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Improving Self-Efficacy and Nursing Knowledge in Cardiac Step-Down Unit Nurses

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Abstract

The Cardiac Step-Down Unit (CSDU) is a fast-paced, high-acuity patient unit that consists of patients with a variety of complex medical issues. Many nurses working on this CSDU have worked as a nurse for three years or less, many being new graduates. Each CSDU patient has multiple nursing needs, some of which the nurses have not received additional education or training. This can lead to stress and frustration on the part of the nurse, and less than optimal care for the patient. The purpose of this quality improvement (QI) initiative was to explore the effect of an evidence-based cardiac education program on the nurses' level of self-efficacy and cardiac nursing knowledge. A one-group, pre- and post-test design with a convenience sample was performed using the General Self-Efficacy Scale (GSE) and test questions based on the American Association of Critical Care Nurses (AACN) progressive care certification exam. The independent variable was the evidence-based cardiac education program presented, and the dependent variable was the CSDU nurses' level of self-efficacy and nursing knowledge. The data was analyzed to determine if a correlation existed between the intervention and the dependent variables. In the paired samples t-test for self-efficacy, the pre- and post-test results were statistically significant ($t= -11.640$, $p=.000$), and for nursing knowledge ($t= -15.285$, $p=.000$), also significant, showing an increase in both self-efficacy and nursing knowledge after the education program. As patient care continues to increase in complexity, nurses need to meet the ongoing challenges that go along with it. While this project demonstrated an increase in self-efficacy and nursing knowledge in these nurses, additional research is needed to determine the most effective educational interventions for nurses in various clinical settings.

Key words: Nurse retention, DNP project, high-acuity nursing units, nursing education

Improving Self-Efficacy and Nursing Knowledge in Cardiac Step-Down Unit Nurses

Executive Summary

Problem

Newer nurses working on a Cardiac Step-Down Unit (CSDU) often feel ill-equipped to adequately care for their complex, high-acuity patients, leading to stress and frustration on the part of the nurse, and less than optimal care for the patient. The ability of nurses to make sound clinical decisions is affected by their experience and knowledge (McCartney, 2017). After witnessing lapses in nursing care on this unit, the investigator felt that there were opportunities for improvement.

Purpose

This quality improvement project explored the effect of a one-day, evidence-based cardiac education program on the self-efficacy and nursing knowledge on the nurses working on the CSDU who have worked as a nurse for three years or less.

Goals

The main goal of this project was to evaluate if an evidence-based cardiac education program would increase the self-efficacy and nursing knowledge of newer nurses working on the high-acuity CSDU.

Objectives

Objectives included obtaining participant demographic information, presentation of the evidence-based cardiac education program, measurement of the change in participant's self-efficacy utilizing pre- and post-survey results using the General Self-Efficacy Scale, and measurement of the change in nursing knowledge utilizing pre- and post-test results from a test based on the American Association of Critical Care Nurses Progressive Care certification exam (AACN, 2019).

Plan

After obtaining Internal Review Board approval, the investigator conducted a quality improvement project as a pilot study that utilized a one-group, pre- and post-test design that involved 16 CSDU nurses. Participants attended the one-day evidence-based education program. A pre- and post-self-efficacy survey and a pre- and post-test of cardiac nursing knowledge questions were administered. Quantitative analysis of the data was performed.

Outcomes and Results

The paired samples t-tests showed statistically significant increases in both self-efficacy and nursing knowledge after attending the education program.

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I would like to thank each and every faculty member of Regis University that I have had the pleasure to learn from. Every faculty member showed me their patience and kindness as well as their vast knowledge. I would be remiss if I did not mention the three faculty members that had a tremendous impact on me throughout the program. Dr. Carol Goldstein continuously "encouraged" a higher level of work that I was not sure I was capable of. I learned to meet the expectations that were set for me. Dr. Cheryl Kruschke who gave herself heart and soul to every student with her patience and caring, sharing her love of statistics. Her assistance meant so much. Finally, Dr. Kathleen Whalen, who I could not have completed this program without. Her patience, kindness and unfailing support kept me going throughout the entire process and I cannot ever thank her enough. With Regis University in Colorado and myself in New York, I am so lucky that through the program's "team" courses, I became friends with another student and shared with her, the highs and lows throughout the program. Dr Shelbie Paul's friendship and support remain truly priceless. Finally, I thank my partner in life, Mark, for his support while going through the program, always wanting to help me. I thank my daughter Kelley who is smarter than she will ever know. She always believes I can make it through anything, and I know the same is true for her.

