Perioperative Immersion Program: Transition To Practice

by

Edward Creasy

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Approved:

______________________________  _______________________
Signature Scholarly Project Chairperson  Date

______________________________  _______________________
Signature Scholarly Project Committee Member  Date
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Abstract

**Purpose:** To design, implement, and evaluate the effectiveness of a perioperative immersion program for senior nursing students to help the transition from classroom knowledge to practical skills and competency in the simulation laboratory, and during the clinical experiences in perioperative settings.

**Method:** A nonrandomized, quasi-experimental design using a one-group pretest-posttest design was selected to determine if an educational intervention presented over a two-week period to 12 senior student nurses in a perioperative immersion program would improve the ability to acquire a higher level of knowledge, skills, and competency in the perioperative setting.

**Results:** Comparisons of results from pre- and post-tests on the Association of periOperative Registered Nurses total knowledge and comprehension examination on sterile technique using the Wilcoxon signed-rank test showed statistically significant differences. There was a 100% improvement in the Association of periOperative Registered Nurses validated competency on scrubbing, gowning, and gloving (SGG). The major implication showed improvement of the students’ cognitive and psychomotor skills with a validated competency in sterile technique and passing grades on the written examinations.

**Conclusions:** There is a need to establish transitional educational interventions for the student nurse to integrate knowledge with skill acquisition and competency validation prior to graduation. Despite the small sample size, this perioperative immersion program established significant outcomes using classroom theory review, simulation, reflective journaling, observation tools, and clinical experiences with preceptors.

**Key Words:** perioperative immersion, undergraduate nursing students, transition graduate nurse, clinical experience, knowledge and skills acquisition, competency, Kolb’s theory
Chapter One: Introduction and Overview of the Problem

Introduction

Nursing as an art and as a science is at a critical stage. Nursing programs need to incorporate transitional educational components into the course curricula to establish basic competencies in graduating nurses. A key message in the Institute of Medicine 2010 report, *The Future of Nursing: Leading Change, Advancing Health*, highly recommended the creation of programs that support the transition to practice for the new graduate (Institute of Medicine, 2010). This message was reaffirmed by the National Academies of Sciences, Engineering, and Medicine (2015). The senior undergraduate nurse is challenged in the ability to transfer knowledge into practice to care for patients in the clinical setting. Educational trends in nursing have seen a dramatic decline in clinical experiences that would be highly beneficial in the development of clinical skills.

Background

The perioperative specialty is an example of an area where clinical experiences are needed. Few nursing programs offer courses in perioperative nursing and, if offered, they are elective, not required. To compound the issue, nursing programs that offer perioperative courses may lack the integral component of a perioperative clinical experience, thereby neglecting the active transition of classroom knowledge into practice at the bedside. The undergraduate student without clinical experience in the perioperative setting is challenged in the application of basic principles of sterile technique, including gowning and gloving and recognition of breaks in sterile technique. The perioperative course combined with a perioperative clinical immersion
experience would prepare the undergraduate nurse to develop basic skills, knowledge, and competency to improve patient care in any health care setting.

This scholarly project was created as a result of a collaborative partnership between a hospital and a college of nursing to develop, implement, and evaluate a perioperative immersion program for selected undergraduate baccalaureate nursing students in an elective three-credit perioperative nursing program. The program provided the student nurse with the ability to transition classroom knowledge into practical skills in the simulation laboratory, with further development during the clinical experiences in the perioperative settings.

**Significance**

**Transitional Issues.** As the current nursing shortage accelerates, along with a higher level of patient acuity, “the new graduate nurse must master both psychomotor and critical thinking skills rapidly” (Theisen & Sandau, 2013, p. 407). The number of baccalaureate programs is increasing, but attention to the quality of the programs has never been more critical to achieve the desired impact on the quality of care the patient receives (Altman, Butler, & Shern, 2016). There is a need to create transitional programs in the undergraduate nursing programs to prepare future nurses with basic competencies on graduation. Gregory, Bolling, and Langston (2014) noted that a partnership between nursing schools and hospitals can create an “innovative learning model that reintroduces perioperative experiences” for undergraduate nursing students (p. 96). Evidence supports the fact that immersion programs create a transitional bridge from student to professional nurse with clinical experience that develops basic skill sets (Ball, Doyle, & Oocumma, 2015). The Association of periOperative Nurses (AORN, 2015) and perioperative nurses themselves play a key role in establishing safe quality of care for the

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perioperative patient through active involvement in educational reform supporting perioperative curricula and perioperative immersion programs (Battie, 2013). Additionally, transitional programs help the new graduate increase confidence and competency with higher levels of knowledge and skills, reduce stress and anxiety, increase job satisfaction, and achieve improved role and responsibility recognition (Edwards, Hawker, Carrier, and Rees, 2015). The ultimate goal of a perioperative immersion program is the improvement of safe quality care for the patient and his or her family with a focus on sterile technique.

**Impact on Health Care Organizations.** The impending shortage of perioperative nurses heightens the need for a perioperative immersion program for student nurses (Chappy, Madigan, Doyle, Conradt, & Tapio, 2016). Health care organizations face many financial burdens including the high costs of orientation, which exceed $75,000 per nurse, high turnover rates of up to 75%, and high staff replacement costs of up to $92,000 (Chappy et al., 2016; Mollohan & Morales, 2016). New graduates with minimal clinical experience usually fill these vacancies, which creates a cycle of economic and fiscal stress on organizations (Theisen & Sandau, 2013).

**Question Guiding Inquiry**

This capstone project is guided by the following inquiry: In the population of senior nursing students (P), will a two-week perioperative immersion program (I) develop senior nursing students’ competency in sterile technique (O) compared to their preintervention levels? (C)

**Theoretical Framework**

The method of the perioperative immersion program is based on Kolb’s experiential learning theory. The perioperative immersion program uses educational strategies guided by
Kolb’s four stages of learning, including concrete experience (feeling), reflective observation (watching), abstract conceptualization (thinking), and active experimentation (doing) (Kolb, 1984; Schultz, McEwen & Griffiths, 2016) (Figures 1 and 2). The learners transform experiences into learning and development through action and reflection (Schultz et al., 2016). Kolb’s experiential learning theory harnesses the power to create a strong foundation to build knowledge and skill acquisition with simulation-based education and clinical experiences (Poore, Cullen, & Schaar, 2014). The emphasis is on the role of experience in learning.

Definitions of Terms

**Undergraduate nursing students:** Twelve senior nursing students were selected from a group of students in an elective three-credit perioperative nursing course at a major university.

**Immersion program:** An intensive clinical experience to enhance nursing knowledge, build critical thinking skills, gain confidence, and develop practical skills, founded on the principles of improved transition to practice, resource efficiency, and increased student accountability with a focus on patient safety (Diefenbeck et al., 2015).

**Simulation:** "Simulation is a technique, not a technology, to replace or amplify real life situations with guided experiences in an immersive environment that evokes or replicates aspects of the real world in fully interactive design” (Gaba, 2004, as cited in Aebersold & Tschannen, 2013, p. 6).

**Sterile technique:** The required actions and activities to prevent the contamination of microorganisms (The Joint Commission, 2013). Sterile technique is used throughout all health care settings and is a fundamental responsibility to prevent hospital-acquired infections (Hopper & Moss, 2010).
**Competency**: “An expected level of performance that results from an integration of knowledge, skills, abilities, and judgment” (American Nurses Association, 2013, p. 3).

**Summary**

The call to reform nursing education and create programs that focus on transition to practice with more clinical experience is highly recommended by *The Future of Nursing Report*, the *Carnegie Foundation Study*, The Joint Commission, the National Council of State Boards of Nursing, the American Association of Colleges of Nursing (2008, 2016), and the National League for Nurses (Forbes & Hickey, 2009; Goode, Lynn, McElroy, Bednash, & Murray, 2013; Nielsen, Noone, Voss, & Mathews, 2013). The perioperative immersion program is a transitional program for senior nursing students to increase knowledge, skills, and competency in sterile technique over a two-week period. Kolb’s experiential learning theory was used in the educational development of the program, integrating major concepts of the cycles of learning and learning styles. Immersion programs have numerous positive benefits for the student nurse transitioning into practice at the bedside, as well as for academics, health care organizations, and patient care.
Chapter Two: Review of the Literature

Methods

For this project, a computer-assisted literature review was conducted using PubMed, Science Direct, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), ProQuest, Ovid–Joanna Briggs Institute EBP Database, and Google Scholar. The general search strategies predominately featured searches for combinations of the following terms and phrases: immersion program, perioperative immersion, undergraduate nursing students, transition graduate nurse, clinical experience, knowledge and skills acquisition, simulation, critical thinking, operating room, sterile technique, competency, Kolb’s experiential learning theory.

Inclusion criteria for the literature review comprised a global inquiry for articles published after 2009. The focus included systematic reviews in peer-reviewed journals, quantitative studies, qualitative studies, and supportive journal articles. The reference list of the articles was also screened for other relevant studies.

Critique and Synthesis of Research Findings

Perioperative Immersion Program. Scientific underpinnings for practice indicate that clinical experience in the operating room has a beneficial educational ripple effect on every nursing student, not just those intending to work in the perioperative setting (Foran, 2015). Foran (2015) conducted a randomized longitudinal quantitative study on 332 undergraduate nurses in 13 universities. The aim was to determine if a clinical experience in the operating room increased surgical knowledge and understanding of nursing care in the preoperative and postoperative areas, compared with no operating room experience. The educational components of the operating room immersion programs included a segment on theory ranging from zero to 24
hours, and clinical experience ranging from 32 to 80 hours. A validated 20-point assessment 
examination was used to measure surgical knowledge and addressed many international concerns 
of practice standards regarding the surgical nurse. A comparison of the results from the two 
groups indicated that undergraduate nurses with the guided operating room experience achieved 
a 100% pass rate on the examination compared to 53% for those with non-guided or no 
experience ($p < 0.001$) in the operating room. The limitations of this study included sample size 
and the validity of the assessment tool.

Foran (2015) reviewed several international studies focused on postoperative care and 
patient outcomes. with the following findings: An analysis of postoperative complications in 21 
hospitals in the Netherlands indicated that 41% of adverse events can be prevented; a 5-year 
study in Scotland of 1,299 postoperative deaths noted that high-quality preoperative and 
postoperative care was key to prevention; and a study of 576 deaths in the United Kingdom 
concluded that 11% of the deaths were the result of a failure to rescue due to a lack of 
recognition of symptoms and treatment provided. Foran emphasized that an operating room 
experience would be an effective educational experience in preparation to care for patients and 
could be a strong factor to reduce negative patient outcomes.

In a randomized controlled study with repeated measure and experimental design, Sigsby 
and Yarandi (2004) compared undergraduate nursing students who had clinical rotations in 
perioperative settings (experimental groups) with students engaged in rotations in other clinical 
settings (control groups). Two groups of nursing students were measured in their junior and 
senior years. A posttest that contained 50 surgical patient care questions was used for the 
comparison measurement. Repeated measures MANOVA was used to compare the knowledge of
students in the experimental group with that of students from other clinical areas. The results from the study indicated that in all four testing periods, the students in the perioperative clinical rotations consistently scored higher on knowledge of care of surgical patients than the students in the control group. The mean scores between the experimental and control groups were $F = 27.07, p < .0001$. These results indicate that clinical experiences in an operating room correlate positively with knowledge and skill enhancement of undergraduate nursing students (Sigsby & Yarandi, 2004). The limitations of the study were the relatively small sample size of fewer than 100 student nurses in each of the two cohorts, validity of the questionnaire tool used, and the fact that the comparative measurements were completed over a 2-year period with four testing periods.

