibilities because I didn't want to hurt him. So that was difficult, but I figured it out on my own, thankfully." Students also stated that administering medications intravenously was "frightening and intimidating." The more they administer medications the less anxious and more confident they became. Grace Lyn reported that she was, "A little nervous, scared of making a mistake, but the more I do it, it becomes more second nature. I guess I am more confident with flushing, administering the medication, looking up IV push times and honoring that, and then flushing after as well."

Sub-theme:Fear of Making a Mistake:

As the students talked about the learning curve with their pharmacology course and its rigor and medication administration, the fear of making a mistake emerged as a subtheme. During the interview process, many students described the medication administration process with mixed feelings. Some of the students described the first experience with medication administration as "intimidating," one student said she was "nervous and afraid of making a mistake," several students said that their "hands were shaking," and the experience was "nerve racking." The fear of making a mistake is a real experience; the students were describing the first time that they had administered a medication to a live patient. The first experience in giving medications is usually in a

laboratory setting learning the various routes and calculations followed with the opportunity to demonstrate a check-off using a manikin. One student described their pharmacology laboratory experience as disconnected from what was taught in the pharmacology course. Buddy described the difference between the didactic component and lab as, "the equipment we had to practice on [in the lab] was out of date or not currently being used in the hospital."

Rose stated,

> "The group [of students] in the lab was so large, that it was hard to get that kind of individual care and to be able to get the experience…the same thing was in the simulation lab…I didn't want to take up a whole lot of time and asked the professor to slow down."

The students expressed that they wanted more clinical time administering medications; several students suggest the use of the simulation laboratory as a better site for learning medication administration. The majority of the students recognized patient safety as their priority for their patients, which includes safe medication administration. Grace Lyn commented about safety with medication administration,

> "You could hurt people, if you administer too much or too little, you could harm your patient, and giving an oral medication is a huge job to me because I've never done that before and I don't want to hurt anybody."

Another area of concern voiced as stressful for the students was explaining the medication to the patient. One student stated, "you have to explain what you're going to give those patients, and some patients ask what they're taking." Another student viewed

the education component as "explaining the medication to patient…kind of tough." Katie commented, "You have to be able to know what is normal and what is abnormal." Grace Lyn who was in a critical care unit stated,

> "Because a lot of these patients are taking medicines that they have never taken before. A lot of them are on insulin, sliding-scale insulin, and they do not have diabetes, so they kind of wonder why they are taking that. You have to explain that. A lot of them are on DVT prevention, like Heparin or Lovenox and they've never taken that before. They don't know what that is. And then the peptic ulcer prevention as well, so they wonder what that is too. There are a lot of …pain medicines, anti-nausea medicines, and a lot of things that people have never taken before, so there has been a lot of opportunity for education. I have had patients ask, now what are you giving me, what is that for?"

The students must develop those skills for administering medications, develop an understanding of the medication, and be prepared to share their knowledge about the medication with their patients and families. During the interview process, students realized that educating the patient and families was an essential role for them, and they feared that the patient would not view them as credible if they could not explain why the medication was given. Nurses must take ownership of ensuring that the patient receives the correct information about their medications. The students viewed this role as their responsibility even though they say they stumbled with words when talking about the medication with the patient.

Sub-theme: Appreciate complexity

The next sub-theme to emerge was complexity with the learning curve. Students care for many patients and often patients with multiple disease processes requiring multiple medications. During the interviews, many students mentioned that the overall medication administration process was complex. They described giving various drugs to their patients. One student stated that she was in the Intensive Care Unit and had only two patients at a time, but the patients "take a lot of medications." The students recognize the value of the opportunity to give many medications citing, "the more experience, the better, the more comfortable I begin to feel." Another student voiced concern with different IV drips at once and knowing what is compatible with each other. She described the event with the various IV drugs infusing as, "It required me to do a lot of thinking and looking up to make sure it's safe for the patient, and it takes a lot of time."

Students voiced concern about the environment and its complexity. The environment is often busy which can create stress and anxiety for the students. The students mentioned that they felt rushed with medications administration. Often they felt that the preceptor was hurrying them. Allie described her feelings as, "I always felt like they were kind of like, "well hurry up, I have things to do." "You're taking too long." Grace Lyn commented,

> "And so we had six or seven patients at a time and I was not allowed to give medications in that role, but watching my nurse give medications was overwhelming at first, seeing how she keeps up with it. You know, pulling

> medications for each patient and keeping up with pain medicines as well …from I can see where that would be very overwhelming."

Safety with medication administration is a priority and following the six rights of medication administration is crucial with every medication. A busy environment and distractions can lead to the potential for an error to occur. Students have to think through the process and comprehend each step as they prepare and administer the medication. Students need time to focus and time to process each step especially when they first begin to give medications.

Theme: Gaining Confidence

The second theme recognized from the data was gaining confidence with the medication administration process. During the interviews, the students reported that they gained a sense of confidence while administering medications over time. The students also gained confidence as they communicated with the patients, especially explaining the medications to their patients. Students described the first experience with giving medications as one in which they were very nervous, but it made them feel "like a nurse." Some of the students described the first time experience as "nerve-racking," but also "exciting." On her first day of medication administration, Rose stated,

> "I was nervous, and it was just oral meds, but I was making sure I scanned everything, in the appropriate order, and didn't drop anything, because I'm very clumsy, so… it was exciting. I mean nerve-racking but exciting, because I was like "ok, I'm becoming a nurse. This is what nurses' do. It was … I mean the tricky part I guess was, when you're in a situation, like in actual clinical

> experience, I like dropped the medicine…I scanned the wrapper, and then I just like punched the medication right through, and so I broke the bar code, and one of my professors was like don't do that. Like if you can tear it, because you never know what might happen and you have to rescan it. So it was just like that where I like had no idea."

With her first experience, Allie stated, "It was an oral medication, but at the same time it was a huge job to me because I've never done that before." "Obviously I don't want to hurt anybody…I had my teacher with me, and she supervised everything, and so I think from then to now it's very different." Students gain confidence as they gained more experience with giving medications and problem solving as they administer the drugs. They lack confidence in the beginning of their learning process with medication administration. Students feel that they need to know everything. Bedford commented about her nervousness, "I was so nervous. I believe it was an oral medication …even though I was just handing it to him, I felt [like] I needed to know everything, right then and there."

The fear of making a mistake and having to communicate "like a real nurse" can put the student in a situation that could precipitate the development of an error. The reality of the real world can be challenging for the student. The students' perception of the clinical setting was described as complex. Their support system during their early clinical experience was the faculty and preceptor; they help build confidence in the students as they facilitate learning and acclimation to the real world experience. Grace

Lyn commented about her experience from the beginning and during her practicum with the preceptor,

> "I feel like I've learned a lot in this preceptor experience, and I feel like it's good to have that one-on-one coaching with your preceptor. Helps build confidence because it is kind of another person to check with to make sure you're not making any mistakes. It feels safe, in other words."

Rose stated,

> "I feel like I've gained a lot of experience administering medications in my practicum experience. I felt confident by the end of my preceptorship administering each medication. I could still use a more practice with IMs', I didn't get a whole lot of practice with that, but otherwise, I feel more confident than in the beginning. I feel more confident in the different ways to administer, whether it is subcutaneous, oral, IM, and IV."

Katie commented,

> "Closer to the end [of the practicum] I would pull the medications on my own, I would scan everything in on my own, and then she [preceptor] would make sure they were all verified and correct to the record. I feel that I'm much more prepared now to be able to get to that point of doing it on my own. Even though I may not have someone checking over my shoulder on every single pass of medication, I feel I'm able to make sure it's the right way. I feel that I've grown a lot. I did not feel comfortable with medication administration when I was a junior and just learning but then taking the lab course: the pharmacology lab course was

> so helpful. That was just the whole process of administering medications. And so I feel that I've grown a lot in the skill set, …just learning more of how medications interact in the body, and even with each other, so, there has been a lot of growth."

From the interviews, students wanted more practice opportunity with medication administration and in smaller groups. They suggested that all students received the same hands-on experience. Students begin to acquire their medication administration skills early in the nursing program and develop a sense of confidence in the process as they move along the curriculum. Fostering a positive, supportive relationship with a faculty and preceptor can lessen the student's anxiety and further build their confidence.

Reliance on Preceptor

The third and last major theme to emerge was reliance on preceptor. The preceptors allowed a range of autonomy with the students' experiences. The students described their supervision as, "was watching me," "let me go on my own," "independent," and "pretty much hands off with my preceptor." Most of the students felt comfortable in their role with medication administration after their 120 hours with a preceptor. Many commented that they felt comfortable after the experience. Grace Lyn stated, "I feel pretty comfortable. You know, maybe if my preceptor wasn't there with me, it wouldn't quite have the same feeling." Allie echoed, "I'm gaining more confidence, and starting to feel more comfortable." One of the findings from the data suggests that students welcome their preceptor's knowledge and clinical experience. They viewed their experience with the preceptor as a safe avenue, a conduit to gaining

autonomy and confidence before transitioning into practice. One student commented that she wanted, “definitely more hands-on, more time, and more practice.” They felt that their early laboratory experience was “controlled” and they were “lost” in the pharmacology course. Many of the students mentioned that if they knew what was involved with the pharmacology course, they would have spent more time learning the material independently.

The students reported a positive experience with their preceptor. They also viewed the preceptor as one to model after and one who helped increased their confidence. Reggie commented, “They were there all the time…they’ve been very supportive.” The faculty members were seen as the ones who “provided the foundation.” Rose stated, “I tried to pick up tips from each person, everyone has a different way of doing things… that’s been helpful… then just the comforting factor of having them there to make sure I’m doing it right.” Students did voice concern with faculty workload. The students felt that their faculty member was not always available at the time they needed them. Therefore, they lost that opportunity to administer medications. Buddy’s comment regarding the faculty workload,

> “They have nine to 10 other students that they are with …for the first time we did something, they wanted to be there, and when we had nine or ten other students in our clinical group, we’d end up having to wait a while before we could do it. The nurse would say these are due now; I need to give them because we can’t wait.”

Katie commented,

> "The first time I was able to give a medication, I was very nervous. My patient had probably 15–20 medications. I realized [that] there are many medications to give to this patient, and it takes a lot of your time to be able to administer those. And you have to make sure that each one is appropriate for the patient, and if you're have to do 15-20 medications at a time, that really [takes] a lot of time. As a student you have to be very careful what you're doing …you really need to make sure it is accurate. I know if you become more advanced in the practice that if you just start scanning in medications, and go with it and don't think about the consequences for the patient and safety, then there could be some issues and some negative consequences. I remember that first time, I was probably in the [patient] room for 30-45 minutes, just … not to mention being nervous."

Students appreciated the preceptor opportunity and appreciated the collaboration with the preceptor. They appreciated having that supervision while they were learning safe medication administration. The preceptors can ensure that the student is competent and has the skills to administer medication to their patients allowing the student to have some autonomy and make decisions. Many of the comments from the participants about their preceptors addressed a feeling of security and confidence. Allie said, "She helped build my confidence, …when we met, we did everything together the first day and by day two she let me do everything…she was still watching from a distance…so she boosted my confidence. She questioned everything I did."

Grace Lyn commented, "Right now I feel confident just because I have a preceptor with me pretty much all times. There is a level of trust once they see that you can do it." The

preceptors foster critical thinking among the students. The students appreciate that autonomy before leaving their practicum. Jennifer commented that,

> "My preceptor …was wonderful, …she made me make my own decisions, whether to hold medications, give PRNs or set up different medication lines for IV therapy…she wouldn't give me hints or answers… she made me figure it out, which was good. She was very helpful in getting me thinking."

Allie stated, "She didn't tell me the answer to anything. If I had a problem, and I would ask, what we should do? She would say, I don't know. What would you do? She made me critically think on my own, which is good because we hadn't had to do that. She [was] great." Rose commented, "They were great. I mean the faculty gave me the foundation, which was helpful, and confidence…each time leading up to the preceptor experience. The preceptor experiences help me work on time management and build my confidence with administering [medications]."

Katie stated,

> "They are supportive and mainly they give me all the power. They stand there very quietly, and let me do my checks, make sure I have all the right medications to begin with, and then as I scan them in, to make sure what I'm scanning in matches what the order is. And so, when they are standing there, and on the screen it comes up that maybe there was an error, it's, whatever that little flag might be on the system, I just freeze a little bit and I just think oh, what is that and they'll explain it to me."

Bedford comment, “She expected me to know a lot. And, she emphasized to look them up [medications]. Know what they are for and she would kind of quiz me.”

Another student commented about the end of her experience and how she had grown in her knowledge and skills with medication administration. She completed her last shift with a positive outlook and compliment from her preceptor.

> “It was just a couple of days ago, my last night on practicum actually with my nurse. I was scanning in some medications and I felt very much on my own, very autonomous, very proud of what I was doing. Felt in control of the situation and my nurse came up to me, and she was like I think you’re ready for this. And I was like oh my goodness, that’s the best compliment that you can get. Knowing that someone’s been watching you for months while you’re doing practicum experience and you’ve made so much progress where you’re ready to do it alone. And it just made me feel very happy that I’ve gotten to a place where I can do that and I feel comfortable.”

The faculty, preceptor and any other staff involved with a student during their practicum can make a difference in their students’ perceptions of themselves and the confidence they develop as they learn to administer medications safely. It is important for the preceptor to engage in the student’s learning and development as a graduate nurse entering into practice. The health and safety of a patient are a priority for nurses; the students can see this type of role modeling. The preceptor has a crucial role in the development of the student’s skills, decision-making, and problem solving ability with medication administration. The students appreciate feedback from their preceptor; this

provides them with ways to improve and avoid any medication error from developing. Although it is time-consuming in some instances to have a student, the preceptor is valuable in developing a safe practitioner.

Section 3: The Project

Introduction

Section 3 includes the proposal for my final project based on my data analysis. The project was designed to provide the nursing program with a hybrid Pharmacology and Medication Administration Course that will promote positive program and community outcomes. This Pharmacology and Medication Administration Course is intended to provide students with the opportunity to gain an understanding of pharmacology and demonstrate principles of safe medication administration. An interactive component will allow the students an opportunity to practice medication administration in a controlled environment. The interactive component will provide the student time to critically think about the complexity of the medication administration process with less fear of making a mistake. The interactive component will be simulated scenarios, and/or case studies.

The purpose of my project study was to examine the challenges facing student nurses with pharmacology and medication administration. This came about as a result of medication errors occurring with upper-level nursing students. The methodology used for this project was a qualitative descriptive phenomenological approach. I conducted face-to-face interviews with seven upper-level nursing students. This type of study allowed me the opportunity to hear live experiences of upper-level nursing students' with safe medication administration.

The findings from the study's data helped determine aspects that could potentially set the stage for medication errors to occur. In addition, I found that there were gaps in

students' knowledge about medications administration and pharmacology. In my interviews, student participants said they feared making a mistake when administering medications. The student participants described their medication administration experience as a learning curve; they were neither ready for the rigor of the content or the complexity of the medication administration process. The medication process includes patient complexity and the practice environment. Because of this challenge, students lacked confidence, which led them to rely on their preceptors for instruction. The reliance on the preceptor was positive. Student participants' viewed their preceptor as someone who was supportive yet could be intimidating.

Areas of concern from the findings were the following: (a) importance of student preparation for medication administration which includes recognizing that students' have a fear of making a mistake, (b) complexity surrounding safe medication administration and environment, (c) lack of confidence which can hinder safe medication administration and, (d) reliance on preceptors. The pharmacology course is rigorous, requiring intense time for studying and learning. Students will be expected to learn numerous medications.

From the study, there was also the need for more information that will help the students build confidence with medication administration. Building confidence begins before clinical experiences and before the students' final practicum. Findings from the study also revealed that students' clinical experiences with medication administration did not routinely afford them opportunities to apply theoretical concepts learned in the classroom to the clinical settings. Student participants were supportive of their preceptors and viewed them as role models. However, student participants felt that they were not

ready for the complex clinical environment and medication administration process. The student participants acknowledged that they want to be successful when they enter practice and have the confidence to provide appropriate medication education and care when giving medications to their patients. This pharmacology and medication administration course will assist the nursing students' in the acquisition of skills with medication administration and development of medication administration competencies.

The project developed from this study is a hybrid pharmacology and medication administration course. This course consists of an online component and will begin the first semester of the students second year in the nursing program. The hybrid pharmacology genre course was developed based on the student participants' knowledge gap with medication administration and its complexity, identified errors made by upper-level nursing students as described in Section 1 of this study, and the descriptive narratives from the participants in this study.

Rationale

The hybrid pharmacology and medication administration course will offer the students a better understanding of pharmacology and medication administration before caring for patients in a clinical setting. The course is a hybrid course that allows for discussions providing the students the opportunity to think about a medication situation critically. Students will gain the knowledge and develop competencies early in the curriculum, which will allow them to care for multiple complex patients. Students will have better skill and communication proficiency, which will lessen their anxiety and fear

of making a mistake and build their confidence. As students develop the skills and competencies and move into various settings, the health care organizations also share a responsibility to develop and nurture future nurses (Cook, et al., 2011).

Pharmacology is taught during the first semester of these students' junior year along with a medication administration lab. A lack of confidence when giving medications was identified by the student participants' and they related this to their preparation and practice time in their medication laboratory. A student participant mentioned that there was a disconnect with the medication laboratory experience and the actual clinical experience. In addition, a student participant described the medication administration lab equipment as outdated and different from the equipment that was being used in the hospital in which the student did clinical work. The student participants' acknowledged that the amount of content in the classroom was enormous and there was no way one could learn all of the information. They described their pharmacology course as fast paced. The student participants' viewed their laboratory practice with medication administration as a critical step. They said that more time should be in the laboratory experience with each student receiving the same experience. Furthermore, the student participants' identified the medication laboratory setting, especially its equipment, as being very different from the hospital setting.

Creating a project that is didactic and clinically based will provide an opportunity for students to improve their knowledge and skill in safe medication administration. Students will be prepared to administer medications early in their nursing program giving them time for gaining confidence with medication administration. In addition,

administering medications early in the program will allow the students opportunity to administer a variety of medications, build their knowledge base about medications, and better prepare them for their practicum with a preceptor.

The hybrid course will follow the *Essentials of Baccalaureate Education* for nursing practice from the American Association of College of Nursing (2008) and include the QSEN safety competency. The Essentials serve to provide the framework for building a baccalaureate nursing curriculum for the 21st century. The Essentials delineate the expected outcomes for the graduates of a baccalaureate nursing program that include patient safety and quality improvement. Pharmacology and medication administration is an area of nursing practice that requires continuous quality improvement and safety with medication administration.

Review of the Literature

The purpose of the literature review is to provide rationale and support for the implementation of pharmacology and medication administration course as selected for this particular project. Based on the findings from the Section 1 data and studies found in the literature, the participants lived experiences, the genre of developing this course and implementing it at an early phase in the students' curriculum is discussed.