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Improving Self-Efficacy and Nursing Knowledge in Cardiac Step-Down Unit Nurses

Nurses are the heart and backbone of patient care. Hospital nurses today take care of patients who are sicker with many comorbidities than in the past making their work much more intensive (Carayon & Gurses, 2015). A heavy nursing workload affects patient safety and negatively affects nursing job satisfaction. The experience and skills of the nurses on any given unit vary in terms of education level, years of experience, the amount of experience working on a specific unit or with a specific patient population, and the knowledge or competency to perform certain skills (Paulsen, 2018). Research has highlighted the importance of an educated, experienced nursing workforce for producing desirable patient outcomes. Studies have shown that both self-efficacy and a high level of nursing knowledge positively affect nursing care. This paper discusses the problem statement and its significance and scope, related nursing theories and systematic review of the literature pertinent to the practice issue, and the market and risk analysis. It also delineates the quality improvement objectives, methodology and evaluation plan as well as analysis of findings, recommendations, limitations, and implications for change in practice related to increasing self-efficacy and nursing knowledge in newer nurses.

Problem Recognition and Definition

Problem Statement

The Cardiac Step-Down Unit (CSDU) is a fast-paced, high-acuity patient unit that consists of patients with a variety of complex medical issues including severe heart disease, pulmonary compromise and patients being transferred out of the intensive care units after a critical condition, or those having had cardiac surgery. Many nurses working on this CSDU are those who have been working as a nurse for three years or less, many being new graduates.

Several of those who have worked as a nurse for over three years have never worked on a specialty unit before. Each CSDU patient has multiple nursing needs, some of which the nurses have not received additional education or training. This can lead to stress and frustration on the part of the nurse, and less than optimal care for the patient. Despite an orientation, many of these nurses feel ill equipped to adequately care for these patients.

Nurses' turnover and new nurses coming into the hospital setting leads to a higher proportion of inexperienced nurses. This has been shown to adversely affect patient care (Parker & Jones, 2011). The subject matter for the evidence-based cardiac education program was decided by three main findings. A needs assessment was given to the nurses on the CSDU. There were several common themes found including valve disease, severe heart failure patients and post-cardiac surgery care. This investigator met with the CSDU nurse manager and with the charge nurses from both shifts on a weekly basis regarding issues or problems that the nursing staff had at that time. The investigator also reviewed the CSDU's patient's diagnoses on a weekly basis to monitor the types of patients on that unit. From this information, the presentation focused on this subject matter as shown in Appendix A.

Ciocco (2019) discussed the term "failure to rescue" when nurses lack critical thinking and fail to act on their assessment findings or follow-up on a change in condition. Riegel (2013) found that inexperienced or new nurses have difficulty making critical thinking decisions. It has been found that nurses' self-efficacy is a powerful determinant of job performance and a nurse with high self-efficacy would work to perform a task successfully (Bandura & Locke, 2003). Self-efficacy, as a set of beliefs held about oneself, influences decision-making and choices and encourages effort and resilience. Nielson and Daniels (2011) discussed that self-efficacy is improved by an increase in knowledge and skills, and it gives individuals the ability to organize

activities leading to motivation formation and increased ability to deal with any issues that come into play.

The American Association of Critical Care Nurses (AACN) describes progressive care nurses (including step-down unit nurses) as providing direct care or influence for acutely ill patients who are moderately stable with an elevated risk for instability and requiring a high intensity of care and vigilance. AACN describes an assumption of nursing practice as whenever acutely and critically ill patients receive care, nurses are required to have the competence to care for them. Described in the *AACN Scope and Standards for Progressive and Critical Care Nursing Practice* (AACN, 2019), nurses' strength and fortitude depend on self-efficacy, moral fiber, and engagement at the unit and organizational level.