Rozmus, Jones, Meyers, Hercules, and Schumann (2014) completed another randomized controlled study that exemplified the benefits of an immersion program. The authors evaluated a new curriculum design that immerses students in full-time clinical experiences in their final semester, noting the important relationship between academia and healthcare organizations. The researchers randomly assigned students to either the new Pacesetter curriculum (50 students), which placed the students in the clinical setting after the completion of the didactic portions of the course work, or the traditional curriculum (92 students), which involved the completion of didactic courses and engagement in clinical experiences during the same semester. The Pacesetter model allowed the student to “live the life of nurse” while in school (Rozmus et al., 2014, p. 66). The Health Education Systems Incorporated (HESI) nursing exit examination was used for the comparison measurement. The Pacesetter students had a significantly higher average HESI score (936) than did the traditional students (873) ($p < .05$). The results concluded that full-
time clinical education involving the senior student nurse at the end of the theoretical component improves clinical competency with positive learning outcomes, compared to students with limited clinical hours completed throughout the semester. Rozmus et al. (2014) noted certain barriers to the success of such programs, including the scarcity of clinical resources and a nursing faculty shortage. The limitations of this study included the small sample size and lack of specific outcome measurements between clinical experiences.

**Kolb’s Experiential Learning.** Kolb’s experiential learning provides the theoretical framework for this project to assist in the design of perioperative immersion program content. Kolb’s recommendations for the design of an educational program include encompassing the individual, integrating various learning styles, incorporating various teaching strategies into the experience itself, and designing an environment that shapes the development of skills (Armstrong, Peterson, & Rayner, 2012; Zigmont et al., 2015).

Learning styles need to be incorporated in the design of educational programs to promote positive outcomes measured by competencies and examinations. The literature suggests that educational strategies should focus on abstract concepts that include active clinical experiences that allow the student to apply knowledge in practice, reflect on those actions, recognize progress and challenges, and formulate insights with debriefing that explores clinical reasoning and problem-solving strategies (Schultz et al., 2016).

In a descriptive correlation study, Gyeong and Myung (2008) examined the critical thinking dispositions and learning styles of 724 nursing students in five different nursing programs using Kolb’s learning style inventory and the critical thinking disposition inventory of Rudd. The authors concluded that the levels of critical thinking significantly differed among
learning styles \( (p=0.000) \), with higher levels in converging learning style, and with assimilating learning style taking second place. Therefore, Gyeong and Myung’s recommendations focused on abstract conceptualization (thinking) and active experimentation (doing) in the developmental design of educational programs to increase the levels of critical thinking. The limitations in the study included the variances in the curricula and learning environment within each school.

Several international studies noted in a systematic review by Andreou, Papastavrou, and Merkouris (2014) used Kolb's learning style inventory to measure the impact of learning styles on learning outcomes. Although the systematic review of the learning style concept was not conclusive in determining significance, educational programs like the perioperative immersion program should be designed with an approach that would be effective and balanced for the learner to use all four learning styles in a cyclical fashion. This approach would create the ultimate learning experience and achieve positive outcomes, including acquisition of skills and knowledge by student nurse.

**Critical Thinking.** The perioperative immersion program builds on knowledge and skills and begins the process of critical thinking in senior nursing students. The integration of learning styles, learning cycles, and critical thinking guides the design of transitional education programs. A descriptive-analytic cross-correlation study by Ghazivakili et al. (2014) examined the role of critical thinking skills and learning styles in 216 university students. The data were obtained via a three-part questionnaire that included demographic data, a Kolb standardized questionnaire of learning styles, and a California critical thinking standardized questionnaire. The authors noted that 42.7\% (n=85) of the students used the convergent learning style (the highest percentage); 33.2\% (n= 66) used the assimilating style; and only 9.5\%, (n=19) used an
accommodating style (the lowest percentage). The results demonstrated that the students’
deductive reasoning and evaluation skills were higher than their other skills. Notably, analytical
skills had the lowest mean, and a positive significant relationship existed between the students’
performance with inferential skills and the total score of critical thinking skills \((p<0.05)\).
Furthermore, evaluation skills and deductive reasoning have a significant relationship. On the
other hand, the mean total score of critical thinking showed a significant difference between
learning styles. The results of this study demonstrated that the learning styles, critical thinking
skills, and academic performances of student nurses are significantly associated with one
another, an important factor in developing a transitional educational program. Critical thinking
skills are important components in the construction and validation of competencies as noted in
the AORN-designed competency used in the perioperative immersion program.

Chan (2013) completed a systematic review of critical thinking in nursing education,
which focused on 17 articles, the majority were qualitative research studies. Chan’s overview
noted various working definitions of critical thinking and outlined educational strategies and
interventions as follows

- questioning: Socratic questioning, asking multiple questions, and the use of an
  inquiry method starting from lower levels of analysis and working up;
- reflective writing: journaling and writing narratives; and
- simulations and clinical conferences with active engagement in learning activities
  in a controlled environment, including such learning modalities as concept maps,
  art-based workshops, case studies, and problem-based learning;

(Chan, 2013, p. 239-240)
Educational programs, including immersion programs, need to incorporate these strategies to establish a strong foundation for developing higher levels of cognitive abilities, psychomotor skills, and affective dispositions in the senior student nurse. These educational strategies were used in the design and implementation of the perioperative immersion program as noted in the program teaching plan.

**Simulation Strategies.** The perioperative immersion program has several components of simulation including AORN video simulation and simulation in a mock operating room to perfect basic skills prior to the clinical experience. The acquisition of clinical competencies requires student nurses to practice procedures several times, enabling them to apply their theoretical knowledge to safe and competent nursing care in the clinical environment. Shepherd, Kelly, Skene, and White (2007) concluded that a simulation-based program was significantly more effective in developing both knowledge and skills, compared to other types of programs, such as self-learning and didactic education.

In fact, Cant and Cooper (2016) completed an umbrella systematic review on simulation-based education in undergraduate nurses. Joanna Briggs Institute methods were used to explore 25 systematic reviews of the literature spanning 700 articles. Although an umbrella review of systematic reviews is based on findings from existing reviews of the literature and hence accepts the quality and accuracy of these studies at face value, it may provide some key findings. The review conducted by Cant and Cooper (2016) concluded that simulation-based education provided the novice nurses the ability to improve knowledge, skills, and competency. This promotes cognitive and psychomotor development, increase critical thinking scores, increase confidence levels and clinical judgement.
Video simulation is an effective strategy, engaging the student nurse with a visual representation of real-life situations and how to respond to them effectively (Cardoso et al., 2012). Both Cardoso et al. (2012) and Sharpnack, Goliat, Baker, Rogers, and Shockey (2013) conducted a quasi-experimental study with a pretest–posttest design that used video simulation as an audiovisual strategy. Both studies supported the use of video simulation that resulted in higher learning outcomes, compared with written language instruction. This result was primarily because “video simulations presented a series of images, graphic movements, texts, and sounds which helped students to better understand the course content and foster application of skills into practice” (Cardoso et al., 2012, p. 711). The limitation of both studies was the small sample size.

**Transition Issues.** A survey conducted by the Nursing Executive Center found that frontline nurse leaders believe that only 10% of new graduate nurses are fully prepared to provide safe and effective care, whereas academic leaders put the number at 90% (Berkow, Virkstis, Stewart, & Conway, 2009). Stout, Short, Aldrich, Cintron, and Provencio-Vasquez (2015) conducted a qualitative study with nursing interns and the difficulties they experienced while transitioning from a student role to the role of a registered nurse The researchers found that the nursing interns perceived high levels of difficulty relating to “lack of confidence with physician communication, delegation, knowledge deficit, and critical thinking skills (57.7%); followed by role expectations of autonomy and more responsibility (46.2%), and fears with patient safety (46.2%)” (p. 164).

A 10-year integrated review of best practices in new graduation transition programs indicated that up to 76% of graduate nurses are deficient in various competencies and skills and that 38% of the graduate nurses do not meet requirements for clinical judgment and clinical
reasoning (Del Bueno, 2005; Rush, Adamack, Gordon, Lilly, & Janke, 2013; Sharpnack et al., 2013). They concluded that transitional programs are important educational structures needed to support and integrate the new graduate into the practice setting. A main factor in transitional programs is the partnerships between academia and hospital systems in developing effective educational transition programs that involve clinical experience. During the program a dedicated preceptorship or resource person should be established. A program with either of these elements would be more likely to result in positive outcomes on the care and safety of patients, overall satisfaction of the new nurse, and increased retention rates. The limitation of the review was its failure to address the differences in the design content in the various transitional program.

Edwards et al. (2015) conducted a systematic review of the effectiveness of interventions to improve the transition from student to newly qualified nurse clinician. They identified quantitative studies that investigated the effectiveness of support strategies for newly qualified graduate nurses. The results indicated that transitional educational structures, such as an immersion program, have positive outcomes for the new graduate, including decreased anxiety, increased job satisfaction, improved recognition of role and responsibilities, higher level of knowledge acquisition, improved confidence and satisfaction with the program, role consolidation, and ability to meet the level of expectations (Edwards et al., 2015). In the systematic review by FitzGerald et al. (2001), the authors found that transition programs benefit organizations by fostering higher retention rates, a higher level of competency, reduced costs, and increased satisfaction.
Limitations

There were relatively few rigorous research articles that covered topics on the senior student nurse’s attainment of the knowledge and skills needed for the successful transition into practice. The various educational programs examined in this review displayed a wide divergence in design, implementation, length, objectives, and evaluation. Small sample size in many studies reduced the significance and level of evidence. Therefore, it is prudent to note that there is a need for more rigorous studies on the teaching and learning aspects of perioperative immersion programs that may increase basic competencies such as sterile technique in senior nursing students.

Summary

The literature review identified several main concepts concerning the development of the knowledge and skills in senior undergraduate nurses as they transition into practice with a focus on educational structures and clinical experiences. The literature strongly suggests that students’ levels of cognitive, psychomotor, and affective skills increase with strong clinical experiences. The perioperative immersion program uses foundational educational structures with emphasis on the individual, the experience, and the environment to facilitate senior students’ knowledge and skills acquisition, with a focus on sterile technique.

The development of strong leaders is essential to broadening the partnerships between health care organizations and academia to create a better future for nurses and their patients with the creation of more clinical immersion programs. In particular, the existing body of knowledge needs to be translated for the collaboration to be effective and supported on a larger scale. This literature review underscores the need for further inquiry into undergraduate educational
structures that will promote the development of knowledge and skills and establish basic competencies. There were limitations noted in the literature relating to the wide divergence in the educational design of the immersion programs.

This scholarly project presents an educational intervention that will enable the senior student nurse to acquire these basic skills and to provide safe quality care transitioning into the new role as a graduate nurse.
Chapter Three: Methods

Introduction

This scholarly project examined the ability of the senior undergraduate nursing student to improve the level of knowledge and skills regarding sterile technique during a two-week innovative perioperative clinical immersion program. This chapter presents the perioperative immersion program design, population plan, procedure plans, and the methods for data collection and analysis.

Design

The perioperative immersion program project was a capstone project using a pretest/posttest design that measured various scores on the AORN written examination and validated skills competency assessment on sterile technique and scrubbing, gowning and gloving (SGG). “A pretest and posttest design allows the ability to formulate cause-and-effect inferences” (Melnyk & Fineout-Overholt, 2015, p. 459).

Population Plan

Sample. Twelve senior nursing students out of 50 were selected by the dean or the dean’s designee from the college of nursing three-credit course in perioperative nursing. The selection criteria used by the dean or the dean’s designee included a 3.5 grade point average and an essay explaining the desire to participate in the program. The essay was evaluated by the dean or the dean’s designee at the university prior to the start of the program. The nursing students, as a vulnerable population, signed informed consent to participate in this study and were given the right to refuse to be in the project or to withdraw at any time (Appendix A).
Gatekeepers. The gatekeepers at the hospital who gave approval to conduct this capstone project included the director of nursing education, the director of quality, the evidence-based practice committee, and the dean of the nursing program at the university. Permission was obtained from AORN to use the AORN written validated examination and the AORN competency assessment tool (Appendices B and C).