A comprehensive online literature search was completed using ******** College and Walden University online library. The second literature review for this study focused on the following key search words, which include: medication errors, student nurses, and student nurses perception of medication errors, confidence with medication administration, preceptors and nursing students, complexity in healthcare and medication

administration. The information researched on these topics addressed the themes, and the findings from the participant interviews provided the basis for the development of a new pharmacology and medication administration course. A new pharmacology and medication administration course will further help address concerns that were addressed with upper-level students with medication errors.

As noted in Chapter 1 of this study, medication errors occurred among upper-level nursing students, at the researcher's institution, which prompted the support for examining the students' perceptions of medication administration and was the genre aligned to this problem. The researcher's participants identified areas for instructional and clinical improvement. The participants felt that their experience with pharmacology and medication administration was a learning curve for them. The poly-pharmacy that occurs with many patients and the complexity of the medication process were areas for which the participants were not ready when entering the clinical setting. The participants came to the clinical setting with little confidence. They gained that confidence with experience and encouragement from their instructors and preceptors. As a result of the findings from this study and the literature, the pharmacology and medication administration course will be developed and implemented during the fall of 2017. The syllabus will be presented to the nursing program's curriculum committee and faculty members at their first faculty meeting for the fall of 2016. Since the course description will change from the current pharmacology course, the change will be presented to the college's entire faculty for vote and approval as per the process of a new course approval at ******* College.

Medication safety is an essential component for students to learn when administering medications and a concern for nurse educators. Instructors are compelled to implement teaching and learning strategies that provide the student with the knowledge and opportunity to analyze and synthesize information for safe medication administration (Sparacino & Vecchia, 2014). The Joint Commission, a healthcare regulatory agency in U.S. vision is for all people to experience the "safest, highest quality, best-value health care across all settings" (Joint Commission, 2016). In 2002, the Joint Commission established National Patient Safety Goals (NPSGs). These goals were initiated in 2003 for accredited healthcare organizations to help in areas related to patient safety. One of The Joint Commission safety initiatives is safety and quality which includes ensuring that all patients names are correctly identified before any interaction by a healthcare worker, implementing standards to decrease errors such as look-alike and sound-alike drugs, and ensuring medication accuracy (Sparacino & Vecchia, 2014).

Nurses must have the knowledge of medications they administer, understand physiological and psychological reactions, educate their patients, and collaborate with others on the healthcare team (Sparacino & Vecchia, 2014). The student nurse needs to begin developing medication administration principles early in their nursing program so that they build confidence as they begin to administer medications safely. Students question their decisions when giving medications and want to be sure that they do not make a mistake when giving medications (Simones et al., 2014). When the students' perceptions of medication administration and thinking focuses on making a mistake, this can hinder their thought process and lead to a possible medication error occurring.

Students provide care to patients with complex medical situations and work within an environment that is complex and challenging. Medication administration is a core competency for nurses and one that begins early in the nursing academic program. Teaching the students in a safe environment such as a medication laboratory will allow for dialogue between the students and instructors bring forth those critical thinking and decision making skills.

A qualitative study by Simones et al. (2014) examined student nurses' thinking as they gave medication to a post-operative patient during a simulated experience. Students administered a variety of pain medications during this experience. The results revealed five themes: safety, clinical reasoning, uncertainty and need for validation, lessons learned, and perception of realism with safety emerging as the predominant theme. Findings from this study also concluded that safe medication administration was more than a technical process even though the steps should be fairly straightforward. Also from this study, student comments "affirmed the requisite knowledge, skills, and attitudes needed for safety relative to patient assessment and administration of medications" (p. 143). Students in the Simones et al. (2014) study realized the importance of clinical reasoning. The students needed more practice to strengthen competency and proficiency (Simones et al., 2014).

A study by Krautscheid, Chorpenning, Orton, and Ryerson (2011) addressed the student nurse perceptions of effective medication education. From their phenomenological qualitative research, two themes were identified as "effective education and gaps in education" (pp.5-7). From the two themes additional findings

revealed that students "value faculty demonstrations, peer-learning opportunities, repetitive practice with timely feedback, and the students reported that they needed to learn communication and conflict resolution strategies that would help them manage real-world interruptions, distractions, and computer generated alerts" (Krautscheid et al., 2011, pp.5-10). From the findings in this study, students viewed their faculty as a role model and wanted to observe them as they demonstrate the steps for safe medication administration. Students in the researcher's study viewed their preceptors as a role model and someone upon whom they relied. The students desired a supportive relationship with their preceptor and were appreciative of the autonomy they gave them as they developed and sharpened their medication skills.

Nursing faculty members attempted to provide meaningful clinical experiences and engagement in the classroom with active learning strategies. Medication administration competency was usually taught in a laboratory setting where students learned and practiced. Students demonstrated both oral and injectable medication administration while a faculty member directly observed. If a student did not achieve competency a remediation session occurred to strengthen the student's performance. Findings from the Krautscheid et al. (2011) study suggested that gaps in the learning process occurred. The students identified those gaps as teaching and using relevant technology and preparation for the real medical world. Krautscheid et al. (2011) suggest teachers' use realistic learning and activities that mirror actual clinical practice. These activities can take place in a safe, academic environment. Gronlund & Waugh (as cited in Krautscheid, 2011, p. 9) suggest that the activities be 'experiential, purposeful, and

provide opportunities for formative feedback and summative evaluation to determine novice level competency' (Krautscheid et al., 2011, p. 9).

Findings from this study address the environment in which the students' work. Students view the setting as complex and often the patients are complex as well. The setting can be challenging for the students**.** Participants in the Krautscheid et al. (2011) study recognized the importance of learning how to "manage distractions and interruptions" before entering the clinical arena. Distractions may include the noisy environment, high number of patients assigned to the nurse and many patients requiring multiple medications, additional needs required by other assigned patients, and patient changes requiring the nurse to stop and monitor the situation. Often the nurse is distracted with phone calls from physicians and families, non-medication related tasks or questions ask by other colleagues, pressures felt from feeling behind and not on time with medication administration. Within this fast paced changing clinical environment there is potential for a medication error to occur. According to Eisenhauer, Hurley, and Dolan (as cited in Krautscheid, 2011, p. 10) 'medication administration required cognitive knowledge specially related to thinking in the moment about dosage, timing, selecting the right medication, assessment, interpretation of assessment data, anticipating risks, patient education and planning for evaluation of medication effectiveness' (Krautscheid et al., 2011, p. 10).

The students must critically think about the medication and the patient situation when administering medications. The moment a student begins to prepare a patient's medication decision making begins. The decision-making is an area for faculty members

to address as they work to prepare the students for clinical practice. Participants in this researcher's study addressed the complexity of the environment and complex patient situations. They recommended that an area to focus on would be to simulate the clinical environment to mirror the latest technology available and teach the students proper operation. This would allow for a more prepared workforce. Krautscheid et al., (2011) suggested teaching 'electronic medication dispensing systems, bar-coded medications, bedside computers with bar coded scanners and embed realistic alerts within computer systems' (p.12).

In a 2014 qualitative descriptive study by Jordan, Turunen, and Bondas, students provided their perspectives on the reasons for medication errors in the clinical setting. Two themes emerged from this study relating to (1) underdeveloped caring skills and (2) unfinished learning of safe medication management. Students felt that they received the theoretical information in their curriculum, however the practical component of medication management and reason for caution with administration of medications were not discussed in detail that was needed. The students felt that they needed to learn appropriate caring actions for their patients. This information would include what they need to know for appropriate monitoring of adverse effects of medication and teaching theses adverse effects and what to monitor for with their patients. The students felt worried about making a mistake when administering medications and therefore were overly cautious and careful. The fear of making a mistake impacted the students' confidence in giving medications.

Students in the Vaismoradi, et al. (2014) study were concerned with the resources and equipment used in the theoretical instruction section and actual clinical practice. The participants in the study felt that their education program was leaving them vulnerable to medical administration errors. Other suggestions from this study suggested the need for "curricula…to support students' learning and caring, to ensure that students become competent and skillful nurses, who administer, manage, and monitor medication safely" (Vaismoradi, et al., 2014, p.438).

In a qualitative study by Pazokian, Tafreshi, and Rassouli (2014), two themes were identified relating to nurses' perspectives of reasons for medication errors. The participants' results revealed that there was an (1) individual approach and (2) cultural and organizational approach. The individual approach relates to personal and psychological characteristics of nurses such as: lack of attention to physical and psychological issues that may cause a nurse to leave the position, lack of essential information about the patient to make an accurate decision about the medication prescribed and prescribing errors by physicians. The cultural and organizational approach stemmed from workplace conditions, such as fear of reprimand if an error was reported, and insufficient knowledge and skills about medication administration. The implications from the study suggested that the findings may be useful to managers to create a culture of safety and openness for the nurses to report errors and identify ways to resolve future occurrences. A culture of safety with medication administration may include offering opportunities for educating the people involved in the care of the patient. Humans are fallible and medication errors cannot completely be eliminated but with a positive

organizational approach and a favorable environment for feedback less errors will occur (Pazokian et al., 2014, p.252).

The population is aging along with the prevalence of chronic health problems increasing and becoming more challenging making medication management for this population increasingly complex. Seniors are often on many medications. Nurses play a major role in assessing and monitoring the aging patient, and helping the patient manage their medications. The complex chronic problems put patients at risk for potential exacerbations requiring them to be or remain in the hospital. It is important for the undergraduate nursing student to learn about the complex medical environment and have an understanding of how to manage patient medications. According to Barkhouse-MacKeen and Murphy (2013), preparation for an undergraduate curriculum would include "adequate content and clinical experience regarding pharmacodynamics and kinetics, pharmacotherapeutic considerations, as well as effective, efficient and safe medication administration techniques and relevant dosage calculations" (p. 92). It is important for the nurses to remain current with medications and the graduate nurse to have the knowledge, competencies and skill sets needed for clinical practice. Teaching about pharmacology and medication administration requires "innovative strategies to promote student learning" (Barkhouse-MacKeen & Murphy, 2013, p. 91).

Innovative strategies and techniques were presented in the Barkhouse-MacKeen et al. (2013) study which included integrating nursing content with pharmacology including the use of simulation, utilizing clinical application of concepts to encourage critical thinking, ensuring accurate dosage calculations (pp. 92-95). Many of these

teaching strategies are adaptable to a pharmacology curriculum. It is important to implement learning behaviors that simulate the real world experience and allow the students to adapt to the challenging medication administration process they may experience. Students need to engage in activities related to patient safety and utilize critical thinking skills as they assess and monitor situation with their patients receiving medications. These critical thinking steps transcend the rights that students learn when preparing to administer medications.

In a 2015 study by Orbaek, Gaard, Fabricius, Lefevre, and Moller, 16 pre-graduate nursing students were involved in two focus group interviews to understand their views of technology, professionalism, and patient safety in the medication process. The findings suggested that nursing students had difficulty in recognizing and adopting best practices due to unclear role models especially with the technology-driven medication process. In addition, students expressed fear of making a serious medication error; they saw deviations from guidelines among the experienced nurses.

A project utilizing a mixed-method approach by McIntosh, Gidman, and Smith, (2014) explored the perceptions and experiences of mentors about student nurse support in practice. The challenges, supported by the mentors, were time, competing demands and paperwork. The mentors mentioned utilizing a team approach and support groups as ways to help with these challenges. Student needs, recognized by the mentors, were acquisition of skills, placement situations, and adjustment situations including becoming part of the team. The mentors recognized that their main responsibility was to support student learning and that their own personal attributes were important. They felt that their

time with the student and engagement was important. The student needed to be enthusiastic, committed and motivated to learn. From the study mentors addressed the importance of the students supporting each other and that it increased their confidence. The mentor also felt that the student did not recognize the value of the health-care assistant support.

Institutions that provide health care services are complex organizations. Added to the complexity of patient care including medication administration is the intense use of technology. Unver, Tastan, and Akbayrak (2012) suggested that institutions exam their complexity to prevent the occurrence of dangerous errors. In health care nurses take care of patients, which involves understanding and utilizing technology along with knowing procedures, understanding the various complexities of illnesses, and medication administration. According to Unver et al., (2012) cited that "the two highest perceived causes of medication errors were nurse exhaustion and nurse distraction" (p. 317). Safety with medication administration is paramount and carried a high risk of error potential. The primary responsibility for medication administration was with the nurses and they spend approximately 40% of their time administering medications (Unver, et al., 2012). Nurses play a key role in medication administration in that they are responsible for the prevention of a medication error. The newly graduated nurse may lack experience in the clinical setting and that lack of experience can impact the occurrence of medication errors (Unver, et al., 2012). In a descriptive, cross-sectional study by Unver et al., (2012) utilizing a sampling of 600 experienced and 87 newly graduated nurses, the finding revealed that both groups of nurses felt that the top three drug errors occur when nurses

were exhausted, distracted, and when nurses failed to check the patient's name band with the Medication Administration Record (Unver, et al., 2012). Hewett, Tower, and Latimer (2015) mentioned that there are complex factors that contribute to medication errors. Raising awareness to and using resources such as problem-based learning to demonstrate the complexity of medication administration afforded the students an opportunity to engage with factors that contribute to a medication error (Unver, et al., 2012). Students in baccalaureate nursing programs must learn to calculate dosages, learn the complexities of the administration process, and complete the six rights, right dose, right route, right patient, right time, and right documentation, before administering the medication (Hewett, et al., 2015). The nurse is also responsible for knowing the medication action, response and knowledge of side effects to assess while caring for the patient. Zimmerman and House (2016) acknowledged that our "health care payment reform, high patient acuity, and complex technology are driving payer and regulator demands for reduced hospital-based medication errors and improving patient safety" (p. 49). As the aging nursing population leaves the workplace, the newer younger nurse (less than one year of experience) must attain the competency needed to safely administer medications. Zimmer and House (2016) mentioned four factors recognized by nursing administration as driving the need for simulated instruction: high cost of medication errors, preparation-practice gap, nurse perceptions, and curriculum design. Not only is the medication error a threat to patient safety but it also impacts the overall operating budget. The annual cost of a preventable medication error is $10.3 billion. The operational cost of medication errors is $46 million per day which consumes about 16% of patient care cost, this puts

enormous strain on the patient care budget (Zimmerman & House, 2016). The cost of the medication error can range from $2,660 to $8650; this does not include the cost of patient care and treatment (Zimmerman & House, 2016). Frontline leaders have reported that only 41% of new registered nurses were proficient in administration of medications, and only 28% had the knowledge they needed about pharmacology implications (Zimmerman & House, 2016). The reason for this higher incidence with new graduates was the preparation practice gap. The gap was the result of limited clinical experience, qualified faculty shortage, and the numbers of students on a clinical site.

Project Description

The project created based on the findings of this study is a medication administration and pharmacology course for the nursing program at ******* College. The course is designed to prepare nursing students as they move through the different levels of the program and for entry into nursing clinical practice. The course provides the students with a thorough approach to the development of theoretical knowledge and clinical practice for safe medication administration. Roles and functions of the instructors are to place emphasis upon the application of knowledge to perform competencies in a clinical or simulated setting before completion of the course. This pharmacology and medication administration course is designed for a 16-week period with expected theory application and clinical practice in a healthcare organization.

Course content includes an introduction to pharmacology and medication administration with an introduction to the competencies for medication administration, which will begin during the first week of the course. The following topics and

competencies will be explored in-depth during the theory and laboratory sessions (a) responsibility and accountability for the safety of the patient, and high-quality care; (b) practice competencies for mastery; (c) demonstrate professionalism and accuracy with medication administration; (d) demonstrate effective communication and use of technology with the multidisciplinary team involved in the patient's care; (e) basic education skills to manage a patient's medication regime and deliver organized quality and safe care; identify resources and services that influence the health care of the patient.

As previously mentioned, several institutional committees prior to implementation will approve the syllabus. Once approved, the faculty members will further design the course based on the objectives for the course. Two baccalaureate faculty members will facilitate the course based on faculty to student ratio. Normally in the nursing program approximately 50 students are enrolled in the Pharmacology Course and a Medication Lab. The ratio of instructor to students in a laboratory or simulation setting is 1:10. The simulation lab is operated by a local healthcare organization and has a simulation director. The nursing program has a faculty member assigned as a simulation coordinator and assigned faculty simulation champions for courses. The simulation champions will directly submit a request to schedule simulated case scenarios that will be two days a week for 14 weeks. Clinical case scenarios will need to be developed by faculty members 'with expertise in specific specialties such as obstetrics, pediatrics, intensive care and psychiatric nursing. The simulation coordinator will work with the simulation champions to ensure that the scenarios are at the level of the students' needs and that each student has the same experience. The nursing program utilizes faculty from

courses as simulation champions to oversee the students during their simulation experience. The champions will conduct the simulation experience, monitor the student and debrief the student. The scenarios will utilize high-fidelity simulation with an emphasis on creating a realistic patient care experience. This process may take several weeks to develop and implement, however, the Director of the Simulation Center will maintain the responsibility for access to current instrumentation and equipment utilized in the healthcare setting including electronic medical records and documentation procedures. After completion of the learning scenarios, the faculty members responsible for the course will meet with the simulation coordinator and champions and orient them to the course and scenarios and expectations for successful student learning. This process will occur during the spring semester before the implementation of the course that will be in the fall semester of 2017. Currently, pharmacology is taught during the fall of the student's junior year in the nursing program.

Additional resources for this project include support of the director of the nursing program who has verbally offered her support (Personal Communication, August 8, 2015). Lastly, the approval bodies, such as the state board of nursing and accreditation bodies will be informed of the changes as required, and given time to examine and offer feedback to improve as needed.

To introduce a new course in a curriculum of study may be time- consuming in that the process of various committee and faculty approval. Some of the potential barriers to the implementation of this new pharmacology and medication administration course:

1. Implementation will be scheduled for fall semester 2017. This timeframe is the

semester that students begin their clinical experience within an acute care facility. The students' anxiety may be potentially increased with their first experience in an acute healthcare facility and the complex environment.

2. Plans for the addition of simulated learning activities will require time and research. The simulation center utilized by the nursing program has to be reserved before the semester begins. There is a cost attached to the simulation center for each student per hour, which limits faculty practicing prior to students coming to the center.

3. The course will require approval from the college's overall faculty committee, the nursing program's curriculum committee, and the nursing program's faculty committee. With three committee approvals required this may take some time if their agendas already other items for discussion and approval.

4. Course revisions must be submitted to the registrar's office by mid-summer for inclusion in next year's catalog.

Additional barriers will be budgeting for the simulation center as needed for instructors and champions to practice the newly developed scenarios. Any additional instructor needed to teach in the course may be a budget concern. However, this component will be partly online and may not present as a budgetary concern. It will take some time for the course to be approved by the overall college faculty, the nursing program's curriculum committee, and nursing faculty members. In addition, the state board of nursing and accrediting bodies will need to approve the course. The current course is being replaced with a newly developed course; therefore, this aspect may not be

a concern. There will not be any change in course hours, and no adjustment is needed with the overall curriculum hours. All approval bodies will be notified of the change and justification for the change in the curriculum. Once the course is approved and implemented and the first class has completed the course, a summary of the students and faculty evaluations will be shared with the nursing curriculum committee, nursing faculty and any approval bodies as required. The curriculum committee and nursing faculty will assess the effectiveness based on course evaluations from students and faculty members. The course will be evaluated for changes and barriers to success with the expectation to further continually improve and enhance student learning.