Statement of Purpose

The purpose of this project which was a quality improvement (QI) initiative, was to explore the effects of an evidence-based cardiac education program presented to nurses working on a high-acuity Cardiac Step-Down Unit. The investigator studied the effect of the education program on the nurses' level of self-efficacy and nursing knowledge.

PICO Question

This project utilized the acronym "PICO" which stands for : Population (P), Intervention or Issue of Interest (I), Comparison Group or Current Practice (C), and Outcome (O) and is usually framed as a question (Houser & Oman, 2011). The PICO for this quality improvement project is:

P – Cardiac Step-Down Unit Nurses

I – An evidence-based cardiac education program

C – Pre- and post-tests measuring self-efficacy and nursing knowledge

O – Improvement in nurses' self-efficacy and nursing knowledge

The main question that this quality improvement project addressed is: "Will an evidence-based cardiac education program presented to Cardiac Step-Down Unit nurses improve their self-efficacy and nursing knowledge?"

Project Significance, Scope and Rationale

This project offered the nurses in the CSDU an opportunity for further education geared specifically to the patient population they care for. The intent was to positively impact practice, patient care outcomes, and quality of care while increasing the nurses' self-efficacy and engagement in the profession. Training and development are essential in providing nurses with the skills and knowledge to perform their work and implement their roles as leaders (Oshiro, 2018).

The Doctor of Nursing Practice (DNP) Essential II states "organizational and systems leadership are critical to improving patient and healthcare outcomes and are consistent with nursing and health care goals to eliminate health disparities and to promote patient safety and excellence in practice" (American Association of Colleges in Nursing, 2006, p. 12). This project was developed to enable the nurses to provide better care for their patients, embrace critical thinking, increase their engagement, and further advance a culture of professionalism and inquiry.

The scope of this project was limited to nurses working on a Cardiac Step-Down Unit in a large tertiary hospital. This project was not intended to develop new scientific knowledge and results of the project are not generalizable outside of the clinical site where the QI project took place. The outcome may influence other specialty-care units to provide a program for their nurses as well.

Foundational Theories

Albert Bandura proposed the concept of self-efficacy or "how well one can execute courses of action required to deal with prospective situations" (Bandura, 1982, p.78). It is described as the belief that an individual has about their ability to accomplish goals. Self-efficacy has been well established as a strong predictor of motivation, learning and performance (Imus, Burns & Weglarz, 2017). It is the expectation that one can master a situation and produce a positive outcome. Bandura (1989) discussed that with low self-efficacy, nurses may not be able to work effectively which can adversely affect how they carry out their functions. Refer to Appendix B for a visual representation of Bandura's theory of self-efficacy.

Schwarzer and Warner (2012) found that self-efficacy reflects a strong sense of control of one's environment and an optimistic belief of being able to deal effectively with challenging demands by one's behavior and actions. They suggest that self-efficacy in nursing affects how nurses feel, think, and provide care for their patients. Nurses that do not believe that they can meet the challenges of caring for these high-acuity patients will not put forth a strong effort to do so. Nurses can become better prepared during education to deal with potential challenges and conflicts in the workplace. Even a single education program was found to be beneficial for reducing anxiety and increasing the self-efficacy of inexperienced nurses (Watt, Murphy, Pascoe, Scanlon & Gan, 2011).

As illustrated in Appendix C, Patricia Benner's theory of Novice to Expert discusses five stages of clinical competence: novice, advanced beginner, competent, proficient and expert (Benner, 1982). Benner's nursing theory proposes that expert nurses develop skills and understanding of patient care over time and through a proper educational background as well as a multitude of experiences. The nurses working on the CSDU fall into the novice to competent

stages. In the novice stage, the nurse has no professional experience. The beginner stage is where the nurse can notice recurrent meaningful components but not prioritize between them. The competent stage is where the nurse begins to understand actions in terms of long-term goals. Dr. Benner found that improved nursing practice depended on experience and science, and that developing those skills is a long and progressive process. Hill (2010) discussed that experiential knowledge is essential for new nurses to progress to safer levels of practice and to recognize early signs of deterioration in the condition of a patient. Nurses who are experienced and well educated are in the position to give the highest quality of care. Manojlovich (2005) found that increasing self-efficacy can improve nurses' professional practice behaviors by having the ability to exercise self-influence to shape their social systems.