Stakeholders. The stakeholders with a vested interest in the outcome of this program included the senior nursing students, nursing program faculty, the perioperative staff, the administration of the hospital, and AORN. They are key in organizational and systems leadership for quality improvement in the educational structures and systems initiatives. The benefits for students included exposure to real-life experiences, transition of knowledge into competent skills, and development of self-confidence and courage (Rozmus et al., 2014). An immersion program delivers effective transition for the graduate nurse, and this creates positive organizational outcomes with higher retention rates, decreased orientation costs, decreased turnover rates, and higher satisfaction rates (Edwards et al., 2015; Kovner, Brewer, Fatehi, & Jun, 2014).

Procedure Plan

Institutional Review Board. The project leader completed the Collaborative Institutional Training Initiative course at the university (Appendix D). A request for approval from the institutional review board (IRB) was submitted to the Wilkes University IRB committee and to the chief nursing officer at the hospital. Both determined that the project proposal was exempt from IRB approval. A multilayered approval process for this project included approval from the
director of education at the hospital, the quality department, the evidence-based practice committee and the dean of college of nursing (Appendix E).

**Description of Procedure.** Representatives of the perioperative and education departments for the hospital met the students to discuss experiences and promote the immersion program at the college of nursing prior to the program. The students were provided with a brochure on the content, objectives, and course outline of the program (Appendices F and G). After the selection process was completed by the dean, the 12 nursing students started the perioperative immersion program in a hospital classroom designed to resemble an operating room. Before the program began, students participated in a full discussion of the project. The students completed a written AORN pretest on the sterile technique and the SGG module from the AORN. The AORN examination questions were categorized by knowledge, comprehension, and application, focusing on sterile technique and SGG. These questions enhanced the skill competence of the students by reinforcing their understanding of the rationale for the skill. Each student’s competency on sterile technique including SGG was also assessed with a validated AORN competency verification tool (Appendix H).

The two-week perioperative immersion program was designed to create a higher level of knowledge and skills in caring for all patients, with a focus on sterile technique. The program used teaching and learning strategies that promoted active versus passive learning and transformed knowledge into practical skills with validated competency in sterile technique. The perioperative immersion program included lectures, video simulations, a simulation skills laboratory in the mock operating room, and demonstration of various operating room skills as
well as opportunities for questioning, exploring, and reflecting (Appendices I and J). There was a defined perioperative immersion teaching plan for each of the lectures (Appendix K).

The program continued with interactive clinical experience rotations with dedicated preceptors during the preoperative phase in the holding area, the intraoperative phase in the operating room (main focus), and the postoperative phase in the recovery room (Appendix L). As part of the program, the students maintained a reflective journal and an AORN observation tool and they attended regular debriefing sessions to discuss experiences during the clinical experience (Appendix M).

At the end of the program, students completed the same AORN examination and the AORN validated competency assessment on sterile technique and SGG. The results were compared to their pretest performance. The students were asked to evaluate the program. They also attended a graduation ceremony where they were presented with a certificate (Appendices N and O).

**Organizational Readiness.** Organizational support at the hospital was exceptional, with the vice president of nursing, nursing education director, perioperative nursing leadership, and the project leader playing instrumental parts in establishing the collaborative relationship with the university.

**Organizational Resources/Support.** The hospital’s perioperative service and professional development departments provided total support with a generous allocation of resources for this project. These include active involvement with the students, providing dedicated preceptors, classroom space, supplies, course materials including AORN cine-med videos, and time.
Challenges to Implementation. The restriction on the number of nursing students who would be accepted at the hospital center was set at 12. There were many new staff in the operating room, which limited the number of preceptors available to students. These challenges were minimized with leadership oversight and regular debriefings with the student to access learning needs.

Organization Expected Outcomes. This project is expected to benefit the hospital through increased student interest in pursuing a career in the perioperative service areas and the recruitment of newly skilled and competent graduates from this program. These benefits may result in reduced orientation time, increased retention rates, increased staff satisfaction, and, the main purpose, a higher level of safe quality patient care.

Data Collection Plan

The AORN skills competency test and the written examination were administered in a pretest-posttest design during the morning of the first day and again on the last day of the program. The project data included scores on a written examination and a competency validation tool. The data were stored in a locked drawer in a locked office, and every effort was taken to maintain confidentiality. As requested by AORN, the examinations were destroyed after the tally and analysis of the data. There were no personal identifiers of the subjects on the examinations or surveys, except age and gender, which were used to establish the basic sociodemographic characteristics of the sample. The examination results were shared with AORN as part of the agreement to use the analyzed and categorized perioperative examination questions.
Data Analysis Plan

An important part of a project is “the meaningful interpretation of results” (Zaccagnini & White, 2017, p. 85). Data analysis began with tallying the exam scores, then individual categories of knowledge, comprehension and application on an Excel spreadsheet. Students’ examination scores were analyzed using the Wilcoxon signed-ranks test to compare the statistical significance of the difference between pre and post test scores.

Conclusions

The methods of the perioperative immersion capstone project focused on developing nursing students’ ability to acquire knowledge, skills, and competency in sterile technique during a two-week perioperative clinical immersion program. Permission was granted by the college and the hospital gatekeepers. The educational program design incorporated a well-defined learning plan for the theoretical component. The clinical experiences were completed with dedicated preceptors and rotations to all the perioperative settings. The organization’s readiness and support were essential in implementing the immersion program’s methods and data collection procedures. Outcomes were measured with examinations and determination of competency.

Gaps exist in undergraduate nursing education regarding clinical experiences and basic competencies in sterile technique. Further research is needed to examine design, implementation, and evaluation of current undergraduate curricula that include clinical experience immersion programs and other nursing transitional educational programs. Adopting innovative perioperative immersion programs in nursing schools globally, may enhance patient safety in any health care
setting, assist in safe transition into practice, and provide organizational benefits with focus on improving patient care.
Chapter Four: Results

Introduction

The purpose of this scholarly project was to determine if an educational intervention presented to 12 senior student nurses (N=12) in a perioperative immersion program increased their knowledge, comprehension, and competency with sterile technique and SGG over a two-week period. Data collection began on the first morning of the program, prior to the start of the didactic and clinical experiences. Students completed an AORN competency assessment on SGG and then an 18-question AORN validated written examination on sterile technique and SGG. On the final day, after the completion of the didactic and clinical experiences, the students repeated the same competency assessment and written examination.

The data from the pretest and posttest were compiled and entered into an Excel spreadsheet. Pretest and posttest AORN examination scores for each participant included a total score on the AORN written examination with separate section scores for sterile technique and SGG based on the number of correct answers to each question. Descriptive statistics including mean, standard deviation, median, and interquartile range were reported separately for the pre- and posttest for the total examination scores and specifically for the sterile technique and SGG sections of the test. Separate Wilcoxon signed-rank tests were used to compare differences in pre- and posttest scores for the total examination and for the sections on sterile technique and SGG. The Wilcoxon signed-ranks test was appropriate because the test scores did not meet normality assumptions; therefore, parametric statistics like the paired sample t test were not appropriate (Grove, Burns, and Gray, 2013). A comparison of the differences in the AORN SGG
validated competency assessment was performed from pre- to posttest. Basic demographics of age and gender are outlined in Table 1.

**Analysis of Data Outcomes**

All 12 students failed the AORN sterile technique and SGG examinations during the initial pretest with an average score of 59%. The Wilcoxon signed-ranks test revealed a statistically significant increase in knowledge and comprehension (z= - 3.06, p=0.002) from pre- to posttest for the total AORN sterile technique and SGG examination scores. Findings from the analyses are presented in Table 2. As seen in Table 2, the total test mean scores increased from 10.54 (standard deviation [SD] =2.43) points out of a possible 18.0 points on the pretest to 15.63 (SD=1.48) points on the posttest, which was an improvement of 5.09 points or 48%. Similarly, median scores also improved from 10.0 to 15.75, an increase of 58%. As the table shows, the minimum and maximum scores of the students also increased considerably from pre- to posttest. In the pretest, the minimum score was 5.5 out of 18.0, whereas the maximum score was 14.0, showing a 12.5-point difference between the best and worst performances during the pretest. During the posttest, however, this gap narrowed considerably with the minimum score being 13.0 and the maximum being a perfect 18.0 (a difference of five points). More importantly, a minimum score of 13.0 out of 18.0 in the posttest meant that all students scored an average of 87%. This result represented a 47% improvement on the posttest.

Additionally, separate Wilcoxon signed-ranks tests were conducted to assess whether improvements in both the sterile technique and the SGG components of the test contributed toward the overall improvement in knowledge and comprehension scores. Findings are presented in Tables 3 and 4. The Wilcoxon signed-ranks test revealed statistically significant increases in
knowledge and comprehension from pre- to posttest in the SGG component ($z = -3.07$, $p=0.002$) as well as in the sterile technique component ($z = -2.98$, $p=0.003$). As seen in Table 3, the SGG knowledge and comprehension test mean scores increased from 4.21 (SD=1.48) points out of a possible 8.0 points during the pretest to 6.96 (SD=0.81) points in the posttest, an improvement of 2.75 points or 65%. Median scores also improved from 4.25 to 7.0. As the table shows, the minimum and maximum scores of the students also increased from pre- to posttest. In the pretest, the minimum score was 1.5 out of 8.0, whereas the maximum score was 6.5; thus, there was a 5-point difference between the best and worst pretest performances. During the posttest, however, this gap narrowed considerably with the minimum score being 5.5 and the maximum being a perfect 8.0, a difference of 2.5 points. More importantly, a minimum score of 5.5 out of 8.0 in the posttest meant that all students scored over 69% on the posttest. A review of each student’s pre- and posttest scores revealed that SGG scores improved for every participant from pre- to posttest.

Differences in pre- and posttest scores on sterile technique knowledge and comprehension were similar to those noted for SGG. As evident from Table 4, sterile knowledge and comprehension test mean scores increased from 6.33 (SD=1.23) points out of a possible 10.0 points during the pretest to 8.67 (SD=0.94) points in the posttest (an improvement of 2.34 points or 37%). Median scores also improved from 6.50 to 9.0. As Table 4 shows, minimum and maximum scores of the students also increased from pre- to posttest. In the pretest, the minimum score was 4.0 out of 10.0, whereas the maximum score was 7.5; during the posttest, however, the minimum score was 7 and the maximum was a perfect 10.0. More importantly, a minimum score of 7 out of 10.0 in the posttest meant all students scored at least 70% on the posttest. A review of
each student’s pre- and posttest scores revealed that 11 out of 12 students’ scores improved from pre- to posttest. One student’s score regressed in the posttest compared to the pretest.

Finally, the investigator conducted a frequency analysis of the number of correct responses at the item level to identify individual components of the knowledge and comprehension test that contributed most to the improvement in scores. Findings from the analysis are reported in Table 5. The 18 questions of the test are listed from SGG1 to SGG8 and Sterile 1 to Sterile 10. As seen in Table 5, except for item 9 of the sterile component, every item on the test contributed to the overall improvement in scores. Maximum improvement was noted in item SGG 1, followed by SGG 6 and Sterile 2. Sterile 7 rounded off the list of items with at least 50% improvement from pre- to posttest. Next, more than 40% of the students improved in scores on items Sterile 5 and Sterile 10; a third of the students showed improvement in items SGG 2, SGG 5, SGG 7, SGG 8, and Sterile 4. Thus, more than a third of the students improved in knowledge and comprehension scores in 11 out of the 18 items on the test. Of these items, 6 were from the SGG component, whereas the remaining 5 were from the sterile component of the test.

Data from the AORN competency assessment of SGG revealed that none of the 12 senior nursing students who had completed the 3-credit theoretical perioperative course could complete the basic steps of sterile technique and avoid contamination when gowning and gloving. Following the clinical immersion program, all 12 students were able to complete every step of the post SGG competency validation process. Thus, the success in the competency assessment went from 0% to 100% (Table 6). The chi-square test itself could not be performed because the frequency of two cells is 0. It is safe to say that these results show an improvement competency that is not due to chance, although there are no chi-square metrics to support this observation.
Summary of Findings

A nonrandomized, quasi-experimental design using a one-group pretest-posttest design was selected to determine if an educational intervention presented to 12 senior student nurses in a perioperative immersion program increased their knowledge, comprehension, and competency with SGG over a 2-week period. Separate Wilcoxon signed-rank tests were used to compare differences between pre- and posttest scores on the total examination and the sections on sterile technique and SGG, with the questions categorized as knowledge, comprehension, and application.