The first step in the implementation of this project was to obtain approval from the Director of the undergraduate nursing program. The project will then be submitted to the college-wide faculty and the nursing program's curriculum committee and nursing faculty for a vote during the 2016-2017 academic year. Table 2 represents the timeline for implementation. Implementation will take place during the fall of 2017.

Table 2.

Proposed Implementation of Timetable

Implementation Schedule	
Present syllabus to the nursing program's curriculum and nursing committees	September - October 2017
Present changes to overall college faculty committee as required	November - December 2017
Submit approved curriculum changes	January-February 2017

to approval agencies	
Create scenarios	March -April 2017
Orientation for core faculty and simulation champions	April-May 2017
Course implementation	August 2017

The researcher is responsible for the development of the new Pharmacology and Medication Administration Course. The researcher will be leading the following activities for the course:

1. Write a course syllabus (see Appendix A) that outlines the course learning objectives for each week, didactic content, expected student activities, assignments, and learning evaluations.
2. Present the course to the nursing program's curriculum committee and nursing faculty committee and make recommended revisions to the syllabus as advised by each committee.
3. Assist the Director of the nursing program as she presents the new course to the college's overall faculty.
4. Assist with the writing of proposed changes in the curriculum to the State Board of Nursing, and additional approval agencies.
5. Orient course instructors, simulation director, simulation champions, and others involved with the scenarios to the course and introduce expectations such as maintaining consistency with teaching strategies and evaluation of students.

6. Assist the nursing program's simulation coordinator in setting up and scheduling simulation activities.
7. Be present with simulation faculty and champions to develop technical components related to the scenarios.
8. Assist instructors with the development of case scenarios and simulation activities.
9. Develop the course, simulation, and faculty evaluation instruments that students will use to evaluate the course and faculty members.
10. Present outcomes of the course to the nursing program's curriculum committee and faculty to determine changes that need to be made to the course.

The curriculum for this undergraduate-nursing program is derived from the college's mission that focuses on the liberal arts, and the mission and goals of the nursing program. The goal of the nursing program is to educate an entry-level nurse who is competent in providing care to diverse populations. The nursing program's philosophy supports a liberal arts education and is based on thoughtful inquiry, ethics, leadership, and service, which are threaded throughout the curriculum. The program has conceptual pillars, which include safety, evidence-based practice/decision making, communication, informatics, inter-professional and interdisciplinary collaboration, policies, systems and finance, scholarship and professional behaviors. The program further supports the values of the college, including academic rigor, active learning, success, integrity, diversity, wellness, and sustainability.

The nursing program's safety pillar aligns with medication administration and pharmacology outcomes. Patient safety is a major concern for nursing education. It is the basic assumption of the AACN. The AACN has taken action to promote the importance of safe, quality care and has specific standards for nursing education. Safety according to the Quality and Safety Education for Nurses is defined as "minimizes risk of harm to patients and providers through both system effectiveness and individual performance" (QSEN, 2014). QSEN was formed to identify gaps in nursing education and implement a curriculum that includes quality and safety Cronenwett et al. (2007). Nursing educators often have an issue with deciding what to teach, how to teach, and how to assess the student's learning (Cronenwett et al., 2007). Students need to be taught the importance of safe medication administration and be assessed through the use of a test or observation. In addition, the students need knowledge, skills and attitudes for safe medication administration and they need the "anticipatory problem solving and concurrent patient teaching that occurs with practicing nurses" (Simones et al., 2014).

Safety of the patient is priority, and safe practice is crucial to prevent a medication error. Students learn the five rights for medication administration early in their medication administration course. Frederico, (2014) states, "five rights should be accepted as a goal of the medication process not the 'be all and end all' of medication safety (Frederico, 2014). The student should be knowledgeable of the medication and learn adverse effects. In addition, the student must also know how to respond to an adverse situation. The didactic nursing course developed as part of this study will focus on the safety of the patient, including assessment findings the student will assess for

adverse effects with medications administration. The formative and summative clinical evaluations will focus on students' progress and the students' development of requisite knowledge and skills fundamental to safe medication administration. Fundamental to the medication administration course is the need to create a positive learning environment that encourages student feedback and promotes praise and positivity. Koohestani and Baghcheghi (2009) mention that due to limited clinical experience, students are at risk for making a medication error. However, if a mistake is made proper reporting and acknowledging is important to prevent serious adverse consequences.

The goals of the project are congruent with the college's mission, mission of the undergraduate nursing program, the course goals established for College's nursing program (Appendix A), standards according to the American Association of College of Nursing (AACN), and Quality, Safety, and Education for Nursing (QSEN). The AACN Essentials of Baccalaureate Education for Professional Nursing Practice (2008) are utilized to provide nursing programs with the curricular elements and framework for developing a baccalaureate nursing curriculum. The goals of the project are to prepare: 1) the graduate to administer medications safely to patients across the lifespan; 2) the graduate to utilize the nursing process when making decisions about medications in a complex healthcare system; 3) the graduate to understand safety, work to create a culture of safety, and develop the skills for safe practice with medication administration; 4) respect and be able to communicate with team members promoting a culture of safety providing quality care.

The pharmacology and medication administration course will be offered in sixteen weeks and will have a medication check off prior to clinical and a theory exam. The delivery of courses content will be in a hybrid format. The hybrid methodology will use various online teaching methods such as discussion forums, group collaboration with simulated scenarios and case studies, PowerPoint presentations, and videos and modules on the process of safe medication administration and monitoring patient care. The nursing program utilizes Modular Object-Oriented Dynamic Learning Environment (MOODLE) an online learning platform for teaching. Active student-centered learning will be the focus for teaching strategies using a hybrid online format.

Upon completion and at midpoint during the course, students will be asked to complete an online course evaluation that will give feedback to faculty about the strengths and weaknesses of course. This will allow faculty members and the Director of the program time for modifications if needed before the students complete the course. During the simulated clinical scenarios and clinical, the students will receive a debriefing session that will be provided by the course instructor. During the clinical component, students will be provided a formative and summative evaluation, which will determine their progress during the clinical experience. There will be a clinical and theory grade for the course. The theory grade will consist of tests and one final comprehensive exam.

Nurses administer medications to patients throughout their assigned shifts; this aspect is one of their major functions and one that requires ensuring the safety of the patient. The student needs a level of competence and confidence in making safe those safe clinical decisions about medications and any adverse changes that might occur with

the administration of a drug. Although other health care professionals are involved in the patient's care, the nurse is with the patient 24 hours and he or she plays a vital role in the prevention of harm and recognition of deterioration. The cliché that nurses spend more time at a patient's bedside than any other profession is a fact not a myth. Therefore, it is crucial that nurses including student nurses have thorough assessment skills to recognize changes in a patient's health status. For example, prior to administering any form of insulin to a diabetic patient, the nurse would check the patient's blood glucose level, and if the level is too low and the patient has not eaten, the nurse must remember to hold the insulin and notify the physician. Another example would be an anticoagulant medication to prolong blood clotting and prevent a clot formation. This medication may be given to a patient who is immobile or who may be post-operative to prevent blood clots from forming. The nurse would check the patient's blood clotting parameters before giving the medication. If the levels are prolonged then the nurse must remember to hold the drug and notify the physician. An elderly patient who is receiving morphine for pain seems confused and slow responding needs to be evaluated for sedative effects or changes that indicate possible deterioration from some other event occurring, such as a stroke.

The Essential II: Basic Organizational and Systems Leadership for Quality Care and Patient Safety speaks to patient safety. Safety is crucial when providing patient care. This includes care to the complex patient in a complex environment. The nurse must be able to administer medications safely, recognize an error if made and evaluate the impact of the error and make accurate decisions in a moment to prevent harm to the patient. The AACN acknowledges the baccalaureate generalist education and one that includes

"content and experience across the lifespan, including the very young who are especially vulnerable" (AACN Essentials, 2008, p. 6). One of the roles for the baccalaureate nurse is to be an advocate which requires the delivery of high quality care. Safety is crucial to the delivery of high quality care. The nurse will be able to "recognize safety and quality concerns and apply evidence-based knowledge from the nursing profession and other clinical sciences to their practice," (AACN Essentials, 2008, p. 13). In addition, the "baccalaureate graduate implements safety principles and works with others on the inter-professional healthcare team to create a safe, caring environment for care delivery," (AACN Essentials, 2008, p. 13). The nurse works to create a culture of safety. This process includes working within a complex system with complex patients involving patients, families, populations, and the healthcare team.

Essential IV: Information Management and Application of Patient Care Technology also speaks to safety, information management and technology surrounding patient care. This essential addresses information that is needed for the generalist nurse relating to patient identification, drug alerts and barcoding, which occur with medication administration. Course work in pharmacology and clinical experiences in medication administration will provide the baccalaureate graduate with knowledge and skills to recognize safety concerns and respond appropriately to ensure positive outcomes for the patient. Clinical and practicum hours provide students an opportunity to care for a group of patients many with complex health care needs. The students are afforded the time to interact with a multidisciplinary team. Creating educational courses and practice opportunities for nursing students is a challenge for the instructor. Courses need to be

reviewed, changed or new ones developed to keep up current practice and offer the students the most current skill development expected of a practicing nurse. Therefore, based on the findings of this study, I proposed that the college develop a new pharmacology and medication administration course. This course will offer the competencies for medication administration and pharmacology knowledge to decrease errors in medication administration.

The course objectives are in place for both the theory and clinical component of the course. The course objectives align with the Essentials of Baccalaureate Education for Professional Nursing Practice and Quality, Safety, Education for Nurses, which are components of the nursing program's mission. The course objectives are derived from the nursing program goals and the AACN BSN Essentials (2008). The course objectives are currently in place in the Pharmacology syllabus were approved by the faculty prior to my position at the college (See Appendix A, page 123)

Project Evaluation Plan

To ensure learning outcomes are met and that the pharmacology and medication administration course, both formative evaluations at midpoint and summative evaluations will be utilized. There will be classroom discussions, clinical discussions and debriefing during simulation experiences, therefore quizzes, tests, a final written examination, and student laboratory check-off will be utilized to determine knowledge and competency as well as critical thinking ability. The discussions during class, which will be online, will allow emphasize critical thinking and competency of knowledge. Assignments will involve knowledge comprehension and formulations of real world experiences to foster

decision-making and evaluation of decisions. Debriefing will occur with simulation experiences, which are real world experiences, and will further stimulate critical thinking, decision making and evaluation of patient situations. Simulated activities will provide the student with a safe but yet complex patient and environment. The students can have discussions on how they could have made decisions differently and learn how to identify appropriate assessment, monitoring, and evaluation skills as they relate to pharmacology and medication administration. Students will be giving simulated medications to the simulated patient or standardized patient utilizing their knowledge and skills. They should be able to critique their performance, asked appropriate questions and recognize their continued achievement of identified learning outcomes. At the end of the course, the students will complete a summative evaluation related to their interactions with patients and participation in the course. They will also evaluate the course and faculty. The course instructors and all faculty members involved in the course will have the opportunity to provide summative feedback and changes will be made based on the feedback. Key stakeholders such as the Director and Dean of the program will be instrumental in evaluating the first course once a group of students has moved through the program.

Project Implications

Development and implementation of the pharmacology and medication administration course will provide a more rigorous learning experience for the nursing student at******. Examining and revising course content, enhancing clinical placement, along with the development of new simulated learning activities will provide the student nurses with increased knowledge of medications and competencies as they progress to the

next level in the curriculum.

Local hospitals and healthcare organizations will benefit from having competent and better-educated graduate nurses entering the workforce that will improve patient safety and less medication errors. The healthcare organization will recognize the competency of the graduate and have increased confidence in the graduates from the nursing program at ******. The course will enhance the students' knowledge of medications, improve critical thinking skills with the problem-solving scenarios, and allow the student to become proficient in safe medication administration. The students will benefit as they enter the workforce with greater confidence and a more effective skill set gained from their learning experience in the creation of a new pharmacology and medication administration course. This may lead to an easier transition for the graduate, less time in orientation for the healthcare organization and may foster the graduate to create a culture of safety within their department. In addition, the college in this study is a liberal arts institution and many of the students graduating from the nursing program are from various states across the country; and there are international students in the nursing program.

Students enter clinical practice in intensive care units, transplant units, oncology and hematology units, emergency departments expected to be equipped with a knowledge base and certain set of skills for a generalist nurse. Orientation of new graduates to a unit is costly to an organization. The graduate nurse prepared with an expected skill set and ability to critically think at the generalist level will have an effective orientation and transition to clinical practice. The health care organization may benefit monetarily by

having less need to train the graduate, and there may be increase satisfaction that contributes to retention of the graduate. According to Friedman, Cooper, Clark, and Fitzpatrick (2011), new graduate retention is challenging for healthcare organizations and can range from 25% to 64% in the first year of employment. Reducing turnover among nurses has been "estimated to have a cost savings range of 1.5 to 2 times a nurse's salary the financial" (Friedman et al., 2011, p. 8). This situation could be a win for the student and organization in that the organization's professional development department is not re-teaching information or skills that should have been learned in nursing school.

Medical errors are now the third-leading cause of death in the US according to researchers at Johns Hopkins University in Baltimore, Maryland. Medical errors account for an average of 250,000 deaths every year. Therefore a nursing workforce that can advocate for the patient, assess and monitor the patient for changes and manage patient care including medication management is needed. This workforce also needs to be aware of issues and potential problems that can occur in the healthcare system and be prepared to coordination the care for the patient. The health care organizations goals are to provide quality care and protect the patient from harm. The confidence, knowledge, and competency of the graduate nurse will have an impact on patient safety and potentially decrease the number of medication errors that occur in the clinical setting.

As mentioned above medical errors are the third-leading cause of death in the US. The topic of medical errors extends far beyond the nursing education curriculum to the global awareness of and prevention of medication errors. As previously mentioned medical errors account for 250,000 deaths every year. It is imperative to have a nursing

workforce that can advocate for the patient, assess and monitor the patient for changes and manage patient care most specifically monitoring medication management.

The data collected from in-depth participant interviews and supported by literature reviews confirmed the need for a new and innovative educational approach to learning pharmacology and medication administration. The creation of a pharmacology and medication administration course for ****** will provide the groundwork for students, fostering the development of competencies and skills before their graduation. Simulated activities, case studies, and scenarios will supplement class activities and clinical experiences thus building student confidence and competencies. Section 4 discusses reflections on the study, conclusion, and potential direction for continued research related to learning safe medication administration among student nurses.

Section 4: Reflections and Conclusions

The purpose of this study was to examine U. S. nursing students' perceptions of safe medication administration. Section 4 concludes with my project strengths and limitations, a recommendation for an alternative approach to teaching a pharmacology and medication administration course, and personal thoughts of me as a scholar, practitioner, and project developer. Lastly, I reflect on how the research project and pharmacology and medication course might affect social change in my local setting and a more global setting. The project examined students' perceptions of safe medication administration using a qualitative phenomenological narrative study. My intent was to obtain medication administration experiences from the student participants' point of view for which I have been able to do through interviews. I conducted this phenomenological study to identify the safety concerns of student nurses concerning medication errors in a local nursing program; I felt that medication administration concerns could affect patient safety. A didactic and practicum hybrid online course was developed after review of the literature and identified themes from the student participants'. In this final chapter, I also explore the implications of my research and offer final thoughts on my doctoral journey.

Project Strengths and Limitations

For this project, I examined the findings and explored solutions to problems associated with the student participants' perception of safe medication administration. In addition, the student participants' addressed concerns with the medication laboratory experience and clinical practice environment. The project study focuses on the development of a pharmacology and medication administration course that supports the

student nurse's learning and decreases their anxiety and fear of making a mistake. This course includes evidence-based practice nursing actions for administering medications safely and narrows the gap in knowledge about medications. Early recognition of student nurses' fears when faced with actual medication administering are now implemented into the course and may be addressed in a clinical simulation setting before transitioning into an acute patient care setting.

Gaps in knowledge about medication administration were comparable to problems identified and noted in the literature such as fear of making a mistake and causing harm to the patient, anxiety surrounding the medication administration process (Reid-Searl et al., 2008d). Student participants in this study described their experience with medication administration as a learning curve. The student participants' related the learning curve to the complexity of the patient and working environment.

Student participants also voiced in the interviews a lack of confidence and a reliance on their preceptors once they moved to their practicum experience. Students' lack of confidence is an area will be addressed early in the course with discussions related to the students' concerns. This project will offer the students didactic online learning discussions with peers and faculty to include areas of concern. The areas of concern were the following: (a) importance of student preparation for medication administration which includes the students' fear of a mistake and the complexity surrounding safe medication administration, and environment, (b) lack of confidence which can hinder safe medication administration, and (c) reliance on preceptors. Furthermore, the students can apply the theoretical knowledge to a clinically simulated

experience in a simulation laboratory.

Students in the study site's nursing program now have the opportunity to focus on the skills of medication administration and pharmacology in an online hybrid course. The application of medication administration can be implemented in a simulation setting and clinical arena. It is crucial for student nurses to be successful when they enter practice and have the confidence to engage in giving medications safely to their patients. This nursing course can help develop a student's skills with medication administration and offer experiences to ensure the development of these competencies. This course will offer students' opportunities to administer a variety of medications, build their knowledge base about medications, and experience the complexity surrounding medication administration. I believe that it will better prepare them for their practicum with a preceptor. The targeted outcomes from the medication and pharmacology administration course are as follows:

- the ability to apply existing knowledge, analyze the problem and devise a plan in the decisions making process and execute the plan when administering medications to a complex patient
- understand ethical and safety components when administering medications and engage in dialog with the patient and the interdisciplinary health care team
- demonstrate progression toward autonomy and independent learning in the clinical setting and have these skills acquired before working with a preceptor
- embrace change and problem solve to ensure the safety of the patient with

medication administration.

Based on my findings, I believe that using simulation strategies in a simulation setting and creating an online hybrid pharmacology course will allow faculty members to use their creativity to enhance a real-world experience, engage the students in meaningful learning, and diminish barriers such as a lack of confidence and fear among students when administering medications. The organization's nursing faculty are tasked to prepared the next generation of nurses for challenges in future health care. Future nurses should be ready with clinical competence and skills for medication administration. This project provides a variety of learning opportunities using coursework online, which includes open discussions among faculty and students working through realistic case studies, scenarios, and modules.

Strengths

Five significant strengths are evident from this project which included a review of the literature and a curriculum change. The curriculum change is the implementation of a pharmacology and medication administration course. The new course offers an interactive online component to engage the students in realistic medication administration using their pharmacology knowledge.