Literature Selection/Systematic Process and Scope of Evidence

Keywords for the literature search included: self-efficacy, nurse's self-efficacy, nursing knowledge, increasing nursing knowledge, nursing turnover, nursing job satisfaction, graduate nurses, high-acuity nursing units. Using the following search engines: Cumulative Index to Nursing and Allied Health Literature (CINAHL), Google Scholar, PubMed, and Medline through OVID, and the date range from 2011 through 2020, in English language, the investigator found 88 articles which when further evaluated decreased to 28 articles that were appropriate for this project.

The research design for the studies varied from systematic review of descriptive studies to randomized controlled trials. The investigator identified the 28 articles as falling into the following categories as defined by Melnyk & Fineout-Overholt (2015):

Level II – evidence from one or more randomized control trials – 1

Level III – evidence from controlled trial (no randomization) – 2

Level IV – evidence from case-control or cohort study – 18

Level V – evidence from systematic review of descriptive and qualitative studies – 0

Level VI – evidence from a single descriptive or qualitative study - 7

The investigator did not find any articles leveled at I, or VII.

Background of Problem and Review of Evidence

Recurrent themes that were discovered during the review of literature were inexperienced or graduate nurses, nursing burnout and turnover, self-efficacy, and nursing knowledge. The literature review also included looking at articles on education delivery methods and nursing and patient outcomes that were pertinent to this project's PICO.

Inexperienced or Graduate Nurses

Twibell et al. (2012) surveyed graduate nurses' readiness to practice in a hospital setting and found that these nurses perceive a lack of confidence and adequate skills for at least one year after graduation. Nursing turnover rates were found to be 30% their first year of practice and as much as 57% the second year. Their reasons included heavy workloads, lack of autonomous practice, dissatisfaction with relationships with peers and managers, and insufficient time to care for patients. Berman et al. (2014) found that only 10% of graduate nurses were fully prepared to provide safe and effective patient care. The majority of nurse leaders were found to be dissatisfied with the clinical skills of their graduate nurses. Gaps in competence included critical thinking, time management and physical assessment suggesting that new nurses need support and further education.

Brakovich and Bonham (2012) surveyed 150 nurses and looked at their demographics, confidence level, and identified stressors. They found that the majority of these nurses identified challenges in the practice environment such as stress, deficits in clinical skills and knowledge,

and feelings of inadequate preparation for their position. Engaging nurses in the learning process has been shown to improve the development of critical thinking skills and facilitate positive responses to challenges (D'Souza, Venkatesaperumal, Radhakrishnan & Balachandran, 2013). The authors found that many nursing students about to graduate reported experiencing stress secondary to deficiencies in basic science knowledge and their ability to apply it in the clinical setting. Many felt that they had deficiencies in anatomy, physiology, pathophysiology, pharmacology and the interpretation of test results which limits the ability for critical thinking in caring for patients.

Nursing Burnout and Turnover

Laschinger, Borgogni, Consiglio and Reed (2015) performed a cross-sectional survey of 1009 nurses working in direct patient care in acute care settings with less than three years of experience. This study tested a model linking authentic leadership, areas of work life, occupational coping self-efficacy, burnout, and mental health among these nurses. Working as a newer practicing nurse can be stressful and many struggle to build confidence in meeting job demands, often leading to burnout, a sustained response to chronic emotional and interpersonal stressors at work and poor mental health. Emotional exhaustion was admitted by many of these nurses. Results suggest that authentic leaders may play an important role in creating positive working conditions and strengthening new nurses' confidence that help them cope with job demands protecting them from developing burnout and poor mental health.