The Wilcoxon signed-ranks test revealed statistically significant increases in knowledge and comprehension from pre- to posttest in the SGG component ($z = -3.07, p=0.002$) as well as in the sterile technique component ($z=-2.98, p=0.003$). A review of each student’s pre- and posttest scores revealed that SGG scores improved for every participant from pre- to posttest. For the sterile technique, all students except one improved from pre- to posttest. The average examination scores increased 47% from pretest to posttest. All 12 students were able to complete every step of the AORN SGG competency assessment during the post SGG competency validation process after the completion of the immersion program. This was an improvement of 100% since none of the students were able to maintain sterile technique before the immersion program.

Conclusions

Quantitative analysis of the data obtained from this capstone project supported the PICOT statement that senior nursing students will develop competency in sterile technique to care for patients during the 2-week immersion program. These results exemplify the need for
perioperative immersion programs that are designed to increase cognitive and psychomotor skills in sterile technique and SGG with a validated competency as a component of the nursing school educational curriculum. A perioperative immersion program will create a solid foundation for the transition of the student nurse into practice upon graduation, resulting in improved patient care in the perioperative setting. More research is needed to determine if students’ improved competence in sterile technique will transfer to other clinical settings outside the perioperative area.
Chapter 5: Discussion and Conclusions

Introduction

This chapter provides a brief summary of the perioperative immersion program, describes the findings of the research, and explores the possibilities for future research on clinical immersion programs in nursing curricula. It is well documented in healthcare policy that there is an urgent need for a paradigm shift to reform nursing education by increasing the collaboration between academia and health care organizations. The inclusion of innovative transitional immersion programs is a major focus of undergraduate nursing education reform (Diefenbeck, Hayes, Wade, & Herrman, 2011).

Discussion of Main Findings

This project used a quantitative design to determine the effectiveness of the perioperative immersion program. The data measured the changes in knowledge acquisition and skill competency on sterile technique and SGG in the senior nursing student after the two-week clinical immersion experience.

This project uncovered the existing gap in cognitive and psychomotor skills in the undergraduate nursing student. The results of the pretest showed that the students participating in this project were unable to pass a validated cognitive examination on sterile technique and on SGG, and that they were unable to complete a validated competency assessment on SGG. The results of the data analysis revealed statistically significant increases in students’ cognitive and psychomotor skills, demonstrated by improved scores in the written posttest examination and the posttest competency assessment in all students after the immersion program.
The lack of competency in sterile technique among graduate nurses creates a suboptimal environment for patients, placing them at risk for infections. Sterile technique is used in all areas of health care and is one of the most important basic skills noted since the foundations of nursing were established by Florence Nightingale. Edwards et al. (2015) noted the lack of cognitive and psychomotor skills as a global concern due to the decline of clinical experiences that enhance a smooth transition to practice in the undergraduate nurse. The design of the perioperative immersion program was intended to address this problem through both didactic and clinical experience using various teaching strategies guided by Kolb’s experiential learning framework (Kolb, 1984; Schultz et al., 2016). The need for a clinical immersion experience is even more evident in the perioperative area because it has its own unique set of competencies required for safe patient care.

**Implications for Practice**

This project supports the position of the American Association of Colleges of Nursing (2008) regarding the ability of student nurses to acquire basic skills and competencies prior to graduation. Application of relevant findings and evidence found in the literature review examined the benefits of transitional education programs for undergraduate students. Transitional programs increase nursing students’ courage, confidence, critical thinking, and transition of knowledge into competent skills. Transitional immersion programs also prepare students for the real clinical setting, and enhance their future interest in various employment opportunities (Cant & Cooper, 2016; Rozmus et al., 2014).

The changes demonstrated by the students in the perioperative immersion program have major implications for the development of similar projects in nursing curricula. As a clinical
scholar, the DNP needs to continue to improve our nation’s health by conducting research on clinical immersion and by disseminating findings from evidence-based research to improve nursing education (DNP Essential 7). Strong leadership is needed to create clinical immersion programs with the latest evidence-based design, implementation, and evaluation (DNP Essential 3). Doctorally prepared nurses should “challenge and advance educational structures and traditional models to advance the teaching, research and practice of nursing that is significant, replicable, creative, and peer reviewed” (AACN, 1999 as noted by Zaccagnini & White, 2017, p. 69).

**DNP as Nurse Leader**

This project began with several years of collaboration between a university school of nursing program and the hospital system to create a perioperative immersion program in conjunction with the three-credit perioperative nursing course. The success of this project was due to strong interprofessional collaboration with stakeholders including perioperative managers, surgeons, academic educators, and members of the evidence-based committee. Ongoing collaboration between nursing faculty and hospital staff will exemplify the leadership attributes required to improve the quality of education and improve patient outcomes (DNP Essential 6).

This project involved a system-wide organizational change that improved the delivery of nursing education. This is congruent with DNP Essential 2 which states that the “DNP leader must continue to prepare for the challenges of complex adaptive systems, which have redefined the role of nursing leadership and transcended traditional models of nursing education” (Montgomery, 2011, p. 250) (ANCC, 2006).
According to the National Academies of Sciences, Engineering and Medicine (2015), there is a critical need to evaluate transition-to-practice programs to justify their feasibility, effectiveness, and outcomes. The AACN 2016 Federal Policy Agenda (2016) includes active involvement in policies that would transform the care delivery system, including the support and development of transitional programs. As a leader, it is essential for the DNP to work with accrediting bodies, government agencies, and health care organizations to develop policies that will improve health care outcomes (DNP Essential 5).

**DNP as Nurse Educator**

This investigator used scholarship in the creation of a program that integrated science and evidence-based practice to plan a program design that included a didactic portion and an effective experiential learning plan with innovative teaching and learning strategies (DNP Essential 1).

This project used the latest educational technology including both low fidelity and high fidelity simulation to promote active student-centered learning experiences. The use of simulated learning technology in transitional programs will increase the students’ cognitive and psychomotor skills while improving their competency for practice (DNP Essential 4).

Nursing leaders need to identify the specific competencies that are needed for graduate nurses to safely practice in a rapidly changing health care environment (Zaccagnini & White, 2017). To advance nursing practice, there is a need to design effective educational programs with creative teaching strategies and data-rich evaluation so they can guide, mentor, and support nurses to provide the highest quality patient care (DNP Essential 8).
Limitations

This project was limited by the small sample size of only 12 students who were not part of a randomized controlled study group; therefore, the statistical data were not as robust they would have been with a larger group. There were more than 50 nursing students in the didactic course, but only 12 of them met the criteria for the perioperative immersion program. This limitation was determined by the nursing school based on available space and preceptor placement opportunities. The other students did not have the opportunity to take the perioperative immersion program and thereby to obtain a higher level of knowledge, skills, and competency in sterile technique and all the other attributes that a clinical experience entails.

Variabilities and inconsistencies among the clinical experiences and individual preceptors may have affected the quality of the program. These confounding variables were controlled by frequent collaboration with the perioperative leadership team and regular debriefing with the students to maintain a quality clinical experience. These limitations were also minimized by the high level of access and open dialogue with staff, the anesthesiologist, and the surgical team during the clinical rotations to all perioperative patient care areas.

Recommendations for Future Research

There is a need for future research to examine a number of variables concerning student nurses and perioperative immersion programs. Randomized controlled studies would be effective in comparing student learning outcomes in groups who participate in a clinical immersion program and those who do not. Other research could examine whether the knowledge, skills, and competencies learned in a perioperative immersion program would benefit patient care in other areas. Research using a qualitative design could examine courage, confidence, and choice of
employment in perioperative areas. Examination of the retention, recruitment, and orientation costs are other variables that could be measured as outcomes in transitional immersion programs. Additionally, research is needed to analyze the development of critical thinking skills and the effectiveness of simulation versus clinical experience alone in the development of competencies including sterile technique.

Although the validity of this perioperative immersion program project is limited due to the small sample size, the findings of this pilot project support the need for further intensive research to influence policies that support transitional programs at the undergraduate level.

**Conclusions**

There is an urgent need to reevaluate the design of nursing curricula and to integrate consistent clinical experiences with classroom theory. This paradigm shift is based on the framework of the AACN Essentials of Baccalaureate Education for Professional Nursing Practice, the professional nurse standards of the institutions' accrediting bodies, and the state boards of nursing (AACN, 2008; Mailloux, 2011). Strong cohesive collaboration between academia and hospital systems can provide effective means to design and implement transitional programs like the perioperative immersion program in current nursing programs curriculum.

As a result of this innovative perioperative immersion program, undergraduate nursing students demonstrated competence in the critical skill of sterile technique with significant improvement in both cognitive and psychomotor skills. This project demonstrates that strong collaboration and partnership between academia and health care organizations can enhance the undergraduate nursing student’s level of skills, knowledge, and competency. Doctorally prepared nursing leaders need to be actively involved to prioritize curriculum changes that
include transitional programs with clinical experiences that will promote clinical practice and improve the health and safety of patients in a complex health care system.
References


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Council, Adelaide University, Adelaide: Joanna Briggs Institute for Evidence Based Nursing and Midwifery.


doi:10.1097/ACM.0000000000000584


doi:http://dx.doi.org.ezproxy.med.nyu.edu/10.1016/S0001-2092(06)61324-0


Tables

Table 1. Sociodemographic Characteristics of the Sample (N=12)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>10</td>
<td>83.3</td>
</tr>
<tr>
<td>Male</td>
<td>2</td>
<td>16.7</td>
</tr>
<tr>
<td>Age 30 years or under</td>
<td>11</td>
<td>91.7</td>
</tr>
<tr>
<td>Age over 30 years</td>
<td>1</td>
<td>8.3</td>
</tr>
</tbody>
</table>

Table 2. Comparison of Pre- and Posttest Total Knowledge and Comprehension Scores Using the Wilcoxon Signed-rank Test Showing Statistically Significant* Differences (N=12)

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean (SD)</th>
<th>Range</th>
<th>Median (IQR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest total score</td>
<td>12</td>
<td>10.54 (2.43)</td>
<td>5.5 - 14</td>
<td>10.0 (3.50)</td>
</tr>
<tr>
<td>Posttest total score</td>
<td>12</td>
<td>15.63 (1.48)</td>
<td>13 - 18</td>
<td>15.75 (2.63)</td>
</tr>
</tbody>
</table>

Note: z = -3.06, *p=0.002. SD = standard deviation; IQR = interquartile range.