Second, the new student learning option is intended to allow for didactic and clinical practice with medication administration, which should help students to retain the information for application moving through the curriculum. As the students move into the clinical setting, they will have time to increase their confidence and ability and to demonstrate autonomy as they enter their practicum with the preceptor. New learning

experiences will also include simulated activities in the simulation lab. I designed course content to address gaps in content that I identified in participants' interviews.

Third, an interdisciplinary collaboration component will be an experience with medication administration and will include patient teaching to ensure continuity of care among the health care team. This experience will teach our students the importance of communication and give them experience as a team member in making decisions. The development of the simulation experiences will be addressed among all faculty involved in pharmacology and medication administration, which is something that does not currently occur. When developing the simulation experiences, the simulation champions will emphasis situations to include the potential for medication error occurrences. The students will focus on how to give medications which includes the patient's rights, and other facets of medication administration. In addition, another component important for students to think about when administering medications is an assessment, synthesis, and evaluation surrounding the medication once administered to the patient. Based on the interviews and feedback, the students did felt that the experience in the lab was not realistic to the actual clinical setting. They felt that the complexity of the process articulated a learning curve, one that they were not ready for when entering the clinical setting with faculty and their preceptor. Stress and anxiety were evident from the students' comments and a lack of confidence with giving medications. These concerns were addressed and recognized in case studies, modules, and scenarios which will be developed for the simulation experiences as well as discussions.

Fourth, health care institutions hiring new graduates from the College's nursing

program will benefit greatly because of their increase in practice and development of skills in a realistic environment with the same challenges as a health care setting. This project may give the nursing program an opportunity to offer the course in the summer provided there is access to clinical settings and available faculty.

Lastly, by providing simulation experiences and creating realistic environments including the complexity of the patients and the complexity of an environment such as with distractions by colleagues, physician calls, patient changes, and noise, the student will be offered a setting that is controlled and safe to make decisions. The students will be debriefed on patient safety and patient education; if they make a mistake or cannot take the knowledge and synthesize it, they have time to remediate and recall a safe plan. A simulation setting is a safe place for the student to encounter a situation that potentially could go bad for the patient, and stimulate confidence in the student before going into the clinical setting to manage the patient's medications.

The simulation experience will utilize high-fidelity patient simulators, and standardize patients with medication education. The environment will be very similar to a hospital clinical setting and other settings the College students utilize for clinical sites. The case studies, scenarios, and modules will focus on patient safety, patient education, the healthcare environment including electronic medical records and crucial assessment components with the medications to test the students' knowledge and application. Students must know what signs and symptoms to monitor for in case of an adverse reaction or situation, and they have to know how to handle changes when a patient goes badly. Students will have the opportunity to take care of the complex patient in an

intensive care unit but also a group of patients on a clinical floor in a simulated setting to prepare them for the actual clinical setting and their practicum. Faculty will have time to engage in discussion with suggestions for improvement and tips for handling critical situations. The debriefing after a simulated experience is crucial for the student, it gives the student time to review their performance and have discussion on ways to better improve themselves.

Limitations

Several factors limit findings of this study. One of the limitations of this research project was that the data collected from participants from the same local nursing program thus the findings may not be as generalizable to a larger population. Additional research in the area of safe medication administration including students from other local programs would help to enrich the study from a larger student perspective. Given that the sample size was only seven participants this further contributes to the limited generalizability to a larger population. However, the issues with safe medication and student nurses could foreseeably be recognized by other nursing programs and apply.

A second limitation relates to the participants being asked to recall preceding experiences in their course of studies. The earlier experiences may not be accurately remembered and recalled for this study. There is potential to strengthen the program with a capstone pharmacology course which could be added to the last semester of the nursing program. A capstone would concentrate on safety and working as a team providing continuity of care administering medications. Emphasis would be solely in the clinical setting with patients. The students would be at a higher level in the curriculum and would

have more autonomy in their medication administration experience.

Lastly, the instructors will need to be consistent with teaching the students the same information especially in the simulation lab. The information from this study will need to be introduced to the instructors and preceptors. The introduction will be done in a faculty committee meeting. However, more orientation may be required to ensure consistency in the simulation lab with the hands on student experience. This should not create any additional cost. Instead the researcher will present the information several times to meet instructors' needs and schedules.

Recommendations for Alternative Approaches

This study focused on the development of a new learning experience for pharmacology and medication administration for baccalaureate nursing students in a liberal arts college. The didactic component of the course is intense and requires time in the classroom. The online component involves discussion relating to various instructor-initiated scenarios expected student postings. The postings involve recall from past courses and materials that may include fundamentals theory on nursing management, results of lab test, and assessment skills. The clinical component includes bi-weekly simulation that draws from the discussions but implements an actual clinical experience. Students will draw upon their critical thinking and decision-making skills. They will work as a team and communicate effectively to provide for patient safety and teach medication administration to patients.

Another approach to this study would be to investigate the possibility and feasibility of teaching the didactic component of the pharmacology course totally online.

An interactive component could also be delivered in a hybrid setting. However there is a need for the students to have the motor skills development for administering various medications such as intramuscular, subcutaneous, intravenously and orally. Students would need this check-off with those routes and skills. Another approach to the clinical experience would be to introduce the student to simulation and simulate realistic experiences but also add experiences in a health care organization possibly with a one-to-one experience with a nurse.

If another research process was initiated with this study, it could expand to include additional nursing programs from other institutions, thus allowing for greater content as well as participant and instructor experiences. Including other nursing programs would create a broader base for discovering different outcomes and experiences that are effective and in place. Possibly there could be sharing among sister nursing programs.

A third approach would have been to send out surveys to former graduates during the academic years of 2013-2015. This option would broaden the participant numbers and provide a much larger base from which to collect and analyze data. The larger sample size would possibly contribute to the generalizability of the research study. However, the amount of data collected to analyze a larger participant group may become time-consuming.

Analysis of Self as Scholar

Prior to this study, I had limited participation in any scholarly research work, never as a principle investigator. In my former role as a nurse educator and dean of a

nursing program, I read research work completed by others to maintain and teach current nursing practice. At the beginning of this doctoral program, my only goal was to complete the program in as little time as possible. I also chose to move from the nursing arena to work in another health related setting and assist with curriculum and outcome development. This time brought disappointments and setbacks to my scholarly endeavors. I had to change the focus of my study several times. Once I rejoined the nursing arena, I have had enormous support and continued encouragement.

This study has provided me with the opportunity to understand and appreciate the time and work involved in completing quality research. I did not realize commitment that is required for a doctoral program. This journey began when I felt that it was essential in my work role. Due to work related changes, I am in my fifth year of this journey. One major accomplishment has been in my writing skills, and the other is perseverance. This doctoral process has given me the chance to work with an issue; research the literature to identify the best practices and create a project which when implemented will improve student practice. The problem investigated is crucial to patient safety and a vital role in nursing practice, and one that can potential be implemented by many nursing programs. Throughout this step-by-step process, I have discovered that the academic world opens doors for making a difference and creating change. The most challenge for me was many improvements needed with my proposal and the numerous times I made changes. Research was not required in my previous teaching and administrative positions. Most of my past writing in consisted of emails, memos, policies, and accreditation reports.

This doctoral journey is paramount to me, and I have enjoyed the researching process. The knowledge that I have gained through this process and years of work is rewarding, one that I will share with my peers and encourage them to undertake. The process has given me new skills to share and a new perspective of what is required for scholarly work.

Project Development and Evaluation

The hybrid pharmacology and medication administration course was designed to assist upper-level nursing students with real-life simulated experiences and case scenarios and learn pharmacology. The knowledge and competencies gained will increase the students' confidence to safely administer medications to patients and offer those teaching components while at the bedside and in individual and group settings. The project is detailed and one that can be utilized by many nursing programs. The simulation component scenario of the medication lab involves detail to ensure that the students have a realistic setting to learn and implement the knowledge and skills required for safe medication administration. The instructors with their expertise have the opportunity to be creative in writing scenarios to mimic real life patient experiences and if the budget allows, the nursing program may be able to purchase scenarios already developed. Instructors and students will evaluate the project once a class moves through the course to determine its success and need for enhancement.

I have enjoyed this project development and have had the opportunity to contribute as a member of several projects in my past positions. I found this project to be exciting and one I wanted to define in detail. The research process involved in this study

was the most challenging. I did not realize the time it would involve as I moved along from the prospectus, proposal and then dissertation. The analysis process was the most time-consuming trying to determine the themes and subthemes that emerged. The themes that I discovered are similar to issues that are in the literature now. However, there is a limited amount of current literature surrounding nursing students' perceptions of medication errors and this is the reason I chose to utilize a phenomenological approach for this study. The students I interviewed were most appreciative and willing to contribute this study.

In my current role as assistant professor teaching pharmacology to nursing students, I am fortunate to make a change once the course is implemented. I have had experience with curriculum and outcome development. I have been able to use my knowledge and skills to implement change with program development in my past. As a result of this opportunity, I have created a course designed to improve students' preparedness for practice. It is rewarding but humbling to be able to develop and complete this process. I will use the knowledge I have learned from this doctoral process and continue to work toward improvement within my organization but share my findings with other nursing programs.

Leadership and Change

Effective leadership and change are words that make the positive differences we see in society and healthcare. In implementing this pharmacology and medication administration course, I have the privilege to demonstrate the leadership qualities as I approach successful implementation of this project. As the initiator and developer, I feel

positive about my contribution to research with the implementation of a course that will improve the safety of patients, the quality of the students, and healthcare organizations. From this study, further research can occur to enhance safe healthcare and medication administration. Medication administration can result in harm to a patient if not correctly handled. The need to address medication errors associated with administration and its use can be a beginning for future project development within a nursing program and a health care organization. The work to prevent medication errors from occurring can expand further promoting a positive social change preventing harm to patients.

Creating and implementing this project has allowed me to become a change agent and advocate effectively for improving the quality of nursing education in a local nursing program. As a leader and change agent, I will strive to promote evidence-based instruction and evaluating methods to assist students to be prepared for the healthcare environment in which they will practice. I plan to continue to add online opportunities with additional courses that I teach once I complete this dissertation. I now know how to balance the workload of research, the work-life balance and pace myself but most of all enjoy the journey in a different setting. I have learned so many things as a student in a program that encourages you to become a scholar, I will continue to use this in my profession as an educator and encourage others to do the same.

Analysis of Self as Practitioner

As an educator, I am more aware of nursing students learning needs. I feel that it is my responsibility to make sure that students are taught to provide safe quality care to their patients including medication administration. The topic of students' perception of

safe medication administration is one of major concern as an educator especially if there is alarm related to errors with medication administration. In my role as an educator while monitoring students on clinical as they administer medications, I have witness adverse events and seen medication errors occur while working with colleagues and students. The nursing students with medication administration have described a feeling of fear. The feeling is real and can create a stressful situation for the student. The steps required and caution needed before administering medications has to take place with every medication administration to ensure safety. As a nurse, I am more cautious and put every check and balance in place as I administer medications to patients this means triple checking the medications if I need to. In addition, safe medication administration means communication with the team and the patient.

As a nurse educator, I have developed the patience and compassion to see that students receive the time they need to learn the competency and skill needed for safe medication administration. Often the more seasoned nurse forgets those days in nursing school, forgetting how scared they were with patient care. Administrating medications with fear and uncertainty about the skill in a complex environment can set the stage for a medication error to occur. The important step for me is to recognize the challenges students face with medication administration and spend that extra time with the students encouraging them and keeping them focused on skill. I can make a difference as an educator even if it is only one student. I do believe that the students must also own their education and be accountable for their learning. However, the one student that I tutor may be the best practitioner ever once he/she gains that knowledge and skill.

Analysis of Self as a Project Developer

Project development is an area that I enjoy. I see growth and improvement with new projects. Creating a pharmacology and medication administration course was gratifying and rewarding. I am comfortable with curriculum development and writing syllabus. Reviewing the literature allowed me to view the different perspectives and teaching modalities available to lay a foundation for this project. My passion is for online teaching; I hope to further my knowledge in this area once I have completed this doctoral journey. I have learned several lessons from this journey. The teaching process online was fairly new to me. I had to investigate how this was being used in nursing and how to create a realistic scenario for simulation and discussion. I gained a new perspective on data collection and analysis. I mentally had a picture of what would take place with the interviews but not until I started collecting the data did I realize the detail that participants would provide and the intensity of the analysis after the interviews. I enjoyed the interviewing process and learning from the participants.

Throughout this process and finally with the completion of the project, I have learned to persevere, be patient and continue to try in spite of the many twists in the proposal process. I have also learned a great deal about qualitative research and the IRB process. I met with a qualitative researcher to confirm my themes and suggest others. This confirmed that I was not second-guessing myself after hours and hours of reading transcripts clustering data. I believe this study is important. The study presented a potential solution for the prevention of medication errors by creating a realistic experience one of patient and environment complexity and medication similarity utilizing

a hybrid format.

The Project's Potential Impact on Social Change

The main impact of social change from my study and project will be the prevention of medication errors among upper-level nursing students in a local setting in central Virginia. The pharmacology and medication administration course can be shared with other educators potentially locally, at the state and national level. When the opportunity arises, I plan to present the project to other nursing colleagues at local and state conferences. I will also seek to publish the results in a nursing journal. The project is important for students to learn pharmacology and safe medication administration in a safe environment such as simulation. The project will include scenarios to mimic real world experiences that will be a focus of discussions. The project developed is intense and requires enormous preparation prior to class and laboratory experiences. The outcomes regarding patient safety with medication administration will be positive.

Medication errors are costly and often preventable. Nurses face the unknown every day when they enter their clinical site. They have to coordinate and manage patient care in a complex environment. The development of a new pharmacology and medication administration will contribute to the nursing student's preparation for practice, thus when that graduate nurse enters the workforce he/she will be better prepared to provide quality care and possess those critical thinking skills related to pharmacology and safe medication administration. Graduate nurses from this local college are from various locations throughout the U.S.and may be from an international country. Many return to practice in their home state or country. These students will

possess those skills and competencies for entering practice. They carry those safe medication administration practices to create a culture of safe patient care and quality care with medication administration.

From 21 interviews of seven student nurses' perceptions of safe medication administration, I explored the best possible ways to prepare the student for safe practice and the challenges they would face when they entered the profession. These students, now practicing nurses, seemed the best source of information for understanding what is needed in their preparation for practice with pharmacology and medication administration and make a social change as they enter into practice.

Implications, Applications, and Directions for Future Research

The results of this project were those nursing students administering medications viewed fear of making a mistake when giving medications to their patients. Three major themes and two sub-themes were identified from the data analysis and include the following: learning curve, gaining confidence, and reliance on preceptor. Two sub-themes that align with the learning curve were: fear of making a mistake and appreciating complexity. Similar themes were reflected in the literature. From the study's findings, implication for social change consisted of improving the students' knowledge of pharmacology and medication administration competencies to improve medication errors among student nurses and future graduate nurses. The implications will be to educate future nurses in pharmacology and medication administration to practice safe medication administration and are careful in making decisions involving patient's medications. The project can be adapted and applied to other schools of nursing.

There were limitations in this research study, mainly the small number of participants and all from one program. A phenomenological research design allowed for seven interviews providing rich data. Future research is needed to include additional nursing programs with students at the same practice level. Possibly a larger pool from separate schools will allow for a comparison of data and findings. This study included upper-level students. From a research perspective, it would be interesting to compare progression from the different levels of nursing students with medication administration to determine gaps in the knowledge and skills for medication administration. Also, further research would be interesting to determine knowledge of pharmacology and medication administration among graduate nurses six months to a year after graduation. These findings may allow for the identification of gaps in the programs and the graduates perceptions of safe medication administration.

Conclusion

This dissertation experience has been one of hard work with many challenges. Work challenges occurred while I was in school making the journey difficult at times requiring me to change my focus several times. With many hours of work and completion of my project, I feel a sense of accomplishment and satisfaction. I have developed a project that will impact the improvement in medication administration among upper-level nursing students. Now that I am at the end of this journey, I am elated to overcome what seemed to be an insurmountable workload in my life compounded with the many challenges of work and life. I now have the foundation to continue with similar qualitative research and encourage others to do the same. I believe the evidence from this

study enabled me to develop a pharmacology course to connect the classroom and the clinical setting and allow time for clinical discussion with a hybrid format. The positive impact from the connection will be the students' problem solving ability and critical thinking with pharmacology as they participate in discussions and critically think through realistic scenarios. The value of this study, its findings, and impact on patient safety in healthcare validates a commitment to social change and a positive impact on our healthcare systems.

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Appendix A: NRSG 300 Pharmacology and Medication Administration Course

******* Nursing Program
School of Health Sciences & Human Performance
Fall 2017
4 Credits

Syllabus

Faculty
Kathy Johnson, Ed.D(c), MSN, RN
Assistant Professor
(Office phone: 111.111.111)

I. **COURSE DESCRIPTION**

This course emphasizes pharmacotherapeutic agents used in the treatment of disease processes and highlights the principles of pharmacokinetics, pharmacodynamics, and pharmacogenetics as they are used for specific disorders. The course provides the student an opportunity to investigate pharmacological principles and understand the relationship between pharmacologic knowledge and nursing practice utilizing the nursing process. The concept of patient safety and medication management will be the focus of discussion for all case scenarios and safe medication administration. Emphasis will also be on legal and ethical parameters of medication administration. The pharmacology lab will focus on patient safety and safe medication administration. Students will develop the psychomotor skills needed for safe medication administration, which will be reinforced with simulation and laboratory practice experiences.