Moloney, Boxall, Parsons and Cheung (2018) surveyed 2,876 nurses examining the effects of job demands on burnout and work engagement. Stress and high workloads were noted to threaten retention while challenges and high levels of self-efficacy supported retention. Spiva, Hart, Johnson and Pruner (2013) discussed that high turnover rates of graduate nurses during

their first year of practice ranged from 17% to 22%. These high turnover rates have been associated with an increase in hospital-related mortality, hospital-acquired pneumonia, medication errors, patient falls, pressure ulcers and readmissions. As these graduate nurses enter the workforce, their lack of critical thinking skills can add to these issues. A work environment with available mentoring and ongoing education was found to increase these nurses' job satisfaction, enhance their confidence and increase retention rates. A study by Blevins and Millen (2016) found that with mentoring an ongoing education, there was significant improvement among nurses including increased self-confidence in their skills, communication, and ability to work independently. This can lead to nurses having a higher level of commitment to their healthcare facility as well as improved patient care.

Self-Efficacy in Nursing

Cox and Simpson (2016) explored the centrality of self-efficacy to all areas of influence on nursing practice and proposed that clinical practice lies at the intersection of self-efficacy and knowledge of core concepts. There appears to be a need for higher consideration of the influence of self-efficacy in future curriculum development. Identification of areas where self-efficacy is low could be used as the basis for interventions and targeted strategies to enhance self-efficacy and have a positive impact on practice. This investigator also believes that quality clinical practice depends on self-efficacy and knowledge of core concepts plus critical thinking to plan an action, perform the action and evaluate the response.

Abdal, Alavi and Hajbaghery (2015) found that repeating skills was a key factor in gaining self-efficacy in the clinical field as well as the necessity of understanding the rationale behind the skills. Nurse educators and preceptors were found to play an important role in enhancing nursing self-efficacy for future practice. Alavi (2014) discussed that self-efficacy is

improved by an increase in knowledge and skills and gives the individuals the ability to organize their activities and leads to motivation formation and increased ability in dealing with any unforeseen issues. Self-efficacy helps nurses to feel empowered to accept the challenges of their role in clinical practice. Rowbotham and Owen (2015) performed a descriptive study examining nursing student self-efficacy and perceived instructor effectiveness. There were 240 participants, and the findings were that nursing students with high self-efficacy reported faculty who suggested ways for them to improve, identified their strengths and weaknesses, frequently communicated expectations and corrected students without belittling.

Imus, Burns, Fisher and Ranalli (2017) conducted a descriptive pilot study to examine the relationship between self-efficacy and demographic and outcome variables such as age, nursing experience and years since attending an academic program for a group of graduate nurse anesthesia students. The study results had implications for nurse anesthesia education, with the addition of the topic of self-efficacy into the curriculum. The study suggests that self-efficacy beliefs are significantly influenced as the student is first introduced to a task and begins skill development. The authors believed that a clinical preceptor's awareness of student's self-efficacy is vital and that there should be effective teaching practices in the clinical area to foster learning as well as self-efficacy.

Nursing Knowledge

Hill (2010) found that newer nurses may have a strong theoretical understanding of nursing, but it is the experiential knowledge which is essential to progress to high quality practice. Having the background knowledge and understanding of disease process will allow for the ability to perform assessments and recognize the early signs of deterioration in patient conditions.

Szalmasagi (2018) found that ongoing training and a supportive environment are important to help the graduate nurse and newer nurses' transition into the professional nursing role. Szalmasagi discussed that by providing mentors and ongoing education helped that transition into practice. Ensuring that newer nurses are competent in caring for patients includes providing them with ongoing educational opportunities.

Huston-Shaikh (2017) also studied self-efficacy in graduate nurses as a factor in developing clinical skills competence. There has been a gap noted between nursing education and effective clinical practice. This study demonstrated the importance of the nursing instructor – student relationship in the assessment of self-reported self-efficacy. Cosme (2015) discussed that every nurse should be given support to transition to their particular clinical practice setting. Cosme found that nurses felt that their roles included unclear expectations and insufficient knowledge to provide care for a different population of patients than they were used to caring for. With an education program focused on the cardiac issues noted to make up the population of the CSDU, that gap between education and practice can lessen.