Table 3. Comparison of Pre- and Posttest Scrubbing, Gloving, and Gowning Scores Using the Wilcoxon Signed-rank Test Showing Statistically Significant* Differences (N=12)
<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean (SD)</th>
<th>Range</th>
<th>Median (IQR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest SGG Total</td>
<td>12</td>
<td>4.21 (1.48)</td>
<td>1.5 - 6.5</td>
<td>4.25 (2.25)</td>
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<tr>
<td>Posttest SGG Total</td>
<td>12</td>
<td>6.96 (0.81)</td>
<td>5.5 - 8</td>
<td>7.0 (1.38)</td>
</tr>
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</table>

*z = -3.07, *p=0.002. SD = standard deviation; IQR= interquartile range; SGG = scrubbing, gloving, and gowns.*
Table 4. Comparison of Pre- and Posttest Sterile Scores Using the Wilcoxon Signed-rank Test Showing Statistically Significant* Differences (N=12)

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean (SD)</th>
<th>Range</th>
<th>Median (IQR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest Sterile Total</td>
<td>12</td>
<td>6.33 (1.23)</td>
<td>4-7.5</td>
<td>6.50 (2.38)</td>
</tr>
<tr>
<td>Posttest Sterile Total</td>
<td>12</td>
<td>8.67 (0.94)</td>
<td>7-10</td>
<td>9.00 (1.25)</td>
</tr>
</tbody>
</table>

\[ z = -2.98, *p = 0.003. SD = standard deviation; IQR = interquartile range. \]

Table 5. Comparison of Percentage of Correct Responses to Each Individual Item of the SGG and Sterile Knowledge and Comprehension Test from Pre to Posttest (N=12).
<table>
<thead>
<tr>
<th>Question</th>
<th>Pretest Correct Responses</th>
<th>Posttest Correct Responses</th>
<th>Increase in % of Correct Responses from Pre to Posttest</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
<td>Frequency</td>
</tr>
<tr>
<td>SGG1</td>
<td>2</td>
<td>16.7</td>
<td>12</td>
</tr>
<tr>
<td>SGG2</td>
<td>7</td>
<td>58.3</td>
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</tr>
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<td>SGG3</td>
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<td>75</td>
<td>12</td>
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<td>SGG4</td>
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<td>SGG5</td>
<td>3</td>
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<td>7</td>
</tr>
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<td>SGG6</td>
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<td>33.3</td>
<td>11</td>
</tr>
<tr>
<td>SGG7</td>
<td>6</td>
<td>50</td>
<td>10</td>
</tr>
<tr>
<td>SGG8</td>
<td>1</td>
<td>8.3</td>
<td>5</td>
</tr>
<tr>
<td>Sterile1</td>
<td>8</td>
<td>66.7</td>
<td>9</td>
</tr>
<tr>
<td>Sterile2</td>
<td>4</td>
<td>33.3</td>
<td>11</td>
</tr>
<tr>
<td>Sterile3</td>
<td>6</td>
<td>50</td>
<td>8</td>
</tr>
<tr>
<td>Sterile4</td>
<td>7</td>
<td>58.3</td>
<td>11</td>
</tr>
<tr>
<td>Sterile5</td>
<td>2</td>
<td>16.7</td>
<td>7</td>
</tr>
<tr>
<td>Sterile6</td>
<td>9</td>
<td>75</td>
<td>12</td>
</tr>
<tr>
<td>Sterile7</td>
<td>6</td>
<td>50</td>
<td>12</td>
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<td>Sterile8</td>
<td>11</td>
<td>91.7</td>
<td>12</td>
</tr>
<tr>
<td>Sterile9</td>
<td>9</td>
<td>75</td>
<td>9</td>
</tr>
<tr>
<td>Sterile10</td>
<td>5</td>
<td>41.7</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 6. Comparison of Frequency and Percentage of Students Who Passed the Competency Test Pre- and Postintervention (N=12)
<table>
<thead>
<tr>
<th>Competency Pass</th>
<th>Preintervention (n=12)</th>
<th>Postintervention (n=12)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>0 (0%)</td>
<td>12 (100%)</td>
</tr>
<tr>
<td>No</td>
<td>12 (100%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>
Kolb’s Cycle of Experiential Learning

Figure 2. Applying Kolb’s Learning Cycle to Competency-based Education.

Schultz, K., McEwen, L., & Griffiths, J. (2016). Applying Kolb’s learning cycle to competency-based residency education. Academic Medicine, 91(2), 284. doi:10.1097/ACM.0000000000000058 (Used with permission: see Appendix P)
Appendices

Appendix A

Informed Consent for Participating in the Project: Perioperative Immersion Program

I understand that the investigator, Edward Creasy MSN, RN, CNOR, NE-BC, is a DNP student at Wilkes University studying the acquisition of knowledge and skills changes as a result of participating in the two-week perioperative immersion program. I understand that as a student participant there will be a short exam on sterile technique and a skill assessment on gloving and gowning on the first day of the program. On the last day of the clinical immersion program, prior to graduation, there will be a follow-up exam and skill assessment.

I am participating in the study on my own accord. I can stop at any time and I do not have to answer any questions I do not wish to. My name will not be used in the study or on any exams or competencies. All data collected will be secured and confidential. Photos may be taken for promoting the program but will not appear in the study and I have the option to refuse to be photographed.

By helping with this study, I may assist in creating a stronger future in nursing education, knowing the benefits and/or risks of the perioperative immersion program. I can contact Edward Creasy at 212-598-6586 or email at Edward.Creasy@Wilkes.Edu. with any questions. I also can contact the program manager at Wilkes University Institutional Review Board at IRB@Wilkes.Edu. All my questions have been addressed and I agree to participate in this project.

Participant’s printed name: __________________________________________

Participant’s signature: __________________________________________

Investigator’s signature: __________________________________________

Date: __________
To: Edward Creasy  
Edward.Creasy@NYUMC.ORG

Mr. Creasy,

This letter will serve as permission to use the selected Final Exam questions from the Sterile Technique and Scrubbing, Gowning, and Gloving modules from Periop 101: A Core Curriculum that were provided to you in an email dated 10/24/16 with the following provisions.

You have permission to use these questions only for the students in your pending research project. All electronic and hard copies of the questions must be destroyed after your data is collected. The content of these questions is not to be shared in any format with anyone besides you and your students in the research project.

Student results for each individual question will be shared with AORN (Susan Root) at the completion of the research project. I wish you success in your project.

Sincerely,

Susan D. Root, MSN, RN, CNOR
Manager Perioperative Education
AORN
sroot@aorn.org
Appendix C

AORN Competency Permission

AORN

2170 South Parker Road, Suite 400

Denver, CO 80231-5711

(800) 755-2676 (303) 755-6304

AORN.org

September 13, 2016

Edward Creasy Edward.Creasy@NYUMC.ORG

Dear Mr. Creasy:

Thank you for your interest in AORN content. The AORN competency verification tool-based products are licensed for use in the purchaser’s facility. You may use the documents internally at your facility. The CD is licensed such that its content can be copied, edited, modified, or used internally.

Additional permission will be required if you plan to sell, publish, or otherwise distribute the contents of the CD outside of your facility.

Thank you again for your interest in AORN content.

Sincerely,

Zac Wiggy Editor, AORN
Appendix D

Collaborative Institutional Training Initiative (CITI Program)

Coursework Requirements Report*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details.

- Name: EDWARD CREASY (ID: 3609202)
- Email: Edward.Creasy@NYUMC.org
- Institution Affiliation: New York University (ID: 1689)
- Institution Unit: Nursing Education Professional Development
- Phone: 212 598 6586
- Curriculum Group: IRB Members - Basic/Refresher
- Course Learner Group: Same as Curriculum Group
- Stage: Stage 1 - Basic Course
- Description: This Basic Course is appropriate for IRB or Ethics Committee
- Report ID: 10746794
- Completion Date: 07/07/2013
- Expiration Date: 07/06/2017
- Minimum Passing: 80
- Reported Score*: 95

REQUIRED AND ELECTIVE MODULES ONLY DATE COMPLETED SCORE

Introduction (ID: 757) 07/05/13 No Quiz
Belmont Report and CITI Course Introduction (ID: 1127) 07/05/13 3/3 (100%)
Students in Research (ID: 1321) 07/05/13 10/10 (100%)
History and Ethical Principles - SBE (ID: 490) 07/05/13 5/5 (100%)
History and Ethics of Human Subjects Research (ID: 498) 07/05/13 6/6 (100%)
Defining Research with Human Subjects - SBE (ID: 491) 07/05/13 4/5 (80%)
The Federal Regulations - SBE (ID: 502) 07/05/13 5/5 (100%)
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2) 07/05/13 5/5 (100%)
Assessing Risk - SBE (ID: 503) 07/05/13 5/5 (100%)
Informed Consent - SBE (ID: 504) 07/05/13 4/5 (80%)
Informed Consent (ID: 3) 07/05/13 4/4 (100%)
Privacy and Confidentiality - SBE (ID: 505) 07/05/13 4/5 (80%)
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4) 07/05/13 4/4 (100%)
Records-Based Research (ID: 5) 07/05/13 2/2 (100%)
Genetic Research in Human Populations (ID: 6) 07/07/13 2/2 (100%)
Research with Protected Populations - Vulnerable Subjects: An Overview (ID: 7) 07/06/13 4/4 (100%)
Research with Prisoners - SBE (ID: 506) 07/05/13 4/4 (100%)
Vulnerable Subjects - Research Involving Prisoners (ID: 8) 07/05/13 4/4 (100%)
Research with Children - SBE (ID: 507) 07/06/13 4/4 (100%)
Vulnerable Subjects - Research Involving Children (ID: 9) 07/06/13 3/3 (100%)
Research in Public Elementary and Secondary Schools - SBE (ID: 508) 07/06/13 3/4 (75%)
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10) 07/07/13 3/3 (100%)
International Research - SBE (ID: 509) 07/06/13 3/3 (100%)
International Studies (ID: 971) 07/06/13 3/3 (100%)
Internet-Based Research - SBE (ID: 510) 07/06/13 4/5 (80%)
Avoiding Group Harms - U.S. Research Perspectives (ID: 14080) 07/06/13 3/3 (100%)
FDA-Regulated Research (ID: 12) 07/07/13 3/5 (60%)
Research and HIPAA Privacy Protections (ID: 14) 07/07/13 5/5 (100%)
Vulnerable Subjects - Research Involving Workers/Employees (ID: 483) 07/05/13 4/4 (100%)
Hot Topics (ID: 487) 07/05/13 No Quiz
Conflicts of Interest in Research Involving Human Subjects (ID: 488) 07/05/13 5/5 (100%)
The IRB Member Module - 'What Every New IRB Member Needs to Know' (ID: 816) 07/06/13 7/7 (100%)
New York University (ID: 13807) 07/05/13 No Quiz
Email: citisupport@miami.edu
Phone: 305-243-7970
Web: https://www.citiprogram.org

IRB Members - Basic/Refresher - Basic Course

You completed the mandatory elements of this course on 07/07/13 with a final reported average score of 95%.

Conflicts of Interest - Stage 1

You completed the mandatory elements of this course on 07/05/13 with a final reported average score of 90%.

Below is CITI Program Link to verify as well:

https://www.citiprogram.org/verify/?53edcadc-f93b-4700-a82d-a5b4f6cf4726

Note that this link will share the full report, including any listed quiz scores.
Appendix E

Permission by Dr. James Pace: NYU Rory Meyers College of Nursing

November 23, 2016

Edward Creasy, MSN, RN-BC, CNOR, NE-BC
Nurse Educator
Professional Development/Nursing Education
NYU Langone’s Hospital for Joint Diseases
301 East 17th St.
New York, New York 10003

Dear Mr. Creasy:

I have read with interest your DNP Research Proposal titled: “Perioperative Immersion Program Pilot Project with Pretest/Posttest Design.” As the Academic Partner in this unique endeavor (e.g., the Perioperative Immersion Program) we value our joint collaboration with NYU Langone. In addition, we are deeply appreciative of the project’s outcomes for our students and ultimately, the patients and families who will be the recipients of their care. We believe that this program does indeed provide our students with a deeper understanding of the knowledge and skills required to begin a career in the perioperative setting. Now we must see the data for the confirmation of our beliefs!

In that regard, you have the permission of the NYU Meyers College of Nursing to recruit our undergraduate nursing students for your study. This permission is given with the following parameters assured: 1) the Informed Consent as found on page 12 of the proposal assures that each student will be given the opportunity to participate but that said participation is voluntary, 2) if a student refuses to participate, that student is in no way penalized for not participating, 3) a student who initially agrees to participate may at any time opt out of the study without negative consequence in regard to the immersion experience itself. As stated in the consent, student anonymity is assured. Finally, any question(s) the student(s) have may be directed to you as the PI of said study.

I wish you the best as you complete the requirements for your research proposal. We are most appreciative of our “Immersion Partnership” with NYU Langone. Please feel free to reach out to me with any questions you may have as the study progresses.