II. **COURSE GOALS**

Student will learn to:

- Explore
- Conclude
- Persuade
- Engage

The course objectives are derived from the Nursing Program Goals and the AACN BSN Essentials. Students meet these goals by achieving the following objectives:

Inquire: *frame questions that address issues and uncertainties across a range of disciplines*

- Utilize patient care technology in the delivery of medication administration, and communication among the health care team to ensure safe and quality patient care. (Program Goal 4) (AACN BSN Essential IV, V, VIII, IX)
- Discuss the patient care setting identifying areas of complexity that contribute to quality and safety (Program Goal 2) (AACN BSN Essential II,V)
- Discuss the role of the preceptor and relate attributes of an effective mentor. (Program Goal 8) (AACN BSN Essential VI)
- Identify roles of the healthcare team and recognize measures to improve safe medication administration (Program Goal 2 & 6) (AACN BSN Essential VI, IX)

Explore: *investigate issues in depth and detail*

- Relate relevant physiology and pathophysiology to the use of specific classifications of medications in humans. (Program Goal1) (AACN BSN Essential I, III, IX)

- Identify drug prototypes for major health problems, including major effects, adverse effects and relevant information for safe use. (Program Goal1) (AACN BSN Essential III, IX)
- Demonstrate safe and accurate competencies for safe medication administration (Program Goal 2) (AACN BSN Essential VIII, IX)
- Understand the use of electronic medical records and medication administration technology for safe medication administration (Program Goal 4) (AACN BSN Essential IV, V, VIII, IX)

Conclude: *develop informed responses to issues*

- Discuss nursing standards and accountability for nursing actions in medication administration.
  (Program Goal1 & 2) (AACN BSN Essentials II, III, IV, V, VI, VII, VIII)
- Relate research findings about drugs and drug therapy to clinical practice. (Program Goal 1,2,4 & 7) (AACN BSN Essentials (II, III, IV, V, VI, VII, VIII)

Persuade: *convince others of the validity and value of conclusions*

- Discuss nursing standards and accountability for nursing actions in medication administration.
  (Program Goal 3 & 7) (AACN BSN Essentials II, III, IV, V, VI, VII, VIII)
- Relate research findings about drugs and drug therapy to clinical practice. (Program Goal 1,2,3,4,6, & 8) (AACN BSN Essentials III, VIII)
- Educate the patient about their medications, teaching safe administration and knowledge of adverse findings to report. (Program Goal 3 & 8) (AACN BSN Essentials VII, VIII)

Engage: *use knowledge and abilities for the good of self and society*

- Relate relevant physiology and pathophysiology to the use of medications in humans. (Program Goal1) (AACN BSN Essentials I, III, VII, IX)
- Identify pharmacologic principles that encompass physical and chemical properties of drugs as well as biochemical and physiologic effects. (Program Goal 1,2,3, 6,7, & 8) (AACN BSN Essentials III, VII, IX)
- Identify pharmacologic principles that encompass physical and chemical properties of drugs as well as biochemical and physiologic effects. (Program Goal 1,2,3, 6,7, & 8) (AACN BSN Essentials III, VII, IX)
- Identify drug prototypes for major health problems, including major effects, adverse effects and relevant information for safe use. (Program Goal1) (AACN BSN Essentials III, VII, IX)

- Demonstrate safe and accurate medication administration incorporating all routes and accuracy with calculations. (Program Goal 2) (AACN BSN Essentials I, VIII, IX)
- Appropriately make decisions based on current research and evidence-based practice for patient across the lifespan (Program Goal1 & 8) (AACN BSN Essentials III, V, VII, VIII, IX)

PROGRAM GOALS

1. Make appropriate practice decisions using research and evidence-based practice for persons of various ages and health states to promote and improve health care results (AACN BSN Essential II).
2. Provide safe, patient-centered, culturally competent nursing care across the continuum for individuals, families, communities, and populations to promote health and disease prevention (AACN BSN Essential VII & IX).
3. Communicate effectively with patients, families, colleagues, and professionals from other disciplines (AACN BSN Essential VI).
4. Demonstrate effective, ethical use of information technologies to perform and document safe, quality patient care (AACN BSN Essentials IV & VIII).
5. Demonstrate excellence in writing skills and research by producing creative scholarship that expands nursing knowledge. (AACN BSN Essential I & VI)
6. Positively influence health care outcomes through Inter-professional collaboration to accomplish patient health care goals. (AACN BSN Essentials VI & VIII).
7. Integrate knowledge of health care policies, systems management, and finance using innovative approaches to promote continuous quality improvement in health care settings (AACN BSN Essential V & VI).
8. Demonstrate professional behaviors and values to model the core attributes of the nursing profession and pursue practice excellence (AACN BSN Essentials VIII & IX).

III. **REQUIRED TEXTS AND CLASS MATERIAL**

1. Frandsen, G., & Pennington, S. S. (2014). *Abram's Clinical Drug Therapy: Rationales for Nursing Practice*. Philadelphia, PA: Wolters Kluwer.
2. Taylor, C. R., Lillis, C., LeMone, P., & Lynn, P. (2015). *Fundamentals of Nursing: The Art and Science of Patient-Centered Nursing Care.* Philadelphia, PA: Wolters Kluwer.
3. ATI -*RN Pharmacology for Nursing Edition 5.0*
4. Publication manual of the American Psychological Association (6th ed.). (2010). Washington, DC: American Psychological Association. (optional)
5. App – Epocrates (download the free version only!) (optional)
6. ATI resources, review modules and tutorials

IV. **COURSE REQUIREMENTS**

1. Students are expected to read and abide by all policies in the college handbook and the Nursing Undergraduate Student Handbook.
2. Minimum preparation involves prior reading of assigned material and completion of preparatory assignments. Active participation is expected with threaded discussions. This active participation means that the student engages in relevant and meaningful discussions related to the topic without prompting.
3. Faculty will use Moodle or Email to make class announcements. Students are required to access Moodle or Email regularly.
4. Must have Internet access on a regular basis at home if living off campus in order to complete assignments and all correspondence.
5. Must be able to access the online library to retrieve research articles
6. Assignments must be submitted on time to receive full credit. If extenuating circumstance or illness occurs on or before the due date, this should be discussed with the course faculty immediately to make arrangements for an alternate submission date. Unless an extension is negotiated, late work will NOT be accepted and a grade of zero will be given for that assignment.
7. If classes are scheduled on campus and are cancelled due to inclement weather, students should continue course preparation for the missed class. Assignments due on the missed class date will be die at the next regularly scheduled class time. Other announcements may be posted via Moodle or Email. In the event of inclement weather, please call the L C Action Line at 444-4444 for college closing information.

V. **COURSE PHILOSOPHY**

The curriculum of all college courses is to help students become independent thinkers, lifelong learners, capable citizens, and responsible adults. If is not immediately clear what relevance an assignment has to your interests and goals, feel free to discuss it with me. Everything you are asked to do has a pedagogical purpose, however sometimes the reasons behind things are clearer in retrospect. Ultimately, you will get out of the course what you put into it.

VI. **CLASS AND LAB PROTOCOLS**

- ***Individual preparation:*** Students are expected to prepare assignments prior to each class. Remember to bring instructional materials to class. Arrive on time for labs. Prepare in advance with assignments complete.
- ***Professional participation in Lab only:*** Wear watches that count seconds to all labs, no bracelets, rings other than wedding band, and no other dangling jewelry allowed. Fingernails are short, clean, and free of colored polish or designs. Long hair is to be tied back and off the collar. Adherence to good hand hygiene is expected at all times. Focus and use you time for practice. Leave the lab as you found it with beds made and equipment in proper place. Report to the Administration Assistant any equipment not working.

- ***Absences:*** If you are absent or late to this class, you will be missing knowledge and activities that are important to your success. Students are responsible for material when excused from class.
- ***Moodle:*** Course power points and assignments/activities will be posted on Moodle. Check Moodle daily for updates.
- ***Workload:*** The 'National Standards for Academic Collegiate Coursework' is described as follows:

1. The 'average student' should expect to complete two to three hours of work outside of class for each hour of credit in order to earn an average grade (C). Thus, for a three-credit hour course, an average student should expect to do an average of six to nine hours of work outside class per week in order to earn an average grade.
2. If you are 'bright,' you may be able to work fewer hours to receive an average grade. If you have a learning disability, you may have to work more hours to earn an average grade.
3. If you are an average student who wishes to earn a higher grade (A or B), you will need to invest additional time to your assignments.
4. If you are an average student who does not care about passing the course, you can work less.
5. If you find that you are spending an appropriate amount of time studying, but you are not earning appropriate grades, PLEASE come talk to me about it. I may be able to help you devise strategies to study more efficiently.

VII. **EVALUATION METHODS**

To continue to progress in the nursing major, students must maintain a B- or better in all nursing courses. If the student is not successful in obtaining the required grade, he or she may repeat the course once, if space is available. If a nursing major fails to earn a grade of B- on any two required nursing course, the student must withdraw from the nursing major. If a student feels that he/she has not completed a nursing course with a B- or better due to extenuating circumstance, he or she may file a written appeal documenting these circumstances to the nursing program director.

Refer to the grading scale in the Nursing Student Handbook
Classroom and Online

ATI Assignments	10%
Tests	60%
Exam	20%
Scenarios/Case Studies	10%
Total	100%

Laboratory and Simulation

ATI Modules	Pass/Fail
Scenarios	Pass/Fail
Medication Check off	Pass/Fail

Presenting your ATI module post-test certificate is the only method by which you will be allowed to participate in lab. You will present the certificate at the beginning of the lab session and late assignments will not be accepted.

Final Medication Pass Demonstration Rubric
This experience is an integrated medication pass demonstration as assigned by your faculty member. Students will narrate what he/she is doing during the simulated experience and any findings. Students cannot ask faculty questions during the demonstration. A basic calculator will be provided but no other learning aids such as iPads or computer.

Final Medication Administration Rubric			
Evaluation Criteria		Objectives	Comments
Meets Objectives	Does not Meet Objectives		
		States the dosage, action of the medication prior to administering, purpose of the medication, and adverse effects of the medication	
		Checks the MAR for accuracy	
		Assesses the patient for allergy, appropriate labs and specific physical assessment components as needed	
		Carries out the 5 rights for safe medication administration	
		Answers any questions the patient or family may have prior to administering	
		Administers appropriately according to the route ordered for the patient	
		Hand hygiene carried out before and after	

METHODS OF INSTRUCTION

Note: This course draws on information from multiple disciplines, including but not limited to anatomy and physiology, pathophysiology, microbiology, chemistry, health assessment, and psychology. You are expected to use the knowledge and skills learned in previous courses as a basis for this course.

Online discussion forums, PowerPoint Presentations, Case Study Scenarios, Simulation, Simulated Scenarios, face to face clinical experiences, online quizzes and classroom exam, ATI modules, ATI non-proctored and proctored Pharmacology exam.

Tests/Exams

During the semester there will be six tests and a comprehensive final exam. All must be pledged.

Tests/Exams are to be taken at the assigned class times. Alternate test dates are not available to accommodate student travel plans. The test taking policy outlined in the Student Handbook (2017-2018) will be adhered to for all tests, test reviews and answer justification. Make-up testing opportunities will only be provided under circumstances consistent with the testing policy. Students must notify faculty of the reason for a missed test prior to the scheduled testing time. Failure to communicate about a missed test will result in a zero for the test. Grades will be posted on Moodle as soon as possible.

Review Policy: Course faculty will store all tests for each student and students may make an appointment to review. Review of tests will follow the policy outlined in the Student Handbook (2017-2018)

Requirements for ATI testing:
All students will be required to take the non-proctored assessment AND a focused review four weeks before the proctored assessment. Please refer to the Nursing Undergraduate Student Handbook for details regarding ATI testing.

EVALUATION CRITERIA

1. ATI Learning System RN Assessments/Tests

ATI Learning System RN Practice Assessment/Tests: Pharmacology
ATI Learning System RN Final Assessment/Tests: Pharmacology

2. Concept Mastery Series:
Pharmacology Practice Test A
Focus Review
Pharmacology Practice Test B
Focus Review

3. ATI Study/Tutorial Modules:
Pharmacology Made Easy 3.0 Required Modules: Refer to Course Calendar for the Modules Completion Dates

It is recommended that you access the tutorials early and become familiar with the various modules and the Module Reports.

Scenarios
Scenarios are posted in Moodle 2 and on Course Calendar.

Discussion Guidelines
Initial weekly discussions must be submitted by midnight on Wednesday of each week to the discussion forum. Each student must respond to (2) other students' postings. You may ask questions, contribute to the discussion, related experiences that may be similar. Responses should begin on Sunday at midnight of each week. The instructor will lead the discussion. All students are expected to maintain professional online communication.

VII. **HONOR CODE:** All students at ********* are expected to abide by the tenets of the Honor Code. The Honor Code is a system of conduct that reflects the core principles and values that the college has established regarding individual responsibility involving honorable conduct. Violations of the Honor Code include the following general areas: cheating, plagiarism, falsification, tampering with records, forgery, and withholding information. It is every student's responsibility to report any violation observed to the professor or Honor Council.

VIII. **DISABILITY SERVICES:** ********* is committed to providing all students equal access to learning opportunities. The Disability Services Coordinator (DSC) works with eligible students with disabilities to make arrangements for appropriate and reasonable accommodations. Students registered with the DSC who receive approved accommodations are required to communicate with each professor to discuss accommodations they wish to implement in individual courses.

Executive Summary
The essentials of Baccalaureate Education for Professional Nursing Practice (2008)

The nine Essentials are:

Essential I: Liberal Education for Baccalaureate Generalist Nursing Practice

- A solid base in liberal education provides the cornerstone for practice and education of nurses.

Essential II: Basic Organizational and Systems Leadership for Quality Care and Patient Safety

- Knowledge and skills in leadership, quality improvement, and patient safety are necessary to provide high quality health care.

Essential III: Scholarship for Evidence-Based Practice

- Professional nursing practice is grounded in the translation of current evidence into one's practice

Essential IV: Information Management and Application of Patient Care Technology

- Knowledge and skills in information management and patient care technology are critical in the delivery of quality patient care

Essential V: Health Care Policy, Finance, and Regulatory Environments

- Healthcare policies, including financial and regulatory, directly and indirectly influence the nature and functioning of healthcare system and thereby are important considerations in processional nursing practice.

Essential VI: Inter-professional Communication and Collaboration for Improving Patient Health Outcomes

- Communication and collaboration among healthcare professionals are critical to delivering high quality and safe patient care.

Essential VII: Clinical Prevention and Population Health

- Health promotion and disease prevention at the individual and population level are necessary to improve population health and are important components of baccalaureate generalist nursing practice.

Essential VIII: Professionalism and Professional Values

- Professionalism and the inherent values of altruism, autonomy, human dignity, integrity and social justice are fundamental to the discipline of nursing.

Ess**ential IX Baccalaureate Generalist Nursing Practice**

- The baccalaureate-graduate nurse is prepared to practice with patients, including individuals, families, groups, communities, and populations across the lifespan and across the continuum of healthcare environments.

- The baccalaureate graduate understands and respects the variations of care, the increase complexity, and the increased use of healthcare resources inherent in caring for patients.

Didactic Course Schedule

Monday 8 – 9:15 a.m.
Wednesday – Online discussions
Wednesday Lab 8am -11am

Date/Week	Classroom Activities and Online Discussion	Assignments
Week #1 The Conceptual Framework of Pharmacology Monday	Orientation to the Pharmacology and Medication Administration Course (Hybrid) Introduction to Pharmacology and Patient Safety	ATI: Introduction to Pharmacology (Pharmacology Made Easy) Frandsen: Read Chapter 1 Review the National Patient Safety Goals and Identify areas related to patient safety Frandsen pp. 10-12. https://www.jointcommission.org/ Frandsen p. 14, Key Conceepts
Wednesday	Online Discussion Related to Basic Concepts and Processes; Critical Thinking Scenario Case Study: Legal and ethical concerns related to a medication error Lab: Orientation to Simulation and Scenarios Safe medication administration and error	Frandsen: Read Chapter 2 Critical Thinking Scenario Case Study Legal and ethical concerns related to a medication error Taylor Read: Chapter 28 pp. 751-764; 755-766; 765-772 ATI Pharmacology for Nursing

	prevention Rights of medication administration Dosage calculation Adverse effects, interactions, and contraindications Basic medication administration *Scenario TBD	(6th ed.) pp. 1-9; 14-20; Chapter 5 ATI: Pharmacology for Nursing (6th ed.) Chapter 3; focus on p 27. Using Desired Over Have ATI Dosage Calculation 2.0 Desired over Have: Safe Dosage Module You must bring certificate as entry to lab
Week #2 Drug Therapy Throughout the Lifespan Monday Wednesday	Pharmacology and Care of the Infant and Pediatric Patient Pharmacology and Care of the Adult and Geriatric Patient Pharmacology and the Pregnant or Lactating Women Online Discussion: Drugs that alter uterine motility. Discuss the Clinical Application Case Study p. 83. Lab: IV management (IV insertion, assess with peripheral and central venous lines)	Frandsen: Read Chapter 4 Frandsen: Read Chapter 5 Frandsen: Read Chapter 6 Frandsen: Review Chapter 6 Clinical Application Case Study p. 83. Taylor Read: pp. 1500-1519; Skill 39-1, 39-2, 3, and 39-5 ATI Skills Module: Central Venous Access Devices and Intravenous Therapy ATI: Pharmacology for Nursing (6th ed.) Chapter 4

Week #3 Drugs Affecting the Hematopoietic and Immune System Monday	Test 1 Drug Therapy for Coagulation Disorders Drug Therapy for Dyslipidemia Drug Therapy: Immunizations Drug Therapy for the Treatment of Cancer	Test 1 Frandsen: Read Chapter 7 Frandsen: Figure 7.1, p.103. Frandsen: Box 7.4, p.103. Frandsen: Read Chapter 8 Frandsen: Read Chapter 10 Frandsen: p. 162 Key Terms Frandsen: p. 165-170 Table 10.1 Frandsen: Read Chapter 12 ATI: Complete the Hematologic System Module (Pharmacology Made Easy) ATI: Complete the Immune System Module (pharmacology Made easy)
Wednesday	Online Discussion: Case Study Coagulation for a Post-Operative Hip Replacement Case Study Cancer/Chemotherapeutics Lab: IV management cont. (saline lock, rate calculations, primary vs secondary) *Scenario TBD	Case Study Coagulation for a Post-Operative Hip Replacement Case Study Cancer/Chemotherapeutics Taylor Review: pp. 1500-1517 ATI: Pharmacology for Nursing (6th ed.) Review: Chapter 4 ATI Skills Module: Medication Administration- 4

Week #4 Drugs Affecting Inflammation and Infection Monday	Inflammation, Infection, and the Use of Antimicrobial Agents Drug Therapy to decrease Pain and Fever and Inflammation Drug Therapy with Corticosteroids Case Study p. 270 Frandsen: Box 15.1 Effects of Glucocorticoidss on Body Processes and Systems Drug Therapy with Beta-Lactam Antibacterial Agents Frandsen: Critical Thinking Questions p. 310	Frandsen: Read Chapter 13 Frandsen: Read Chapter 14 Frandsen: p. 268 Black Box Warnings Frandsen; Read Chapter 15 Frandsen: Case Study p. 270 Frandsen: Box 15.1 Effects of Glucocorticoidss on Body Processes and Systems Frandsen: Read Chapter 16 Frandsen: Critical Thinking Questions p. 310
Wednesday	Online Discussion: Case Study: Arthritis and the use of cortisone Lab: Calculation of Oral Medications/Systems of Measure including NG/G tube meds	Case Study: Arthritis and the use of cortisone Taylor Read: pp. 772-774; Skill 28-1 ATI Skills Module: Medication Administration 1
Week #5 cont. Drugs Affecting Inflammation and	Drug Therapy with Aminoglycosides and	Frandsen: Read Chapter 17

Infection Monday	Fluoroquinolones Drug Therapy with Tetracyclines, Sulfonamides, and Urinary Antiseptic Drug Therapy with Macrolides, Ketolides, and Miscellaneous Anti-Infective Agents Drug Therapy for Tuberculosis and Mycobacterium avium Complex Disease Frandsen: Case Study p. 349	 Frandsen: Read Chapter 18 Frandsen: Read Chapter 19 Frandsen: Read Chapter 20 Frandsen: Case Study p. 349 ATI: Complete the Infection Module (pharmacology Made Easy)
Wednesday	Online Discussion: Case Study: Antibiotics Patient Teaching for a patient receiving Rifamycins Lab: Practice administration of oral/NG/G tube meds *Scenario TBD	Case Study: Antibiotics Taylor Read: pp. 772-774 ATI Dosage Calculation 2.0 Desired over Have: Medication Administration and Oral Medication Module
Week #6 cont. Drugs Affecting Inflammation and Infection	Test 2 Drug Therapy for Viral Infections Frandsen: Critical Thinking	Test 2 Frandsen: Read Chapter 21 Frandsen: Critical Thinking