In a study by Shahsavari (2017) nursing students in their final semester were randomized to two groups in a study that presented a three-day refresher course focused on clinical skill labs to one group and no intervention to the other. The results indicated that the students who took part in the refresher course experienced lower anxiety levels, higher levels of clinical self-efficacy and performed better in the clinical skills lab than those who did not attend the program. This investigator would like to think of this project's cardiac education program as not only a "refresher course" but one that will provide new knowledge and understanding of material.

Hart et al., (2014) performed a prospective, cross-sectional, descriptive, quantitative study by surveying 148 nurses in order to explore and understand nurses' perceived self-

confidence and abilities as responders to clinical deterioration of a patient. A significant positive relationship was found between perceived self-confidence and leadership abilities. The results also suggested that further strategies need to be developed to increase nurses' self-confidence and leadership abilities.

A mixed methods approach to evaluate the presentation of an aged care program and its effect on graduate nurses' self-efficacy was done using pre- and post-surveys and attendance of one of three focused groups (Lau, Willetts, Hood & Cross, 2015). The results showed not only an increase in the nurses' self-efficacy, but also new knowledge gained to enable them to critically appraise their workplace practices. Watt, Murphy, Pascoe, Scanlon and Gau (2011) found that even a short, structured educational program was beneficial for reducing nurses' anxiety and increased their self-efficacy.

Kieft, deBrouwer, Francke and Delnoij (2014) performed a descriptive, qualitative study of four focus groups of nurses interviewed to find the essential elements they believe would improve quality of nursing care. Clinically competent, knowledgeable, autonomous nursing practice and a patient-centered culture were found to be most important. According to participants, nurses must have substantive knowledge related to patient care and continually invest in nursing knowledge and education.

Education Delivery Methods

It is important to provide a learning environment that provides an atmosphere of both comfort and stimulation. Bristol et al. (2019) discussed survey results regarding nurse educators using lecture and active learning in their programs. They described active learning as the utilization of activities that engage learners and encourages deep thinking about their actions. Using active learning, the participants felt engaged with the content.

Adkins (2018) discussed active learning as promoting critical thinking skills and involves teaching strategies such as case studies, role-playing and embedding questions within a lecture. Participants were more likely to take ownership of their learning and consider new perspectives, a necessary step in learning.

Kelly (2019) discussed drawbacks to lecture including that many lectures are not engaging for students, are teacher-centered, and do not accommodate individual needs. Because some students are more inductive than deductive reasoners, learning may be improved using examples than from logical development starting from basic principles.

Ferszt, Dugas, McGrane and Calderelli (2017) discussed that lecture is a very effective way to present information. Lecture allows the educator to present up-to-date evidence, explain complex concepts and clarify confusing points. The authors found that a blending of active learning strategies with lecture obtained positive outcomes. The cardiac education program presented to the CSDU nurses used a combination of lecture and active learning utilizing case studies for every topic. Washington University (n.d.) found that by using case studies, students were actively engaged in figuring out the principles by abstracting from the examples. Students were able to develop skills in problem solving, decision making in complex situations and coping with ambiguities.

Improving Nursing and Patient Outcomes

A descriptive study was done by O'Hara, Burke, Ditomassi and Lopez (2019) to assess job satisfaction of millennial nurses and their professional practice environment. They found that characteristics which enhanced nursing practice and improved nurses' job satisfaction were leadership, autonomy, control over practice and adequate training. Linnen and Rowley (2014) discussed that lack of nurses' job satisfaction leads to staff turnover. The fiscal benefits of

retaining clinical nurses include reduced costs related to position vacancy, overtime, recruitment, training and orientation. Besides reducing nurse turnover costs, organizations committed to improving nurse empowerment and job satisfaction have better patient outcomes, shorter lengths of stay, decreased mortality and higher patient satisfaction scores. Linnen and Rowley (2014) discussed that empowerment isn't something to be bestowed by hospital managers and administration. Nurses are leaders by virtue of their responsibilities and for them, empowerment is not a privilege, but a professional necessity. Coleman and Desai (2019) suggest that a 25% increase in nurses' job satisfaction over a two-year span can be linked to a quality-of-care increase between 5% and 20%.