Sincerely,

James C. Pace PhD, MDiv, ARNP, FAANP, FAAN
Senior Associate Dean for Academic Programs and Clinical Professor
Appendix F

Sample Perioperative Immersion Program Course Brochure Content

Program Description and Purpose: The Perioperative Immersion Program introduces and orients the graduating BSN nursing student to the perioperative practice environment. It is believed that at the end of the program, the student will have a deeper understanding of the knowledge and skills required to begin a career in the perioperative setting.

Objectives: Upon completion of this program the participant will be able to:

1. Discuss the surgical environment in the operating room. 2. Apply principles of sterile technique in the operating room and the development of a surgical conscience. 3. Discuss the AORN Recommended Practices and the NYU Langone’s Hospital for Joint Disease Standards of Care. 4. Explain the specific nursing roles and patient care in the three phases of the patient’s surgical experience: preoperative, intraoperative and postoperative. 5. Describe the role of the perioperative nurse in providing safe patient care. 6. Identify specific role function of each member of the sterile and unsterile team. 7. Identify the role of the perioperative nurse in patient anesthesia induction and emergence. 8. Discuss perioperative nursing data set used in the planning of care for the surgical patient. 9. Apply the multiple strategies of infection prevention including aseptic technique and functioning within the sterile and nonsterile fields 10. Competency on gowned and gloved.


Sample Classroom Instructions (Page 2 of the Brochure Content)

1. Introduction to Operating Room at NYU Langone Medical Center
a. Introduction to Managers and Surgical Team

b. Review of Perioperative Standards, AORN Guidelines

2. Principles of Sterile Technique

a. Recommended practices for Surgical Attire

b. Recommended practices for Traffic Patterns in the Perioperative Practice Setting

c. Recommended practices for Maintaining the Sterile Field

d. Surgical Site Infection Prevention Initiatives

3. Skin Prep

a. Recommended practices for Skin Preparation of Patients

b. CholoraPrep

4. Gowning and Gloving

a. Simulation with Mock OR suite

b. Demonstration and Return Demonstration Gloving and Gowning

c. Competency completion of on Gloving and Gowning

d. Recommended practices for Surgical Hand Scrub/ Sterillium

5. Surgical Draping- Introduction

a. Recommended practices for Maintaining a Sterile Field

6. OR documentation and PNDS Introduction

7. TeamSTEPPS Program- Introduction

a. Understanding the relationship of patient outcomes and teamwork

8. Medication Safety- Introduction- in the OR setting
Appendix G
Sample Perioperative Immersion Program Outline

NYU Hospitals Center

NYU Langone Hospital for Joint Diseases

Department of Nursing Education/ Division of Professional Development

2017 PERIOPERATIVE IMMERSION PROGRAM

Program Description

This program provides orientation for the NYU student nurses accepted into the Perioperative Immersion Program to develop the understanding and practices of sterile technique and patient safety issues in the operating rooms. The program continues with the clinical experiences that explore the world of perioperative nursing in relationship to preoperative, intraoperative and postoperative patient care.

Purpose

The Immersion Program introduces and orients the graduating senior nursing students to the operating rooms at NYU Hospitals Center to prepare them to provide a higher level of quality patient care by developing the knowledge and skills with sterile technique that will enhance patient safety in all healthcare settings.

Objectives

Upon completion of this program the participant will be able to:

1. Discuss the surgical environment in the operating room.
2. Apply principles of sterile technique in the operating room and the development of a surgical conscience.
3. Discuss the AORN Recommended Practices and the NYU Hospitals Center Standards of Care.
4. Demonstrate competency in sterile technique with gloving and gowning.
5. Describe nursing actions during emergency events in the perioperative setting.
6. Describe the basic techniques for sterile draping and rational of the sterile field.
7. Discuss various communication techniques the perioperative setting including the perioperative nursing data set used in the planning of care for the surgical patient.
8. Discuss the standard of invasive procedure verification.
9. Identify the factors involved in medication errors and an awareness of the medication safety.
10. Explain the specific nursing roles and patient care in the three phases of the patient’s surgical experience: preoperative, intraoperative and postoperative.

**Methods**

1. Pretest and Posttests/Survey
2. Lecture/Discussion/Q and A session/video
3. Simulation Mock OR/ Demonstration/Return Demonstration
4. Clinical Rotations to all perioperative care areas with dedicated preceptors

**Content Outline**

1. Introduction to Operating Room at NYU Hospitals Center
   a. Introduction to Managers and Surgical Team
   b. Review of Perioperative Standards, AORN Guidelines

2. Principles of Sterile Technique: Key Concepts and Practices
   a. Recommended practices for Surgical Attire
   b. Recommended practices for Traffic Patterns in the Perioperative Setting
   c. Surgical Site Infection Prevention Initiatives

3. Hand Hygiene, Gowning & Gloving in the Perioperative Setting
   a. Simulation with Mock OR suite
   b. Recommended practices for Surgical Hand Scrub/ Sterillium
   c. Demonstration and Return Demonstration: Gloving & Gowning
d. Competency assessment of on Sterile Technique Gloving & Gowning

4. Surgical Draping-Fundamentals
   a. Recommended practices for Maintaining a Sterile Field

5. Perioperative Skin Antisepsis of the Surgical Patient
   a. Recommended practices for Skin Preparation of Patients
      b. CholoraPrep

6. Safety in the OR : Brief with Fire Prevention, Malignant Hyperthermia

7. TeamSTEPPS Program/ Communication- Introduction
   a. Understanding the relationship of patient outcomes and teamwork
      b. PNDS brief and EPIC

8. Invasive Procedure Verification Standard

9. Medication Safety- Introduction- in the OR setting
   a. Medication Safety/ Labeling
Appendix H

AORN Competency Verification Tool—Perioperative Services

Practice: Sterile Technique—Donning Sterile Gowns and Gloves

Student Nurse

Name: ___________________________ Date: __________

Competency Statement: The perioperative RN or team member has completed facility or health care organization-required education and competency verification activities related to donning sterile gowns and gloves.¹

<table>
<thead>
<tr>
<th>Competency Statements/Performance Criteria</th>
<th>Verification Method [Select appropriate code from legend at bottom of page]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DEM/DO/DA</td>
</tr>
<tr>
<td>1. Selects gowns of correct size and sleeve length and describes factors to be considered during selection including</td>
<td></td>
</tr>
<tr>
<td>a. gown is large enough to wrap around body and cover back;</td>
<td></td>
</tr>
<tr>
<td>b. gown sleeves and cuffs conform to arms;</td>
<td></td>
</tr>
<tr>
<td>c. gown sleeves and cuffs are short enough to allow gloves to fully cover cuffs; and</td>
<td></td>
</tr>
<tr>
<td>d. Gown sleeves are of sufficient length to prevent gown cuffs from</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>pulling out of the gloves when arms are extended.</td>
<td></td>
</tr>
<tr>
<td>2. Performs surgical hand scrub before donning sterile gowns and gloves.</td>
<td></td>
</tr>
<tr>
<td>3. Uses sterile technique when donning sterile gowns and gloves for operative or other invasive procedures.</td>
<td></td>
</tr>
<tr>
<td>4. Dons sterile gowns and gloves in a sterile area away from the main instrument table and in a manner to prevent contamination of surgical attire including</td>
<td></td>
</tr>
<tr>
<td>a. verifying that sterile gloves are not opened directly on top of the sterile gown that has been opened for donning;</td>
<td></td>
</tr>
<tr>
<td>b. ensuring that hands and arms are completely dry before donning a sterile gown;</td>
<td></td>
</tr>
<tr>
<td>c. touching only the inside of the sterile gown when it is picked up for donning; and</td>
<td></td>
</tr>
<tr>
<td>d. Touching the glove wrapper or gloves after the sterile gown has been donned.</td>
<td></td>
</tr>
<tr>
<td>5. Describes the areas of the gown to be considered sterile (i.e., from chest to level of sterile field, gown sleeves from 2 inches above elbow to the cuff).</td>
<td></td>
</tr>
<tr>
<td>6. Describes the area of the gown to be considered unsterile (i.e., neckline, shoulders, axillary region, gown back).</td>
<td></td>
</tr>
<tr>
<td>7. Ensures that sleeve cuffs are completely covered by sterile gloves and recognizes that sleeve cuffs are considered contaminated when the scrubbed team member’s hands pass through and beyond the cuff.</td>
<td></td>
</tr>
<tr>
<td>8. Describes the closed assisted (i.e., gown cuff of team member being gloved remains at or beyond</td>
<td></td>
</tr>
</tbody>
</table>
9. Removes gown and gloves by protecting forearms and hands, and in a manner to prevent contamination of surgical attire by
   a. grasping gown at shoulders without touching surgical attire,
   b. unfastening back closures,
   c. bringing the gown forward and over each gloved hand,
   d. keeping arms and gown away from surgical attire,
   e. placing gown in designated trash container,
   f. using gloved fingers of one hand to remove opposite glove without touching inside of glove or skin,
   g. using the ungloved fingers of the opposite hand to remove the remaining glove by contacting only the upper inside of the glove and removing glove without touching skin,
   h. placing gloves in designated trash container, and
   i. performing hand hygiene.

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DEM/DO/DA = Demonstration/Direct Observation/Documentation Audit

KAT = Knowledge Assessment Test

S/SBT/CS = Skills Laboratory/Scenario-based Training/Controlled Simulation

V = Verbalization

RWM/P&P = Review of Written or Visual Materials/Policy/Procedure Review

O = Other: ________________________________

   Outcome Statement: Patient is free from signs and symptoms of infection.²


   Employee’s Name: __________________ Signature: __________________

   Date: _____

   Nurse Educator: Edward Creasy MSN, CNOR, RN-BC, NE-BC

   Signature: ___________________________ Date: _____
Appendix I

Sample Perioperative Immersion Program Schedule

NYU Hospital Centers

NYU Langone Hospital for Joint Diseases

Perioperative Immersion Program

January 3–17, 2017

Welcome to NYU Hospital for Joint Diseases!

We are delighted that you have joined us in our quest for “EXCELLENCE”.

The immersion program entails classroom/simulation and clinical learning activities specific for the operating room. The program includes rotations to Pre-Operative Admission Area, Recovery/ Post Anesthesia Care Unit, and of course the Operating Room including a day in the scrub role!