Monday	Questions p. 396	Questions p. 396
	Drug Therapy for Fungal Infections Frandsen: Critical Thinking Questions p.417	Frandsen: Read Chapter 22 Frandsen: Critical Thinking Questions p.417
	Drug Therapy for Parasitic Infections	Frandsen: Read Chapter 23
Wednesday	Online Discussion: Evidenced Based Practice with drugs used to treat Human Immunodeficiency Virus (HIV) (Antiretroviral Drugs)	Students will research the literature for most current treatment for HIV
	Lab: Practice administration of medications via other routes	Taylor Read: 786-795; Examine the pictures with the Guidelines for Nursing Care ATI Skills Module Medication Administration 2
Week #7 Drugs Affecting the Cardiovascular System Monday	Drug Therapy for Heart Failure Frandsen: Case Study p.437	Frandsen: Read Chapter 24 Frandsen: Case Study p.437
	Drug Therapy for Dysrhythmias Frandsen: Case Study p. 456	Frandsen: Read Chapter 25 Frandsen: Case Study p. 456
	Drug Therapy for Angina	Frandsen: Read Chapter 26

Wednesday	Frandsen: Critical Thinking Questions p. 492 Drug Therapy to Enhance the Adrenergic Response Drug Therapy for Hypertension Online Discussion: Evidence-based practice National Clinical Guideline Centre Case Study: Hypertension Lab: Administer Injections (Practicing drawing up from vial and ampules) *Scenario TBD	Frandsen: Critical Thinking Questions p. 492 Frandsen: Read Chapter 27 Frandsen: Read Chapter 28 ATI: Complete the Cardiovascular System Module (Pharmacology Made Easy) http://wwwguideline.gov/content Case Study: Hypertension Taylor: Read pp. 774-784; Skills 28-6, 7 pp. 808-813; skill 28-2, 3, 4 ATI Skills Module Medication Administration 3 ATI Dosage Calculation 2.0 Desired over Have: Powered Medications
Week #8 Drugs Affecting the Respiratory System	Test 3 ATI Learning System Concept Mastery Practice-A	Test 3 ATI- Complete the Learning System RN: Pharmacology Practice Assessment Complete Concept Mastery Series Pharmacology Practice Test A You will need to review each missed content area- it is expected that you spend time

Monday Wednesday	Drug Therapy for Nasal Congestion Frandsen: Case Study p. 539 Drug Therapy to Decrease Histamine Effects and Allergic Response Frandsen: Case Study p. 539 Drug Therapy for Asthma and Bronchoconstriction Frandsen: Case Study p. 567 Online Discussion: Case Study: Asthma Patient Teaching for Antiasthmatic Drugs Lab: Practice Injections/Review past Skills	reviewing; focusing specifically on areas in which you scored below 80% Frandsen: Read Chapter 29 Frandsen: Case Study p. 539 Frandsen: Read Chapter 30 Frandsen: Case Study p. 539 Frandsen: Read Chapter 31 Frandsen: Case Study p. 567 ATI: Complete the Respiratory System Module (Pharmacology Made Easy) Case Study: Asthma
Week #9 Drugs Affecting the Renal and Digestive Systems Monday	Drug Therapy for Fluid Volume Excess Nutritional Support Products, Vitamins, and Minerals Supplements Drug Therapy for Weight Management	Frandsen: Read Chapter 32 Frandsen: Read Chapter 33 Frandsen: Read Chapter 34

Wednesday	Frandsen: Box 34.4 p. 646 Online Discussion: Nutritional Support Frandsen: Case Study p. 608 Obesity and health risks Lab: Skill Demonstration SQ injection to Classmate Administer Insulin/Heparin *Scenario TBD	Frandsen: Box 34.4 p. 646 Frandsen: Case Study p. 608 ATI: Compete the Gastrointestinal Module (Pharmacology Made Easy) Taylor Read: pp.774-784 ATI Dosage Calculation 2.0 Desired over Have Injectable Medications
Week #10 cont. Drugs Affecting the Renal and Digestive Systems Monday	Test 4 ATI Learning System Final Assessment ATI Concept Mastery Practice Test B Drug Therapy for Peptic Ulcer Disease and Gastroesophageal Reflux Disease Drug Therapy for Nausea and Vomiting Drug Therapy for Constipation and	Test 4 ATI- Complete the Learning System RN: Pharmacology Final Assessment Complete Concept Mastery Series Pharmacology Practice Test B You will need to review each missed content area- it is expected that you spend time reviewing; focusing specifically on areas in which you scored below 80% Frandsen: Read Chapter 35 Frandsen: Read Chapter 36 Frandsen: Read Chapter 37

Wednesday	Elimination Problems Drug Therapy for Diarrhea Frandsen: Case Study p. 700 Online Discussion: Frandsen: Case Study p. 672 Breast Cancer Case Study: Gastrointestinal Lab: Administer IV Push Medications	Frandsen: Read Chapter 38 Frandsen: Case Study p. 700 Frandsen: Case Study p. 672 Breast Cancer Taylor Read: Skill 28-8 and 28-10 ATI Dosage Calculation 2.0 Desired over Have: Critical Care Medications
Week #11 Drugs Affecting the Endocrine System Monday	ATI Proctored Exam Drug Therapy for Diabetes Mellitus Frandsen: Key Terms p. 714 Drug Therapy for Hyperthyroidism and Hypothryroidism Drug Therapy for Pituitary and Hypothalmic Dysfunction Drug Therapy to Regulate Calcium and Bone Metabolism Drug Therapy for Addison's Disease and Cushing's Disease Frandsen: Case Study p. 794	ATI Proctored Exam Frandsen: Read Chapter 39 Frandsen: Key Terms p. 714 ATI: Complete the endocrine System Module (Pharmacology Made Easy) Frandsen: Read Chapter 40 Frandsen: Read Chapter 41 Frandsen: Read Chapter 42 Frandsen: Read Chapter 43 Frandsen: Case Study p. 794

Wednesday	Online Discussion: Insulin Case Study Diabetes Diabetic Care for a patient Frandsen: Case Study p. 762 Lab: Pediatric Dosing/Weight Based Calculation *Scenario TBD	Case Study Diabetes Frandsen: Case Study p. 762 ATI Dosage Calculation 2.0 Desired over Have: Dosage by Weight Dosage Calculation 2.0 Desired over Have Pediatric medications. Complete the Section Special Considerations and Medication Dosing for Children: Dosage by Weight You do not have to bring certificate to lab for this module
Week #12 Drugs Affecting Women's and Men's Health Monday Wednesday	Drug Therapy for Women's Health Drug Therapy for Men's Health Online Discussion: Frandsen: Case Study p. 809 Frandsen: Case Study p. 829 Lab: Critical Care Medications	Frandsen: Read Chapter 44 Frandsen: Read Chapter 45 ATI: Complete the Reproductive and Genitourinary System Module (Pharmacology Made Easy) Frandsen: Case Study p. 809 Frandsen: Case Study p. 829 Taylor Read: p. 1507-1508 ATI Dosage Calculation 2.0 Desired over have: Critical Care

		Medications. You do not have to complete the section on titrating continuous IV medication infusion.
Week #13 Drugs Affecting the Autonomic and Central Nervous System Monday Wednesday	Drug Therapy for Myasthenia Gravis and Alzheimer's Disease Drug Therapy for Parkinson's Disease and Anticholinergics Drug Therapy with Opiods Drug Therapy with Local Anesthetics Drug Therapy with General Anesthetics Online Discussion: Case Study: Alzheimers Case Study: Parkinson's Disease Frandsen: Case Study p. 888 Lab: Review/Practice *Scenario TBD	Frandsen: Read Chapter 46 Frandsen: Read Chapter 47 ATI: Complete the Musculoskeletal System Module (Pharmacology Made Easy) Frandsen: Read Chapter 48 ATI: Complete the Pain and Inflammation Module (Pharmacology Made Easy) Frandsen: Read Chapter 49 Frandsen: Read Chapter 50 Case Study: Alzheimers Case Study: Parkinson's Disease Frandsen: Case Study p. 888 Lab: Review/Practice
Week #14		

Drugs Affecting the Autonomic and Central Nervous System Monday	Drug Therapy for Seizure Disorders and Spasticity Drug Therapy to Reduce Anxiety and Produce Hypnosis	Frandsen: Read Chapter 52 Frandsen: Read Chapter 53 ATI: Complete the Neurological Modules Part 1 and 2 (Pharmacology Made Easy)
Wednesday	Drug Therapy for Depression and Mood Stabilization Frandsen: Case Study p.1000	Frandsen: Read Chapter 54 Frandsen: Case Study p.1000
	Drug Therapy for Psychotic Disorders Frandsen: Case Study p.1022	Frandsen: Read Chapter 55 Frandsen: Case Study p.1022
	Drug Therapy to Stimulate the Central Nervous System Frandsen: Case Study p.1040	Frandsen: Read Chapter 56 Frandsen: Case Study p. 1040
	Drug Therapy for Substance Abuse Disorders Frandsen: Case Study p. 1055	Frandsen: Reading Chapter 57 Frandsen: Case Study p.1055
	Online Discussion: Substance Abuse Current treatment for mood disorders Current healthcare for the mentally ill Lab: Review/Practice	Students will review the literature for current articles (past 5 years) Lab: Review/Review

Week #15 Drugs Affecting the Eye, Ear, and Skin Monday Wednesday	Test 6 Drug Therapy for Eye Disorders Drug Therapy for Ear Disorders Drug Therapy for Skin Disorders Online Discussion will relate to drugs affecting the Eye, Ear, and Skin Lab: Practice/Review *Scenario TBD	Test 6 Frandsen: Read Chapter 58 Frandsen: Read Chapter 59 Frandsen: Read Chapter 60 Lab: Practice/Review
Week #16	Final Theory Exam Lab: Final Medication Check-off (Individually) ATI: Proctored Exam Retake	Day, Time and Location To Be Announced

*A bi-weekly simulation activity scenario will be scheduled and will be developed by the simulation faculty. The focus is on medication administration and patient safety.

Week one: The Conceptual Framework of Pharmacology

<u>Learning objectives:</u>

Upon completion of week one, the student will be able to:

1. Discuss a prototype drug.
2. Differentiate between drugs generic and trade name.
3. Define a controlled substance and relate the therapeutic use, misuse, and laws and standards in place to safeguard the pubic.
4. Identify measures in place to protect the public with drug safety.

5. Identify error reduction strategies with medication administration
6. Explain the process of pharmacokinetics.
7. Distinguish between agonist and antagonist drugs.
8. Discuss adverse drug effects and relate signs and symptoms.
9. Identify the management for drug overdose and toxicity.

Week One: Learning Activities:

1. Read Chapter 1: This chapter provides an introduction to pharmacology. Drug classifications and prototypes are introduced which will continue to be emphasized throughout this course and with each group of drugs. Students will be required to identify prototypes for all drug groups.
2. Student will examine National Patient Safety and identify areas related to medication safety.
3. On page 14 of the text, review the key concepts and be prepared to answer the critical thinking questions during class.
4. Read Chapter 2: This chapter introduces concepts and processes important to students understanding of drugs therapy. On page 16, review the key terms prior to class discussion. Students will break into groups and examine the following concepts: pharmacokinetics, serum drug levels, drug-related variables, patient related variables, adverse effects, drug toxicity, and pregnancy categories. Students will pick one representative to speak for the group when called upon.

   Week 1: Online discussion will relate to
   a. Basic concepts and processes utilizing the nursing process.
   b. Critic Case Study: Legal and Ethical Concerns Related to a Medication Error

Week One: Lab Assignment- Simulation Lab

1. Lab: Orientation to Simulation and Scenarios
2. Safe medication administration and error prevention
3. Rights of medication administration
4. Dosage calculation
5. Adverse effects, interactions, and contraindications
6. Basic medication administration
7. *Scenario TBD

Week Two: Drug Therapy Throughout the Lifespan

Learning objectives:

Upon completion of week two, the student will be able to:

1. Identify the characteristics of pediatric pharmacotherapy in children from birth to 18 years.

2. Describe differences in pharmacodynamics variables between children and adults.
3. Explain pharmacokinetic differences between children and adults.
4. Relate pharmacodynamics and pharmacokinetic changes in the older adult.
5. Describe polypharmacy and how this affects the older adult.
6. List physiological changes that occur with pharmacokinetics in the older adult.
7. Identify pharmacological measures used to manage pregnancy-associated symptoms.
8. List the drugs used during labor and delivery and those that alter uterine motility.
9. List the drugs used during lactation and birth control.

Week Two: Learning Activities

1. Read Chapter 4: This chapter provides characteristics of pediatric pharmacotherapy, which students will be expected to identify and discuss during class.
2. Read Chapter 5: This chapter provides the pharmacodynamics and pharmacokinetics changes as they relate to the adult and geriatric patient. Students will discuss the physiological changes associated with aging related to pharmacokinetics.
3. Read Chapter 6. This chapter provides information related to pregnancy risk and medication use, depression immediately postpartum and treatment. Student groups (assigned by faculty) will come to the board and list potential benefits of drugs and potential harm to the fetus.
4. They will also list patient teaching guideline and summarize drug use during pregnancy and lactation.
5. Students will discuss postpartum depression during the class.

Week Two: Online discussion will relate to

a. Drugs that alter uterine motility: these include tocolytics; drugs used during labor and delivery; and drugs for postpartum hemorrhage.
b. Case Study on page 83 of their textbook and offer input on nursing care.

Week Two: Lab Assignment Nursing Program's Lab
IV Management (IV insertion, assess with peripheral and central venous lines) (Demonstration and Formative Assessment)

Week Three: Drugs Affecting the Hematopoietic and Immune System

Learning objectives:

Upon completion of week three, the student will be able to:

1. Compare and contrast the different drugs used for coagulation disorders in terms

of use, onset, and duration of action, route of administration, and blood tests used to monitor effects.
2. Discuss antiplatelet agents in terms of use and affects on blood coagulation.
3. Discuss direct thrombin inhibitors and thrombolytic agents use, routes of administration and adverse effects.
4. Utilize the nursing process in the care of patients receiving medications for coagulation disorders.
5. Identify drugs used to treat dyslipidemia and utilize the nursing process when caring for the patient with dyslipidemia.
6. Identify immunizations recommended for adults, children and adolescents.
7. Identify major types of antineoplastic drugs in terms of mechanism of action and use.
8. Discuss adverse effects of antineoplastic drugs utilizing the nursing process.

Week Three Learning Activities:

1. Read Chapter 7: This chapter provides an overview of coagulation disorders. Students will describe the intrinsic and extrinsic clotting pathways and include the sites of action for drugs that can influence these processes referring to Figure 7.1, p. 103 of the textbook.
2. Referring to Box 7.4 on p. 110 of the textbook, students will divide into groups and summarize in their own words patient teaching guidelines for anticoagulants.
3. They will also include drug interaction with heparin and warfarin and herb and dietary interactions with heparin and warfarin. Groups will come to the board and write their findings.
4. Read Chapter 8: This chapter provides the student with the characteristics of blood lipids, metabolic syndrome, and blood lipid disorders. Students will identify prototype drugs used for treatment of dyslipidemia.
5. They will develop a plan for teaching nonpharmacological measures to reduce and prevent dyslipidemia on Google doc to share among the class.
6. Read Chapter 10: This chapter offers the student an overview of immunization. The students will review Key Terms on p. 162 and p.165-170 Box 10.1 recommended immunizations by age groups.
7. Students will discuss patient teaching guidelines and nursing measures to prevent infectious diseases.
8. Read Chapter 12: This chapter provides the student with an overview of cancer and offers general characteristics of cytotoxic antineoplastic drugs. Students will discuss the prototype drugs used for cancer treatment.
9. Discussion during class will focus on management and use in older adults, patients with renal impairment, patients with hepatic impairment, and complications of chemotherapy.

Week Three: Online Discussion will relate to

a. Case Study Coagulation A Post-Operative Hip Replacement
b. Case Study Cancer/Chemotherapeutics.

Week Three: Lab Assignment Simulation Lab
Lab: IV management cont. (saline lock, rate calculations, primary vs secondary) (Demonstration and Formative Assessment)
*Scenario TBD

Week Four: Drugs Affecting Inflammation and Infection

Learning objectives:

Upon completion of week four, the student will be able to:

1. Identify drugs used to treat inflammation.
2. Discuss drug-resistant microorganisms.
3. Apply the nursing process when caring for patients receiving antimicrobial therapy.
4. Discuss the role of prostaglandins in the etiology of pain, fever, and inflammation.
5. List the various drugs used in the treatment of pain, fever, and inflammation.
6. Describe nursing measures used with patients undergoing drug therapy for pain, fever, and inflammation.
7. Explain the action and clinical use for exogenous corticosteroids.
8. Describe the adverse effects of corticosteroids applying the nursing process.
9. Discuss penicillin, cephalosporin, and carbapenem in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.

Week Four Learning Activities:

1. Read Chapter 13: This chapter provides an overview of inflammation and microorganisms. Students will discuss common bacterial pathogens, and antibiotic-resistant staphylococci, streptococci, and enterococci.
2. Students will define key concepts such as antibacterial, antibiotic, antibiotic resistant, antimicrobial agent, bactericidal, broad spectrum, normal flora, nosocomial infection, opportunistic infections, and community-acquired infections may use a Google doc. to share with the class.
3. Read Chapter 14: This chapter provides an introduction to the drugs given for patients' with pain, fever, and inflammation. Specific conditions are addressed such as osteoarthritis and gout. Students will discuss the medications administered for pain, fever, and inflammation identifying the prototypes.
4. Students will divide in their groups and discuss key points for teaching a patient

about Aspirin, Ibuprofen, colchicine, and allopurinol.
5. The students will identify FDA Black Box Warnings for aspirin, ibuprofen, meloxicam, indomethacin, ketorolac, and celecoxib.
6. Read Chapter 15: This chapter addresses corticosteroids. Students will focus on a Clinical Application Case Study on p. 270 and address why the patient should taper the prednisone dose.
7. The students will discuss the question could the prednisone be discontinued without tapering?
8. Students will identify and discuss the effects of glucocorticoids and mineralocorticoids on body process and system. They may refer to Box 15.1 pp. 272-273 in their textbook.
9. Read Chapter 16: This chapter covers beta-lactam antibacterial agents. The students will discuss cephalosporins and carbapenems effectiveness, adverse effects and teaching points for the patient.
10. Critical thinking questions on p. 310 will be reviewed as an entire group.