We will all work closely with you to make this program a successful and rewarding experience for you. In addition, Edward Creasy will teach and guide you, arrange and monitor your preceptorship process and evaluate your progress.
<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30am-9:30am</td>
<td><strong>C-LEVEL NURSING EDUCATION CLASSROOM</strong>&lt;br&gt;<strong>RED CARPET DAY: FIRST DAY AT NYU Langone Hospital for Joint Diseases</strong>&lt;br&gt;Welcome Breakfast with Executive Leadership, Nurse Manager, Clinical Coordinators, Nurse Educators, Preceptors</td>
<td>PERIOPERATIVE TEAM&lt;br&gt;Dr. Althea Mighten, Edward Creasy</td>
</tr>
<tr>
<td>9:30am-12:30am</td>
<td><strong>Skills Assessment / Pretest</strong>&lt;br&gt;<strong>Introduction to Perioperative Service Environment:</strong>&lt;br&gt;1. Introduction to the OR team&lt;br&gt;2. AORN Guidelines/Standards/Protocols&lt;br&gt;3. Principles of Sterile Technique&lt;br&gt;   - AORN recommendations and Standards review&lt;br&gt;   - Aseptic Technique&lt;br&gt;   - Traffic Patterns&lt;br&gt;   - Skin Prep&lt;br&gt;   - Scrubbing/Gowning/Gloving&lt;br&gt;   - Surgical Draping&lt;br&gt;4. Simulation Videos (AORN Cine-Med)&lt;br&gt;5. Simulation Mock OR&lt;br&gt;   - Gowning Self&lt;br&gt;   - Closed glove and open glove technique&lt;br&gt;   - Patient Prep&lt;br&gt;   - Draping the patient&lt;br&gt;6. Experimentation&lt;br&gt;7. Q and A</td>
<td>E. Creasy</td>
</tr>
<tr>
<td>12:30pm-1:30pm</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>1:00pm-5:00pm</td>
<td><strong>Afternoon Perioperative Immersion:</strong>&lt;br&gt;8. Fire safety&lt;br&gt;9. MH&lt;br&gt;10. Medication safety&lt;br&gt;11. TeamSTEPPS/communication&lt;br&gt;12. Invasive Procedure Verification Standard Review Debriefing</td>
<td>E. Creasy</td>
</tr>
<tr>
<td>Date/Time</td>
<td>TOPICS</td>
<td>Speakers</td>
</tr>
<tr>
<td>------------------</td>
<td>------------------------------------------------------------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>Wed 1/4/17</td>
<td>Perioperative Services Tour:</td>
<td>E. Creasy</td>
</tr>
<tr>
<td></td>
<td>1. Scrub suit</td>
<td>S. Titone</td>
</tr>
<tr>
<td></td>
<td>2. Unit Tour</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Fire doors, exits, codes, O2 shut off values, Extinguisher</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. MH carts, Emergency Code Carts, Latex, Vascular Carts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Autoclave log books</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Specimens log book- handling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Supply room</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Equipment rooms</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Preceptor meet and greet</td>
<td></td>
</tr>
<tr>
<td></td>
<td>With Preceptor / Note change of shift hand off at 2:30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Documentation in your Reflective Journal begins</td>
<td></td>
</tr>
<tr>
<td>Thurs &amp;Fri</td>
<td>1/5- 1/6</td>
<td>E. Creasy</td>
</tr>
<tr>
<td>1/5- 1/6</td>
<td>With Preceptor in ORs will be 6:30am – 4:30pm</td>
<td></td>
</tr>
<tr>
<td>Tues to Fri</td>
<td>WEEK #2</td>
<td>Edward Creasy</td>
</tr>
<tr>
<td>1/13-1/17</td>
<td>**Clinical Rotations begin – One Day Each</td>
<td>Susan Titone</td>
</tr>
<tr>
<td>Tuesday</td>
<td>***See Rotation Schedule</td>
<td>Dr. Milad</td>
</tr>
<tr>
<td>Tuesday Afternoon</td>
<td>Pre-Admission / Holding Area 8:00am – 6:00pm</td>
<td>Nazemzadeh</td>
</tr>
<tr>
<td>Afternoon</td>
<td>ORs 6:30- 4:30pm</td>
<td>Victoria Inductivo</td>
</tr>
<tr>
<td>Begins Rotations</td>
<td>PACU/Recovery Room 8:00am-6:00pm</td>
<td>Theresa Nolan</td>
</tr>
<tr>
<td>Note: Various</td>
<td>Friday 1/17/17 final skills assessment and posttest will be conducted</td>
<td>Mike Tagadaya</td>
</tr>
<tr>
<td>Time for</td>
<td>Reflective Journal</td>
<td></td>
</tr>
<tr>
<td>Rotations</td>
<td>2017 will be a great year! Welcome Again!!!!</td>
<td></td>
</tr>
<tr>
<td>See Schedule</td>
<td>You will never be alone!</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Please contact me anytime; we are all here for your success</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Good Luck and Keep the Faith!</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Perioperative Team</td>
<td></td>
</tr>
</tbody>
</table>
Appendix J

Sterile Technique & Scrubbing, Gowning and Gloving Skills Lab
New York University Hospital Systems
Perioperative Immersion Program

Purpose: The Nurse Educator:

1. Demonstrate the eight principles of asepsis
2. Demonstrate aseptically how to open and deliver sterile items to the sterile field.
3. Facilitate learners to practice and to return demonstrate aseptic principles, and delivering sterile supplies to the sterile field.
4. Demonstrate the proper way to scrub/gown/glove
5. Demonstrate gowning and gloving using closed glove technique
6. Demonstrate open glove technique
7. Facilitate each learner to practice and return demonstrate scrubbing/gowning/gloving; gowning and gloving using closed assisted gown & gloving; open glove technique; setting up sterile back table

Location: 
In classroom with the creation of a mock simulation operating room

Items used:
1. Creation of a Mock Operating Room
2. Sims Man as the Patient
3. Sterile gowns and gloves for each nurse
4. Basic Ortho Pack (includes bovie, suction, needle book)
5. Tray of instruments: Basic Ortho
6. Back table
7. Sponges
8. Suture
9. Blades
10. Towels
11. Drapes

Skills lab for the New York University nursing students:

- Demonstrate the surgical scrub procedure
- Demonstrate gowning and gloving with closed glove technique
- Demonstrate assisted gowning and gloving
Have each nurse return demonstrate assisted gowning and gloving
Demonstrate open glove technique
Have each nurse return demonstrate open glove technique

Begin skills lab by aseptically opening the back-table cover.
Demonstrate how the 8 principles of asepsis are practiced in the surgical suite.

1. All items within a sterile field must be sterile – hand out sterile packaged items to the learners and ask how they know the item is sterile.

   Answer: learners identify that the item has an expiration date; maintains package integrity; item states sterile; and indicator color change if applicable.

2. Items of doubtful sterility must be considered contaminated – This demonstrates a surgical conscience. Ask learners what this means.

   Answer: when in doubt throw it out, no exceptions.

3. Whenever a sterile barrier is permeated, it must be considered contaminated – discuss humidity, sterile items that have moisture when opened, fluid that permeates a barrier between sterile and unsterile areas.

4. Sterile gowns are considered sterile in front from shoulder to level of the sterile field, and at the sleeves from two inches above the elbow to the cuff – aseptically don a sterile gown and gloves, identify the sterile parameters of the gown; show a picture of the gown with the sterile areas colored in green, and all other areas colored in red.

5. Tables are sterile at table level – place an item hanging off of the sterile back table.
Demonstrate grabbing the edges of the sterile back table with your hands. Ask learners if the items or if the hands are contaminated.

   Answer: yes, all are contaminated when dropping below the level of the table

6. The edges of a sterile enclosure are considered unsterile – open a sterile package and demonstrate how the edges are considered contaminated one inch around the wrapper. Keeping all items to the center of the package (gloves, prep set).

7. Sterile persons touch only sterile items or areas; unsterile persons touch only unsterile items or areas – demonstrate both the wrong and the correct technique to deliver sterile items to the sterile field; including solutions.

   Example: unsterile circulator
   Wrong way: extending arms and hands over the sterile field as one drops the sterile item onto the sterile field.
Correct way: delivering the item aseptically to the sterile person; or to deliver item to the sterile field without extending over the sterile field.

Example: sterile scrub nurse
Wrong way: When assisting surgeon to drape the patient pass the towel over the unsterile patient to the surgeon.
Correct way: the scrub nurse stands alongside of the surgeon and hands the towels to the surgeon to aseptically place on the patient.

8. Movement within or around a sterile field must not contaminate the field –demonstrate the correct way to move around the sterile field as both the unsterile circulator and sterile scrub nurse

Example: unsterile circulator
Moving around the sterile field while maintaining a distance of at least 12 inches away and facing the sterile field (not walking between two sterile fields).

Example: sterile scrub nurse
Remain close to and facing the sterile field. Demonstrate the back-to-back and front-to-front technique. Demonstrate that arms and hands are kept in front and above the level of the waist (arms are not folded with the hands in the axilla).
Demonstrate sitting in a chair. Ask the learners what is wrong with this position.

Answer: sitting changes the level causing portions of the sterile gown to drop below the table level. Sitting occurs only when the entire surgical procedure will be performed at that level.

Helpful Hints:
- All items do not need to be sterile for demonstration purposes; some items can be recycled and repackaged in peel packs for future use.

- Have each nurse take home a gown and package of gloves to practice.
## Appendix K

### 2017 Perioperative Immersion Program Teaching Plan

<table>
<thead>
<tr>
<th>FOCUS</th>
<th>OBJECTIVES</th>
<th>CONTENT/TOPICS</th>
<th>Time</th>
<th>Presenter</th>
<th>Teaching Methods</th>
</tr>
</thead>
</table>
| Sterile Technique: Key Concepts and Practices | 1. Define sterile technique  
2. Identify the parameters of a sterile field  
3. Describe practices that reduce the spread of infection when preparing or working in a sterile environment  
4. Discuss the importance of monitoring the sterile field | AORN Cine-Med Sterile Technique  
Review of SCIP, AHRQ, and SSI  
Simulation Mock OR | 1.5 hours | Edward Creasy | Lecture/Discussion Skills Return Demonstration Cognitive Exam AORN simulation video |
| Hand Hygiene, Gowning & Gloving Practices in the Perioperative Setting | 5. Discuss the principles of aseptic technique as applied to scrubbing, gowning, and gloving  
6. Describe the surgical hand scrub/rub procedure  
7. Describe the correct method for donning gowns and gloves  
8. Describe the correct method for removing gowns and gloves  
9. Identify the sterile areas of the gown and glove State the rationale for preoperative skin prep | Standards Review  
Surgical Scrub/Rub & Brush-Stroke Scrub Method (Contingency scrub)  
Hand Hygiene Simulation Mock OR  
Competency Gowning and Gloving | 1.5 hour | Edward Creasy | Lecture/Discussion Simulation Lab Skills Demonstration Skills Return Demonstration Cognitive Exam AORN simulation video |
<table>
<thead>
<tr>
<th>Sterile Draping: Fundamental Practices</th>
<th>10. Explain the rationale for using sterile drapes to establish the sterile field.</th>
<th>Simulation Mock OR</th>
<th>0.5 hour</th>
<th>Edward Creasy</th>
<th>Lecture/Discussion Skills Demonstration</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Discuss basic techniques for draping patients.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Preoperative Skin Antisepsis of the Surgical Patient</td>
<td>12. Describe at least two techniques for skin prep</td>
<td>Chloraprep presentation</td>
<td>0.25 hour</td>
<td>Edward Creasy</td>
<td>Video</td>
</tr>
<tr>
<td>Brief Fire Prevention in the Perioperative Suite</td>
<td>14. Discuss the three components of the fire triangle</td>
<td>Fire Safety in the Perioperative Setting</td>
<td>0.5 hours</td>
<td>Edward Creasy</td>
<td>Lecture/Discussion</td>
</tr>
<tr>
<td>15. Describe appropriate steps to take in the event of an OR fire</td>
<td></td>
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<tr>
<td>16. Identify measures that can be implemented in order to prevent OR fires</td>
<td></td>
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</tr>
<tr>
<td>17. List the signs and symptoms of malignant hyperthermia crisis</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Malignant Hyperthermia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TEAMSTEPSS Introduction</td>
<td>18. Identify how team’s use of communication and other teamwork skills will improve patient care quality, safety, and outcomes.</td>
<td>Psychosocial Safety Challenge Yourself to Balance- Take home/review</td>
<td>0.5 hours</td>
<td>Edward Creasy</td>
<td>Lecture/Discussion</td>
</tr>
<tr>
<td>Communication</td>
<td>19. Essential communication during patient care</td>
<td>Surgical Checklist Briefing/Debriefing Hand Off Huddles</td>
<td></td>
<td></td>
<td>AORN simulation video</td>
</tr>
<tr>
<td></td>
<td>20. Describe strategies that build a team</td>
<td></td>
<td></td>
<td></td>
<td>TeamSTEPSS 2.0 tools Videos</td>
</tr>
<tr>
<td></td>
<td>21. Barriers to effective communication</td>
<td></td>
<td></td>
<td></td>
<td>Sue Sheridan</td>
</tr>
<tr>
<td></td>
<td>22. Conflict resolution</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>23. Discuss how to effectively resolve conflict, as well as solve problem</td>
<td></td>
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</tr>
<tr>
<td>Brief Invasive Procedure Verification</td>
<td>24. Discuss NYU Langone Medical Center policy that supports safe, accurate, consistent and complete procedure verification</td>
<td>Universal Protocol Guide/ RN prompted Time Out Script Review Sign in Anesthesia Time Out Pre-incision Procedure Time Out</td>
<td>0.5 hours</td>
<td>Edward Creasy</td>
<td>Lecture/Discussion</td>
</tr>
</tbody>
</table>

References for Learning Plan


Denver AORN: AORN, Inc.

Appendix L

Rotation Schedule for Perioperative Immersion Program Clinical Experiences

ROTATIONS: PERIOPERATIVE IMMERSION PROGRAM

This program will develop your knowledge and skills with direct clinical experience with a preceptor in the operating room, a day with preceptor in the Pre-Operative Holding Room and a day with a preceptor in the Post Anesthesia Care Unit.

* OR rotation 6:30-5:00

* PACU/Recovery Room – 8:00-6:00pm * Holding Room 7:00- 5:00pm

* NOTE: Class January 3rd at 8:30 at NYU Langone Hospital for Joint Diseases

<table>
<thead>
<tr>
<th>Students Name</th>
<th>Email</th>
<th>Jan 4</th>
<th>Jan 5</th>
<th>Jan 6</th>
<th>Jan 17</th>
<th>Jan 18</th>
<th>Jan 19</th>
<th>Jan 20</th>
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<td>OR</td>
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<td>PREOP</td>
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<td>6.</td>
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<td>OR</td>
<td>OR</td>
<td>PREOP</td>
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<td>PACU</td>
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<tr>
<td>7.</td>
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<td>OR</td>
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<td>8.</td>
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<td>9.</td>
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<td>OR</td>
<td>PREOP</td>
<td>PACU</td>
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<tr>
<td>10.</td>
<td></td>
<td>OR</td>
<td>PACU</td>
<td>OR</td>
<td>OR</td>
<td>PREOP</td>
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<tr>
<td>11.</td>
<td></td>
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<td>PREOP</td>
<td>OR</td>
<td>OR</td>
<td>PACU</td>
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</table>
Appendix M
Student Observation Tool

Student Name: __________________________ Date: __________________________

Procedure Observed: __________________________

Please use the form below to record your observations as they relate to how the nursing process and the PNDS are implemented in the perioperative setting.

<table>
<thead>
<tr>
<th>PNDS Domain</th>
<th>PNDS Outcome</th>
<th>Nursing Process Diagnosis</th>
<th>Observed Nursing Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>O5. The patient is free from signs and symptoms of injury related to positioning.</td>
<td>Ex. Risk for perioperative positioning injury. (X40)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>O3. The patient is free from signs and symptoms of chemical injury.</td>
<td>Ex. Risk for allergic response to latex. (X31)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>O4. The patient is free from signs and symptoms of electrical injury.</td>
<td>Ex. Risk for Impaired skin integrity. (X51)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>O2. The patient is free from signs and symptoms of injury</td>
<td>Ex. Ineffective protection. (X44)</td>
<td></td>
</tr>
</tbody>
</table>

What measures did the perioperative team take to ensure patient safety?
caused by extraneous objects.

<table>
<thead>
<tr>
<th>PNDS Domain</th>
<th>PNDS Outcome</th>
<th>Nursing Process Diagnosis</th>
<th>Observed Nursing Interventions</th>
</tr>
</thead>
</table>

**What physiologic parameters were used by the perioperative team to assess and respond to these issues?**

<table>
<thead>
<tr>
<th>Physiologic Response</th>
<th>O10. The patient is free from signs and symptoms of infection.</th>
<th>Ex. Risk of Infection. (X28)</th>
</tr>
</thead>
<tbody>
<tr>
<td>O12. The patient is at or returning to normothermia at the conclusion of the immediate post-op period.</td>
<td>Ex. Hypothermia. (X26)</td>
<td></td>
</tr>
<tr>
<td>O12. The patient is at or returning to normothermia at the conclusion of the immediate post-op period.</td>
<td>Ex. Hypothermia. (X26)</td>
<td></td>
</tr>
</tbody>
</table>

**How did the perioperative team identify and meet the psychosocial needs of the patient?**

<table>
<thead>
<tr>
<th>PNDS Domain</th>
<th>PNDS Outcome</th>
<th>Nursing Process Diagnosis</th>
<th>Observed Nursing Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral Responses</td>
<td>O24. The patient’s care is consistent with the perioperative plan of care.</td>
<td>Ex. Ineffective therapeutic regimen management. (X33)</td>
<td></td>
</tr>
</tbody>
</table>

`
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>O25. The patient’s right to privacy is maintained.</td>
<td>Ex. Low self-esteem. (X46)</td>
<td></td>
</tr>
<tr>
<td>O31. The patient demonstrates knowledge of the expected responses to the operative or invasive procedure.</td>
<td>Ex. Deficient knowledge. (X30)</td>
<td></td>
</tr>
</tbody>
</table>

**Additional Comments:** ______________________________________

______________________________________________________________

______________________________________________________________

______________________________________________________________

Student’s Name: _______________ Signature: ___________ Date: ______

Nurse Educator: Edward Creasy MSN, CNOR, RN-BC, NE-BC

Signature: ____________________________ Date: ______
Appendix N

Student Evaluation of the Perioperative Immersion Program

NYU Hospitals Center Hospital for Joint Diseases
DEPARTMENT OF NURSING/ DIVISION OF NURSING EDUCATION
Student Evaluation for the PERIOPERATIVE IMMERSION PROGRAM

Date of Program: January 3 to January 20, 2017

Directions: Fill in your response for each item below, and write in any comments in the spaces provided. Your assistance in helping us to improve the class/program is greatly appreciated. Return the completed form today to the presenter/speaker.

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>AGREE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Evaluation of Content:</td>
<td>1</td>
</tr>
<tr>
<td>1. The objectives were clearly stated.</td>
<td></td>
</tr>
<tr>
<td>2. The program met the stated objectives.</td>
<td></td>
</tr>
<tr>
<td>3. My personal objectives for attending the class/program were met.</td>
<td></td>
</tr>
<tr>
<td>4. The class/program content was relevant to the objectives.</td>
<td></td>
</tr>
<tr>
<td>5. The content was clear and easy to understand.</td>
<td></td>
</tr>
<tr>
<td>6. The content generated critical thinking.</td>
<td></td>
</tr>
<tr>
<td>7. The content generated discussion.</td>
<td></td>
</tr>
<tr>
<td>8. My understanding of the subject matter increased as a direct result of this class/program.</td>
<td></td>
</tr>
<tr>
<td>Evaluation Continue:</td>
<td>Agree 1</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------</td>
</tr>
<tr>
<td>9. This program prepared me for my position and responsibilities</td>
<td></td>
</tr>
<tr>
<td>10. Rate the Nurse Educator</td>
<td></td>
</tr>
<tr>
<td>Edward Creasy MSN, RN-BC, CNOR, NE-BC</td>
<td></td>
</tr>
<tr>
<td>• Organization</td>
<td></td>
</tr>
<tr>
<td>• Knowledge</td>
<td></td>
</tr>
<tr>
<td>• Effectiveness of teaching methods</td>
<td></td>
</tr>
<tr>
<td>• Overall effectiveness</td>
<td></td>
</tr>
<tr>
<td>C. Physical Facility:</td>
<td></td>
</tr>
<tr>
<td>How would you rate the following regarding this meeting facility:</td>
<td></td>
</tr>
<tr>
<td>1. Location</td>
<td></td>
</tr>
<tr>
<td>2. Accessibility</td>
<td></td>
</tr>
<tr>
<td>3. Convenience</td>
<td></td>
</tr>
<tr>
<td>4. Appeal</td>
<td></td>
</tr>
<tr>
<td>5. Temperature</td>
<td></td>
</tr>
<tr>
<td>6. Lighting</td>
<td></td>
</tr>
<tr>
<td>7. Arrangement of furniture</td>
<td></td>
</tr>
<tr>
<td>8. Comfort Level</td>
<td></td>
</tr>
</tbody>
</table>

Any additional comments you would like to share?

_____________________________________________________________________
_____________________________________________________________________

Please list two ways to improve the program for the future:

1. 
_____________________________________________________________________

2. 
_____________________________________________________________________
Appendix O

Perioperative Immersion Program Graduation Certificate Sample

NYU Hospital for Joint Diseases

301 East 17th Street
New York, NY 10003

Presents this Certificate of Completion of the:

PERIOPERATIVE IMMERSION PROGRAM

Graduating Student’s Name

DATE: Friday, January 20, 2017

Ann Vanderberg
MA, MBA, RN, NEA-BC
Vice President for Nursing and Patient Services

Althea Mighten
Ed.D, DNP, APRN-BC
Director of Nursing Education and Recruitment

Peter Rodney
RN, MSN, CNOR
Senior Director of Perioperative Services

Edward Creasy
DNPC, MSN, RN-BC, NE-BC, CNOR
Nurse Educator
Appendix P

Permission to use Applying Kolb’s Learning Cycle to Competency-Based Education

This Agreement between Edward Creasy (“You”) and Wolters Kluwer Health, Inc. (“Wolters Kluwer Health, Inc.”) consists of your license details and the terms and conditions provided by Wolters Kluwer Health, Inc. and the Copyright Clearance Center.

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<td>Licensed Content</td>
<td>Academic Medicine</td>
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<td>Applying Kolb’s Learning Cycle to Competency-Based Residency Education</td>
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<tr>
<td>Licensed Content Author</td>
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</tr>
<tr>
<td>Licensed Content Date</td>
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<td>Individual</td>
</tr>
<tr>
<td>Portion</td>
<td>Figures/table/illustration</td>
</tr>
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<td>Figures/tables/illustrations</td>
<td>1</td>
</tr>
<tr>
<td>Figures/tables/illustrations</td>
<td>Kolb’s Learning Cycle</td>
</tr>
<tr>
<td>Title of your thesis</td>
<td>Perioperative Immersion Program: Preparing for the Future</td>
</tr>
<tr>
<td>Expected Completion Date</td>
<td>May 2017</td>
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</tbody>
</table>
Appendix Q

Wilkes University

Passan School of Nursing

NSG 608b: Scholarly Project

Crosswalk of Scholarly Project Outcomes

Name: Edward Creasy

Title of Scholarly Project: Perioperative Immersion Program: Transition to Practice

Date Completed: April 24, 2016  Scholarly Project Chairperson: Dr. Nancy Lenaghan

<table>
<thead>
<tr>
<th>DNP Essentials</th>
<th>Chapter 1: Introduction and Overview of the Problem</th>
<th>Chapter 2: Review of the Literature/Evidence</th>
<th>Chapter 3: Method</th>
<th>Chapter 4: Results</th>
<th>Chapter 5: Discussion and Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>I  Scientific Underpinnings for Practice</td>
<td>Pages 2, 3</td>
<td>Pages 6, 7, 14</td>
<td>Pages 16</td>
<td>Pages 27</td>
<td>Pages 32</td>
</tr>
<tr>
<td>II  Organizational and Systems Leadership for QI and Systems Thinking</td>
<td>Page 2</td>
<td>Page 17, 18</td>
<td></td>
<td></td>
<td>Page 31</td>
</tr>
<tr>
<td>III  Clinical Scholarship and Analytical Methods for Evidence-Based Practice</td>
<td>Page 3</td>
<td>Page 19</td>
<td>Page 24, 25, 27</td>
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<td>IV Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care</td>
<td>Page 4</td>
<td>Page 12</td>
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<td>Page 23</td>
<td>Page 32</td>
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<tr>
<td>V Health Care Policy for Advocacy in Health Care</td>
<td>Pages 1, 5</td>
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<td></td>
<td></td>
<td>Page 32, 34</td>
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<tr>
<td>VI Interprofessional Collaboration for Improving Patient and Population and Health Outcomes</td>
<td>Page 2</td>
<td>Page 18, 20</td>
<td></td>
<td></td>
<td>Page 31</td>
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<tr>
<td>VII Clinical Prevention and Population Health for Improving the Nation’s Health</td>
<td>Page 2</td>
<td>Page 14</td>
<td></td>
<td></td>
<td>Page 31</td>
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<tr>
<td>VIII Advanced Nursing Practice</td>
<td>Page 1</td>
<td>Page 6-9</td>
<td>Page 19,20</td>
<td>Page 27</td>
<td>Page 32, 34</td>
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