Week Four: Online discussion will relate to

a. Case Study #1 Arthritis and the use of cortisone

Week Four: Lab Assignment Nursing Program's Lab
Lab: Calculation of Oral Medications/Systems of Measure including NG/G tube meds (Demonstration and Formative Assessment)

Week Five: Drugs Affecting Inflammation and Infection

Learning objectives:

Upon completion of week five, the student will be able to:

1. Discuss important measures when administering aminoglycosides such as the use of a single dose, measuring serum drug levels, and ways to decrease nephrotoxicity and ototoxicity.
2. Discuss aminoglycosides and fluoroquinolone in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
3. Discuss tetracycline and fluoroquinolone in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
4. Discuss the anti-infective agents macrolides, ketolides in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
5. Describe the use, and nursing implications for miscellaneous anti-infective agents utilizing the nursing process in providing care to patients receiving these drugs.
6. Describe the etiology of tuberculosis and Mycobacterium avium complex.

7. Describe the characteristics of latent, active, and drug-resistant tuberculosis.
8. Discuss the first-line anti-tubercular drugs in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
9. Discuss drugs used to treat Mycobacterium avium complex.

Week Five Learning Activities:

1. Read Chapter 17: This chapter reviews the drugs aminoglycosides and fluoroquinolones. The students will discuss the rationale for using aminoglycosides, the importance of measuring serum drug levels, and measures to decrease nephrotoxicity and ototoxicity with aminoglycosides.
2. The patient teaching guidelines for fluoroquinolones should be reviewed before class for discussion.
3. Read Chapter 18: This chapter reviews the drugs tetracycline, sulfonamides, and urinary antiseptics. The students will identify the prototypes for each class and implement a plan of care for the patients treated with each class of drugs.
4. Read Chapter 19: This chapter reviews the characteristics and specific uses of macrolides and ketolides anti-infective agents. The students will identify the prototypes and utilize the nursing process to assess and monitor patients being treated these drugs.
5. Read Chapter 20: This chapter describes drug therapy for tuberculosis and mycobacterium avium. Students will describe the characteristics of latent, active, and drug-resistant tuberculosis.
6. During class the students will discuss the Clinical Application Case Study p. 349 in their textbook.

Week Five: Online discussion will relate to

a. Case Study: Antibiotics
b. Patient teaching for a patient receiving Rifamycins.

Week Five: Lab Assignment Simulation Lab
Lab: Practice administration of oral/NG/G tube meds
(Demonstration and Formative Assessment)
*Scenario TBD

Week Six: Drugs Affecting Inflammation and Infection

Learning objectives:

Upon completion of week six, the student will be able to:

1. Discuss the antiviral agents used in the treatment for herpes simplex and varicella-zoster virus in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.

2. Discuss the antiviral agents used in the treatment for cytomegalovirus in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
3. Discuss the drugs used for respiratory syncytial virus in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
4. Discuss the drugs used in the treatment of influenza and viral infections in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
5. Discuss the drugs used in the treatment of hepatitis in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
6. Discuss the drugs used in the treatment of human immunodeficiency virus (HIV) in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
7. Discuss the drug therapy used in the treatment of fungal infections in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
8. Discuss the drug therapy used in the treatment of parasitic infections in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.

Week Six Learning Activities:

1. Read Chapter 21: This chapter reviews the drugs therapy for viral infections. The students will discuss characteristics of viruses and common viral infections, and identify the prototypes for antiviral agents, drugs used for RSV, influenza, hepatitis, and HIV.
2. The class will discuss the Critical Thinking Questions related to HIV p. 396 of the text.
3. Read Chapter 22: This chapter offers an overview of fungal infections and review of the drugs used for fungal infections. The students will identify the prototypes for polyenes, azoles, echinocandins, pyrimidine and implement a plan of care for the patients treated with each of the drug classes.
4. The students will work in groups and answer the Critical Thinking Questions on p. 417 of their text.
5. Read Chapter 23: This chapter reviews the drugs used to treat parasitic infections. The students will discuss the prototypes for the following amebicides, antimalarial, anthelmintic, scabicides, and pediculicides.
6. Students will identify nursing measures to avoid exposure to or prevent transmission of parasitic diseases.

Week Six: Online discussion will relate to

a. Evidence-based practice and drugs used for Human Immunodeficiency Virus (Antiretroviral Drugs).
b. Students will research the literature for the most current drugs or combination of drugs used to treat HIV

Lab Assignment: Wednesday 8am: Nursing Program's Lab
Lab: Practice administration of medications via other routes
(Demonstration and Formative Assessment)

Week Seven: Drugs Affecting the Cardiovascular System

Learning objectives:

Upon completion of week seven, the student will be able to:

1. Explain the pathophysiology of right-sided and left-sided heart failure.
2. Discuss inotrope (cardiac glycoside) use in the treatment of heart failure in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
3. Discuss phosphodiesterase inhibitors (cardiotonic-inotropic agents) use in the treatment of heart failure in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
4. Discuss human B-type natriuretic peptide use in the treatment of heart failure in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
5. Discuss adjuvant drugs used in the treatment of heart failure in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
6. Discuss class I sodium channel blocker use in the treatment of dysrhythmias in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
7. Discuss beta-adrenergic blockers use in the treatment of dysrhythmias in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
8. Discuss potassium and calcium channel blockers use in the treatment of dysrhythmias in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
9. Describe angina including etiology and pathophysiology
10. Discuss drug therapy use in the treatment of angina in of mechanism of action, its use, and route of administration utilizing the nursing process in providing

care to patients receiving these drugs.
11. Discuss the use of epinephrine to treat cardiac arrest.
12. Discuss adrenergic drugs use, mechanism of action, and adverse effects utilizing the nursing process in providing care to patients receiving these drugs.
13. Discuss non-pharmacologic measures to control hypertension.
14. Discuss the drugs angiotensin-converting enzyme inhibitors, angiotensin II receptor blockers, and a combination of drugs used in the management of hypertension utilizing the nursing process in providing care to patients receiving these drugs.

Week Seven Learning Activities:

1. Read Chapter 24: This chapter introduces the pharmacological care of the patient who is experiencing heart failure. Students will discuss right-sided heart failure and left-sided heart failure and medications administered for treatment of heart failure.
2. Students will review and discuss the Clinical Application Case Study on p. 437 of their text.
3. Read Chapter 25: This chapter discusses the antidysrhythmic agents used for prevention and treatment of cardiac dysthythmias. The students will discuss the Clinical Application Case Study on p. 456 of their text.
4. Read Chapter 26: This chapter introduces the agents used for treatment of Angina. Students will identify the prototypes for the drug classes used to treat angina. Students will answer Critical Thinking Questions on p. 492 of the text.
5. Read Chapter 27: This chapter provides an introduction and overview of the adrenergic response. Students will identify commonly used adrenergic drugs and their use, adverse effects and general considerations to consider when planning teaching a patient about the use of the medication.
6. Read Chapter 28: This chapter introduces antihypertensive used to treat hypertension. Students will discuss the physiologic mechanisms that control blood pressure.
7. Students will identify nonpharmacologic measures to control hypertension and prototypes for angiotension-converting enzyme inhibitors, angiotensin II receptor blockers. Student will discuss rationale for using combination drugs in the treat of hypertension.

Week Seven: Online Discussion will focus on

a. Evidence-based practice, students will retrieve information from: http://www.guideline.gov/content on the National Clinical Guideline Centre, management of stable angina.
b. Case Study: Hypertension.

Lab Assignment: Wednesday 8am: Simulation Lab
Lab: Administer Injections (Practicing drawing up from vial and ampules)

(Demonstration and Formative Assessment)
*Scenario TBD

Week Eight: Drugs Affecting the Respiratory System

Learning objectives:

Upon completion of week eight, the student will be able to:

1. Discuss the use of nasal decongestants, antitussives, expectorants and mucolytic agents use in the treatment of nasal congestion in terms of mechanism of action, its use, and route of administration utilizing the nursing process in providing care to patients receiving these drugs.
2. Discuss the use of first-generation H1 receptor antagonists utilizing the nursing process with the administration of the drugs.
3. Describe the second-generation H1 receptor antagonists utilizing the nursing process with the administration of the drugs.
4. Explain the pathophysiology of asthma and bronchoconstriction.
5. Identify drugs used for the treatment of asthma and bronchoconstriction.
6. Describe the drugs used for the treatment of asthma and bronchoconstriction in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.

Week Eight Learning Activities:

1. Read Chapter 29: This chapter introduces the pharmacological care of the patient who is receiving drugs to treat upper respiratory problems. Students will discuss nasal decongestants, antitussive agents, expectorants, and mucolytics in treating upper respiratory problems. Discussion will also center around the clinical application Case Study on p. 539.
2. Read Chapter 30: This chapter speaks to drugs used to decrease histamine effects and allergic responses. The students will discuss the first-generation H1 receptor antagonists and the second-generation H1 receptor antagonists and their prototypes. Discussion will also center around the Clinical Application Case Study on p. 553.
3. Read Chapter 31: This chapter describes the drugs used to treat asthma and other respiratory disorders characterized by bronchoconstriction, inflammation, airway hyperresponsivnenss, mucosal edema, and excessive mucosal production. Students will discuss asthma and other bronchoconstrictive disorders such as chronic bronchitis and emphysema. Discussion will also center around the Clinical Application Case Study on p. 567.

Week Eight: Online Discussion will relate to

a. Case Study #5 Asthma
b. Patient teaching for Antiasthmatic Drugs.

Lab Assignment: Wednesday 8am: Nursing Program's Lab
Lab: Practice Injections/Review past Skills (Demonstration and Formative Assessment)

Week Nine: Drugs Affecting the Renal and Digestive Systems

Learning objectives:

Upon completion of week nine, the student will be able to:

1. Describe the normal renal physiology and reasons a patient might receive diuretics.
2. Discuss the use of thiazide diuretics, loop diuretics, and potassium-sparing diuretics in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.
3. Discuss the need for vitamin and mineral supplements.
4. List the fat-soluble and water-soluble used to treat deficiencies recognizing nursing measures important with their administration.
5. List minerals used to treat deficiencies recognizing nursing measures important with their administration.
6. Identify benefits from the use of nutritional support and nursing measures important with the administration of nutritional support.
7. Explain various factors associated with obesity.
8. Discuss the drugs used to manage obesity in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.

Week Nine Learning Activities:

1. Read Chapter 32: This chapter describes the thiazide diuretics, loop diuretics, and potassium-sparing diuretics used for the treatment of fluid volume excess.
2. Students will discuss and present to the class each component of the nursing process in the care of patients receiving diuretics.
3. Read Chapter 33: This chapter introduces nutritional support products, vitamins, and mineral supplements. Students will discuss in groups and present to each other fat-soluble vitamins, water-soluble vitamins, and minerals and their use to treat deficiencies and will include nursing measures associated with their administration.
4. Read Chapter 34: This chapter addresses obesity. Students will discuss weight control and identify prototype drugs from each class to manage obesity. Students will also refer to the National Heart, Lung, and Blood Institute Report: Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults Box 34.4, p. 646 for discussion.

Week Nine: Online Discussion will relate to

a. Nutritional support

b. Cases Study p. 608
c. Obesity and health risks

Lab Assignment: Wednesday 8am: Simulation Lab
Lab: Skill Demonstration SQ injection to Classmate
Administer Insulin/Heparin (Demonstration and Formative Assessment)
*Scenario TBD

Week Ten: Drugs Affecting the Renal and Digestive Systems

Learning objectives:

Upon completion of week ten, the student will be able to:

1. Describe the reason behind peptic ulcer disease and gastroesophageal reflux disease.
2. Discuss antacids and their indication for use in the treatment of peptic ulcer disease and gastroesophageal reflux disease.
3. Discuss histamine 2 receptor antagonists in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.
4. Discuss proton pump inhibitors use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.
5. Discuss adjuvant medications used in the treatment of peptic ulcer disease and gastroesophageal reflux disease.
6. Identify nonpharmacologic measures to prevent constipation and educational components to teach a patient.
7. Discuss the use of laxatives, cathartics and miscellaneous agents used to treat constipation.
8. Discuss opoid-related antidiarrheal agents used to manage diarrhea utilizing the nursing process in providing care to patients receiving these drugs.

Week Ten Learning Activities:

1. Read Chapter 35: This chapter presents drugs to prevent or treat peptic ulcer and acid reflux disorders. Students will discuss both peptic ulcer disease and gastroesophageal reflux disease (GERD) relating specific drugs used in the management of these diseases.
2. Read Chapter 36: This chapter provides an overview of nausea and vomiting. Students will discuss phenothiazines, selected antihistamines, 5-hydroxytryptamine 3 receptor antagonists, the substance P/neurokinin 1 antagonist aprepitant and identify prototype drugs from each class.
3. Students will also list nonpharmacologic measures to reduce nausea and vomiting.
4. Read Chapter 37: This chapter provides and overview of constipation and

elimination problems. Students will discuss the reasons for, the physiology, and clinical signs for constipation and problems associated with elimination problems. Students will also develop a nonpharmacological plan of care for patients who experience constipation.

5. Students will discuss the use of laxatives and cathartics and adverse effects utilizing the nursing process.
6. Read Chapter 38: This chapter focuses on drug therapy for diarrhea. Students will discuss opioid-related antidiarrheal agents used with patients experiencing diarrhea. The clinical application Case Study on p. 700 will be discussed during class.

Week Ten: Online Discussion will relate to

a. Case Study p. 672
b. Case Study Gastrointestinal

Lab Assignment: Wednesday 8am: Nursing Program's Lab
Lab: Administer IV Push Medications (Demonstration and Formative Assessment)

Week Eleven: Drugs Affecting the Endocrine System

Learning objectives:

Upon completion of week eleven, the student will be able to:

1. Explain the difference between Type1and Type 2 diabetes mellitus.
2. Identify clinical manifestation of Type1and Type 2 diabetes mellitus.
3. Discuss the various insulins used to treat diabetes utilizing the nursing process in providing care to patients receiving these drugs.
4. Discuss the various oral antidiabetic drugs used to treat diabetes mellitus utilizing the nursing process in providing care to patients receiving these drugs.
5. Discuss amylin analogs, incretin mimetics, and dipeptidyl peptidase-4 (DPP-4) inhibitors used to treat diabetes mellitus utilizing the nursing process in providing care to patients receiving these drugs.
6. Identify teaching measures for patients and caregivers learning to manage diabetes care and administration of medications.
7. Discuss drug therapy for hyperthyroidism and hypothyroidism utilizing the nursing process in providing care to patients receiving these drugs.
8. Discuss drug therapy for diabetes insipidus and acromegaly.
9. Discuss drug therapy to regulate calcium and bone utilizing the nursing process in providing care to patients receiving these drugs.
10. Discuss drug therapy for Addison's and Cushing's Disease.

Week Eleven Learning Activities:

1. Chapter 39: This chapter introduces diabetes mellitus and an overview of

diabetes. Students will define key terms such as blood glucose level, blood glucose meter, diabetes mellitus, glucagon, gluconeogenesis, glucose, insulin, insulin pump, and ketoacidosis.
2. Students will discuss the acute complications of diabetes mellitus.
3. Students will discuss the various types of insulin and insulin analogs identifying nursing measures to assist patients' and their caregivers in diabetes management.
4. Chapter 40: This chapter introduces the pharmacological care of the patient who is experiencing increase or decrease function of the thyroid gland. Students will discuss hyperthyroidism and hypothyroidism in terms of clinical manifestations and drug therapy.
5. Students will identify prototypes for drugs used in both endocrine disorders.
6. Chapter 41: This chapter introduces drug therapy for pituitary and hypothalamic disorders. The students will discuss the drugs used to treat diabetes insipidus and acromegaly.
7. Chapter 42: This chapter examines the hormones parathyroid hormone, calcitonin and vitamin D and their relationship in regulating calcium. The students will discuss the use of calcium and vitamin D supplements. The students will also discuss the use of bisphosphonates in the treatment of osteoporosis.
8. Chapter 43: This chapter highlights drug therapy for Cushing's and Addison's disease. The student will identify the drugs used to treat these disorders. A Case Study on p. 794 will be discussed during class.

Week Eleven: Online discussion will relate to

a. Insulin
b. Case Study Diabetes
c. Diabetic care for a patient
d. Frandsen: Case Study p. 762

<u>Lab Assignment: Wednesday 8am: Simulation Lab</u>
Lab: Pediatric Dosing/Weight Based Calculation (Demonstration and Formative Assessment)
*Scenario TBD

Week Twelve: Drugs Affecting Women's and Men's Health

<u>Learning objectives:</u>

Upon completion of week twelve, the student will be able to:

1. Identify the drugs utilized in the treatment of Women's Health.
2. Describe estrogen and progestins utilizing the nursing process in providing care to patients receiving these drugs.

3. Explain the use of estrogen-progestin combination in terms of use, mechanism of action, adverse effects.
4. Identify drugs used for postmenopausal hormone replacement and the risk with the use of these drugs.
5. Describe androgens utilizing the nursing process in providing care to patients receiving these drugs.
6. Identify the risk with the use of androgens and anabolic steroids.
7. Describe phosphodiesterase type 5 inhibitors, 5-alpha reductase inhibitors, and alpha-adrenergic blockers utilizing the nursing process in providing care to patients receiving these drugs.

Week Twelve Learning Activities:

1. Chapter 44: This chapter focuses on drug therapy in women's health care. Students will identify the prototype drugs for the estrogens, progestins, and estrogen-progestin combinations and describe their action, use and contraindications, adverse effects and nursing measure related to teaching a patient about the benefits and risks.
2. Chapter 45: This chapter focuses on drug therapy used to manage disorders and conditions that affect men's reproductive health. The students will identify the prototypes for androgens, phosphodiesterase type 5 inhibitors, 5-alpha reductase inhibitors and alpha-adrenergic blockers.
3. Students will address nursing measures related to teaching a patient about the use, benefits and risks.

Week Twelve: Online discussion will relate to

a. Frandsen: Case Study p. 809
b. Frandsen: Case Study p.829

Lab Assignment: Wednesday 8am: Nursing Program's Lab
Lab: Critical Care Medications (Demonstration and Formative Assessment)

Week Thirteen: Drugs Affecting the Autonomic and Central Nervous System

Learning objectives:

Upon completion of week thirteen, the student will be able to:

1. Discuss the drugs used to treat Alzheimer's disease in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.
2. Discuss the drugs used to treat Parkinson's disease in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.
3. Identify opioid agonist and relate to pain management including use, adverse

effects utilizing the nursing process in providing care to patients receiving these drugs.
4. Identify opioid agonist/ antagonists and relate to pain management including use, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.
5. Identify an opioid antagonist and relate nursing implications in providing care to patients receiving these drugs.
6. Describe the common types of local anesthesia.
7. Discuss the amide anesthetics and ester anesthetics used for local anesthesia in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.
8. Describe general anesthesia.
9. Discuss general anesthetics and neuromuscular blocking agents in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.

Week Thirteen Learning Activities:

1. Read Chapter 46: This chapter introduces Alzheimer's disease. The students will discuss major manifestations of both diseases during class.
2. Students will identify the prototype for the drugs used to treat Alzheimer's disease.
3. Read Chapter 47: This chapter introduces Parkinson's disease. The students will discuss major manifestations related to Parkinson's disease during class.
4. Students will identify the prototype for the drugs used to treat Parkinson's disease.
5. Read Chapter 48: This chapter introduces an overview of pain and drug therapy. Students will discuss the prototype, use, adverse effects, contraindications, and nursing implications for the opioid agonists, opioid agonist/antagonist and opioid antagonists.
6. Read Chapter 49: This chapter introduces local anesthetics and drugs used for this type of anesthesia. Students will describe the types of local anesthesia, and identify prototype, use, adverse effects, contraindications, and nursing implications for the various anesthetics.
7. Read Chapter 50: This chapter introduces the fundamentals of general anesthesia and the implementation of nursing care during administration. Students will describe the various anesthesia agents, and identify prototype, use, adverse effects, contraindications, and nursing implications for the various general anesthetics.

Week Thirteen: Online discussion will relate to

a. Case Study: Alzheimers
b. Case Study: Parkinson's disease
c. Frandsen: Case Study p. 888

d. Case Study: Anesthesia

Lab Assignment: Wednesday 8am: Simulation Lab
Formative Assessment Lab: Review/Practice
*Scenario TBD

Week Fourteen: Drugs Affecting the Autonomic and Central Nervous System

Learning objectives:

Upon completion of week fourteen, the student will be able to:

1. Discuss the drugs used to treat seizures disorders in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.
2. Identify skeletal muscle relaxant drugs and relate the nursing process in providing care to patients receiving these drugs.
3. Discuss benzodiazepines and nonbenzodiazepines and their use to reduce anxiety and produce hypnosis relating the nursing process in providing care to patients receiving these drugs.
4. Identify the different categories of antidepressants: tricyclic antidepressants, selective serotonin reuptake inhibitors, mixed serotonin-norepinephrine reuptake inhibitors, monoamine oxidase inhibitors, and other typical antidepressants.
5. Relate the nursing process to the care of patients receiving antidepressants.
6. Discuss the drugs used to depression in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.
7. Discuss the drugs used to treat bipolar disorder in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.
8. Discuss the drugs used to treat psychotic disorders in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.
9. Discuss the drugs used to treat attention deficit hyperactivity disorder (ADHD) and narcolepsy in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.
10. Identify the drugs used to treat alcohol withdrawal relate the nursing process in providing care to patients receiving these drugs.

Week Fourteen Learning Activities:

1. Read Chapter 52: This chapter introduces drugs used to treat seizure disorders. Students will identify the prototypes and describe actions, uses, adverse effects, contraindication, and nursing measures for antiepileptic drugs and the patient receiving these drugs.

2. Read Chapter 53: This chapter introduces the pharmacological care of the patient who is experiencing anxiety and /or insomnia. Students will identify the prototypes and describe actions, uses, adverse effects, contraindication, and nursing measures for antiepileptic drugs and the patient receiving these drugs.
3. Read Chapter 54: This chapter provides an overview of depression and bipolar disorders. The students will work through the Clinical Application Case Study on p. 1000 of their text to identify nursing measures for providing care to patients undergoing treatment for mood disorders.
4. Read Chapter 55: This chapter provides an overview of psychotic disorders. The students will work through the Clinical Application Case Study on p. 1022 of their text and identify nursing measures for providing care to patients with psychotic disorders.
5. Read Chapter 56: This chapter provides an overview of drugs used to stimulate the central nervous system. The students will work through the Clinical application Case Study on p. 1040 of their text and identify nursing measures for providing care to patients with attention deficit hyperactivity disorder.
6. Read Chapter 57: This chapter provides an overview of drug therapy used of substance abuse. The students will work through the Clinical Application Case Study on p. 1055 of their text to identify nursing measures for providing care to patients undergoing treatment for substance abuse.

Week Fourteen: Online discussion will relate to

a. Substance Abuse
b. Current treatment for mood disorders
c. Current healthcare for mentally ill

Lab Assignment: Wednesday 8am: Nursing Program's Lab
Formative Assessment Lab: Review/Practice

Week Fifteen: Drugs Affecting the Eye, Ear, and Skin

Learning objectives:

Upon completion of week fifteen, the student will be able to:

1. Describe glaucoma and identify drugs used to treat glaucoma in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.
2. Discuss the drugs used in the treatment of ocular infection and inflammation in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.
3. Describe otitis external, necrotizing otitis externa, and otitis media.
4. Discuss the drugs used in the treatment for otitis externa and necrotizing externa in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.

5. Discuss the drugs used in the treatment of otitis media in terms of use, mechanism of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.
6. Describe the various skin disorders.
7. Discuss the drugs used to treat acne vulgaris.
8. Explain the use of retinoids and their use in terms of action, adverse effects utilizing the nursing process in providing care to patients receiving these drugs.

Week Fifteen Learning Activities:

1. Read Chapter 58: This chapter introduces the eye and its disorders. Students will discuss glaucoma and pharmacological treatment.
2. Students will identify the prototypes and describe the action, adverse effects and patient teaching needed for patient receiving these drugs.
3. Read Chapter 59: This chapter ear related disorders and their pharmacological treatment. Student will identify the prototypes and describe the action, adverse effects and patient teaching needed for patient receiving these drugs for otitis media and otitis externa.
4. Read Chapter 60: This chapter discusses the disorders of the skin. Students will discuss treatment for acne vulgaris and the use of retinoids for skin disorders.
5. Students will include in their discussion nursing measures which may be implemented in the care patient who are experiencing skin disorders.

Week Fifteen: Online discussion will relate to

a. Frandsen: Case Study p. 1073
b. Frandsen: Case Study p. 1098

Lab Assignment: Wednesday 8am: Simulation Lab
Formative Assessment Lab: Review/Practice
*Scenario TBD

Week Sixteen: Exam Week

Summative Assessment (Final Exam)
Summative Assessment (Lab Assignment: Medication Check- TBD) (individual check-off)
Summative assessment ATI: Proctored Exam Retake

Appendix B: Interview Questions

Study: Nursing Students Perception: Safe Medication Administration

Time of Interview:

Date:

Interviewer:

Interviewee Pseudonym:

Date Consent Signed:

Interview Questions

General questions used in this study are

- Where are you in your program experience with administering medications?
- How do you feel about your experiences and skills acquired to administer medications?
- How would you describe your experience with administering medications via various routes for example oral medications, IV medications, and intramuscular medications?
- To what extent can you describe some event that you have experienced with medication administration?
- To what extent can you describe how you felt the first time you had the opportunity to give medication to a patient?
- How has your faculty member and preceptors helped with your medication experience?

- How do you see your faculty member or preceptor's role with you as you administer medication to your patients?
- How would you describe your feelings, as you get ready for your experience with the preceptor?
- What is your perception of patient safety and medication administration?
- How do you feel after beginning your preceptor experience and giving medications to patients?
- (Question to be used at the end of February)
- How do you feel after several weeks to a month with your preceptor experience and giving medications to patients?
- (Question to be used at the end of March)
- How do you feel as you prepare to graduate and be responsible for patients' care and the administration of medication?
- (Question to be used at the end of April)
- Is there anything that you would like to share about any issues related to medication administration?

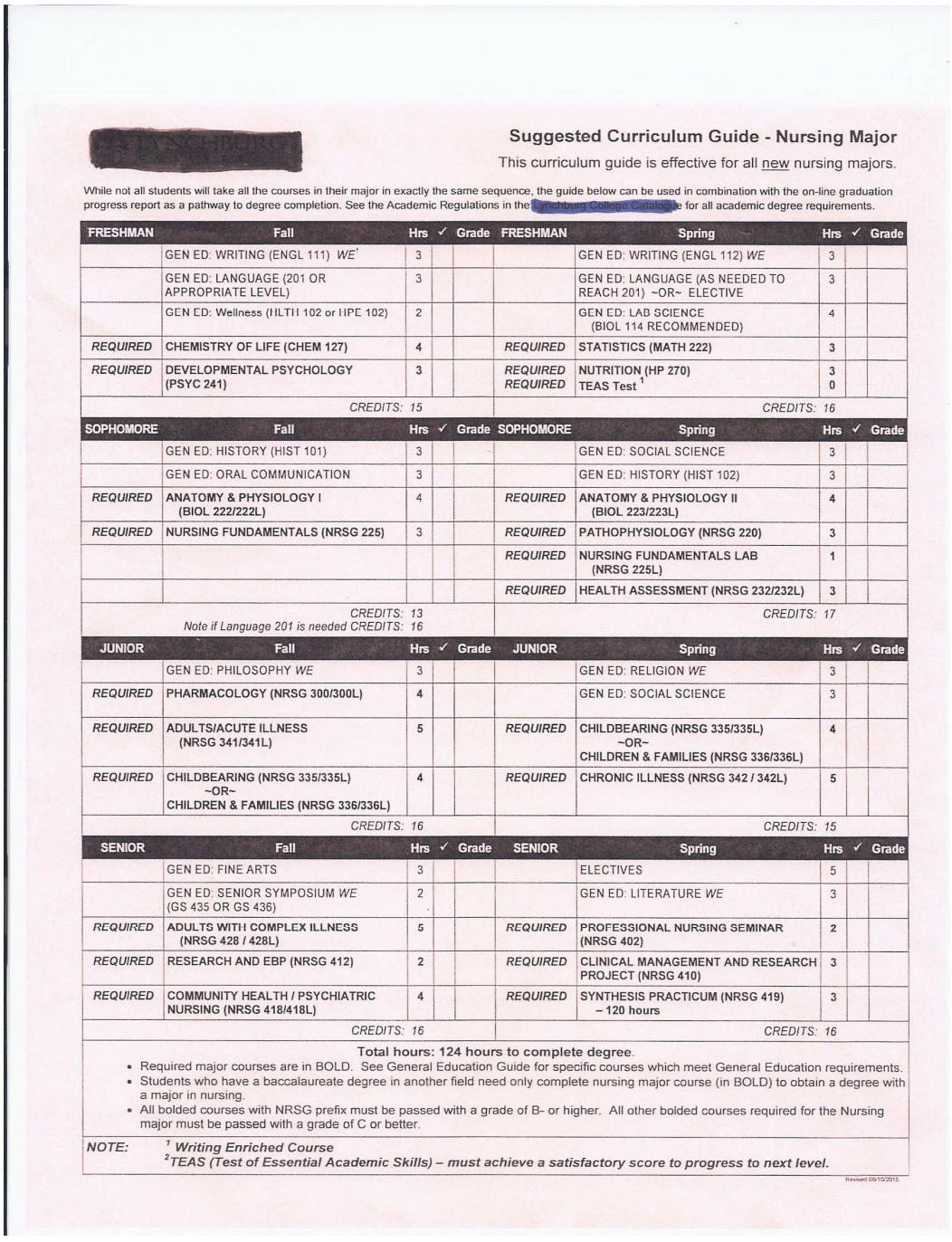
Appendix C: Letter of Introduction and Invitation to Participate

Hello Senior Nursing Students!

My name is ****** and I am a nursing professor at ******in ******, ******. You are receiving this email because you are a Senior Nursing Student at _____ College/University and have successfully complete the Pharmacology course at your school. I am conducting a research study about the experiences of nursing students with medication education and administration. This study involves open-ended questions about your experiences and will be conducted during the final semester of your nursing education in which you administer medications with a preceptor. There will be three interview sessions during the semester. The first will be conducted at the end of February, the second at the end of March, and the third at the end of April. Each session may take an hour but the time frame is depended upon your desire to share about your experiences. All information that you share with the researcher will be held in strict confidence. No information you provide will have any identifying elements so no one would be able to identify you as the source of the information. At the end of the sessions, in which you will be able to review the transcripts for accuracy, you will receive a $20 gift card to Wal-Mart. If you are interested in participating in this study, please contact me by _____ at 1700, as only the first seven respondents will be invited to participate. Additionally, if you decide to participate, you will meet with the researcher to obtain consent to participate. Please contact ******* at *******.

I look forward to meeting you and discussing your experiences!

Appendix D: Nursing Curriculum Representing Stages of Progression



[redacted]

Suggested Curriculum Guide - Nursing Major

This curriculum guide is effective for all new nursing majors.

While not all students will take all the courses in their major in exactly the same sequence, the guide below can be used in combination with the on-line graduation progress report as a pathway to degree completion. See the Academic Regulations in the [redacted] for all academic degree requirements.

FRESHMAN	Fall	Hrs	✓	Grade	FRESHMAN	Spring	Hrs	✓	Grade
	GEN ED: WRITING (ENGL 111) *WE*[1]	3				GEN ED: WRITING (ENGL 112) *WE*	3		
	GEN ED: LANGUAGE (201 OR APPROPRIATE LEVEL)	3				GEN ED: LANGUAGE (AS NEEDED TO REACH 201) ~OR~ ELECTIVE	3		
	GEN ED: Wellness (HLTH 102 or HPE 102)	2				GEN ED: LAB SCIENCE (BIOL 114 RECOMMENDED)	4		
REQUIRED	**CHEMISTRY OF LIFE (CHEM 127)**	**4**			*REQUIRED*	**STATISTICS (MATH 222)**	**3**		
REQUIRED	**DEVELOPMENTAL PSYCHOLOGY (PSYC 241)**	**3**			*REQUIRED* *REQUIRED*	**NUTRITION (HP 270)** **TEAS Test**[1]	**3** **0**		
	CREDITS: 15					*CREDITS: 16*			

SOPHOMORE	Fall	Hrs	✓	Grade	SOPHOMORE	Spring	Hrs	✓	Grade
	GEN ED: HISTORY (HIST 101)	3				GEN ED: SOCIAL SCIENCE	3		
	GEN ED: ORAL COMMUNICATION	3				GEN ED: HISTORY (HIST 102)	3		
REQUIRED	**ANATOMY & PHYSIOLOGY I (BIOL 222/222L)**	**4**			*REQUIRED*	**ANATOMY & PHYSIOLOGY II (BIOL 223/223L)**	**4**		
REQUIRED	**NURSING FUNDAMENTALS (NRSG 225)**	**3**			*REQUIRED*	**PATHOPHYSIOLOGY (NRSG 220)**	**3**		
					REQUIRED	**NURSING FUNDAMENTALS LAB (NRSG 225L)**	**1**		
					REQUIRED	**HEALTH ASSESSMENT (NRSG 232/232L)**	**3**		
	CREDITS: 13 *Note if Language 201 is needed CREDITS: 16*					*CREDITS: 17*			

JUNIOR	Fall	Hrs	✓	Grade	JUNIOR	Spring	Hrs	✓	Grade
	GEN ED: PHILOSOPHY *WE*	3				GEN ED: RELIGION *WE*	3		
REQUIRED	**PHARMACOLOGY (NRSG 300/300L)**	**4**				GEN ED: SOCIAL SCIENCE	3		
REQUIRED	**ADULTS/ACUTE ILLNESS (NRSG 341/341L)**	**5**			*REQUIRED*	**CHILDBEARING (NRSG 335/335L) ~OR~ CHILDREN & FAMILIES (NRSG 336/336L)**	**4**		
REQUIRED	**CHILDBEARING (NRSG 335/335L) ~OR~ CHILDREN & FAMILIES (NRSG 336/336L)**	**4**			*REQUIRED*	**CHRONIC ILLNESS (NRSG 342 / 342L)**	**5**		
	CREDITS: 16					*CREDITS: 15*			

SENIOR	Fall	Hrs	✓	Grade	SENIOR	Spring	Hrs	✓	Grade
	GEN ED: FINE ARTS	3				ELECTIVES	5		
	GEN ED: SENIOR SYMPOSIUM *WE* (GS 435 OR GS 436)	2				GEN ED: LITERATURE *WE*	3		
REQUIRED	**ADULTS WITH COMPLEX ILLNESS (NRSG 428 / 428L)**	**5**			*REQUIRED*	**PROFESSIONAL NURSING SEMINAR (NRSG 402)**	**2**		
REQUIRED	**RESEARCH AND EBP (NRSG 412)**	**2**			*REQUIRED*	**CLINICAL MANAGEMENT AND RESEARCH PROJECT (NRSG 410)**	**3**		
REQUIRED	**COMMUNITY HEALTH / PSYCHIATRIC NURSING (NRSG 418/418L)**	**4**			*REQUIRED*	**SYNTHESIS PRACTICUM (NRSG 419) – 120 hours**	**3**		
	CREDITS: 16					*CREDITS: 16*			

Total hours: 124 hours to complete degree.

- Required major courses are in BOLD. See General Education Guide for specific courses which meet General Education requirements.
- Students who have a baccalaureate degree in another field need only complete nursing major course (in BOLD) to obtain a degree with a major in nursing.
- All bolded courses with NRSG prefix must be passed with a grade of B- or higher. All other bolded courses required for the Nursing major must be passed with a grade of C or better.

NOTE: [1] *Writing Enriched Course*
[2] *TEAS (Test of Essential Academic Skills) – must achieve a satisfactory score to progress to next level.*

Revised 05/15/2015

Appendix E: Identification of Significant Phrases

Grace Lyn: Yes, we actually looked up a medicine together,

Grace Lyn: yes, I feel pretty comfortable. You know, maybe if my preceptor wasn't there with me, it wouldn't quite have the same feeling, but I mean I think that if she wasn't there, it would still be fine, but there would just be that "let me check, and triple-check, check again," and just be cautious.

Grace Lyn: Yes, it is busy, and you know, I could see where there could be some rush to get things done. You know that's a lot of charting as well, I think…that's what takes the longest for me. Keep up with that. You know, charting every hour, and just everything you do. Not just medications, but you know bathing, oral care, and everything like that. Its just time consuming.

Rose: so in the beginning it was just … I mean I remember my hands like physically shaking,

Katie: I definitely feel that I've grown a lot. I did not feel comfortable with medication administration when I was a junior and just learning, but then taking the lab course, the pharm lab course was so helpful. That was just the whole process of administering medications. And so I feel that I've really grown a lot in the skill set of, you know, and just learning more of how medications interact in the body, and even with each other, so, there has definitely been a lot of growth.

Allie: IV medications have been fine. The most difficult experience I had, was a patient that had eight different drips running, and trying to figure out the compatibilities, because I didn't want to hurt him.

Allie: A little intimidating how many different medications there are and like I can't possibly know what they are, so it is … it can be time consuming, when I get a medication that I don't know what it is, I have to look it up before I give it, to make sure. I've gotten to experience a lot of different medication administrations as far as IV piggy-pack, IV push, oral, rectal, pretty much, any way you can give a medicine, which is good to have done, before I'm a practicing

Buddy: I would feel a little bit nervous and have to kind of review a little bit before I did something, but, most of the meds we give now are PO or IV, so I feel pretty comfortable with that.

Reggie: Just following the basic rights, the six rights, and always looking at medication several different times, to make sure that it's the right one, and then know what it's going

to do for your client, and any adverse effects.

Grace Lyn Definitely helps build confidence, because it's kind of another person to check with to make sure you're not making any mistakes. It feels safe, in other words.