Hart et al., (2014) performed a prospective, cross-sectional, descriptive, quantitative study by surveying 148 nurses in order to explore and understand nurses' perceived self-confidence and abilities as responders to clinical deterioration of a patient. A significant positive relationship was found between perceived self-confidence and leadership abilities. The results also suggested that further strategies need to be developed to increase nurses' self-confidence and leadership abilities.

Coster, Watkins and Norman (2018) discussed that the education of nurses has been repeatedly associated with the safety and quality of care in acute care settings. Employing better educated nurses appears to make a substantial positive impact on patient outcomes and the patient experience. They also discussed evidence that adequate numbers of well-educated nurses working in acute care areas can reduce patient mortality.

From the literature, it is clear that there is a need for further education for nurses. Nurses that not only can perform skills but can understand the rationale for performing those skills will lead to better patient care. Nurses who understand the disease process can recognize the early

signs of patient deterioration. A high level of self-efficacy precedes quality care and allows for a culture of inquiry. An increase in nurses' self-efficacy can improve their professional practice behaviors, as individuals not only reacting to environmental influences, but also having the ability to exercise self-influence to shape their social systems (Manojlovich, 2005). The literature review supported this investigator's project and PICO and supported the rationale for the invention based on previous studies conducted.

Project Plan and Evaluation

Market / Risk Analysis

SWOT Analysis

A SWOT analysis was conducted, and the strengths, weaknesses, opportunities, and threats related to this quality improvement project were identified (See Appendix D). The *strengths* of conducting this project included the support of the Chief Nursing Officer and Nurse Manager of the CSDU. Another strength is that of the nurses on that unit and their attitude of wanting to learn more about the diseases and management of the patients they care for. The forum for the presentation was planned to be a comfortable learning environment that was non-judgmental with immediate feedback, with the program presented by an experienced lecturer with a strong cardiac background.

Weaknesses for this project included the cost. Each participant was paid for 7.5 hours that day. There was a need for additional staff to cover the shift for the participants. An additional weakness would be if there are nurses that were not interested in attending the program. Though attendance was voluntary, some nurses may have felt forced to attend by management.

The *opportunities* for this quality improvement project were many. The presentation was given in hopes to increase the nurses' self-efficacy and nursing knowledge. Job satisfaction can

increase, and turnover can decrease. This can have far reaching effects. There can be an increase in nurses' engagement with their profession and their facility. It can help to create a culture of inquiry. There was information given during the presentation regarding professional nursing organizations. The American Association of Critical Care Nurses (AACN) certification opportunities in progressive care nursing was discussed. This could lead to potential interest in obtaining magnet status for the facility. The biggest opportunity is for these nurses to be able to take their new knowledge and put it into action in improving the care of their patients.

A *threat* to this project would be participants whose attitude conveys disinterest with the program and takes the tests haphazardly without thought. This can alter the true results of the program's value. Another threat was that the Covid-19 pandemic causing large financial losses for hospitals. Mulvany (2020) discussed healthcare systems with increased expenses incurred in preparing for and treating Covid patients, decreased revenues associated with having stopped regular operations and scheduled procedures, and an increased number of uninsured patients as a result of job loss. In this facility, there were nursing staff members who were "furloughed" and not working for at least 30-days. Many of these staff members were those that had the least seniority, many of which were the newer nurses working on the CSDU, or those willing to be participants. The date of the education program had to be postponed due to the issues in scheduling the nursing staff.

Driving and Restraining Forces

Driving forces are those that facilitate change (Agency for Healthcare Research and Quality, n.d.). The driving forces of this project consist of the increase in errors and issues on the CSDU, the high acuity and complexity of the patient population and nursing frustration, stress and burnout.

The restraining forces are those that counter the driving force and hinder the change (Agency for Healthcare Research and Quality, n.d.) are the staffing requirements of the CSDU. Being short staffed may have prevented potential participants from attending the presentation. The cost of paying the participants for attending the eight-hour program and paying for extra staff to cover the participant's shift may have also been a restraining force.

Need, Resources, and Sustainability

The need for this project was born out of concern with the combination of the increased acuity of patient's medical issues on a unit where there are many new nurses, and the desire to provide the highest quality of care to these patients while providing the skills and knowledge for these nurses to succeed.

Resources for the project included a conference room, computer equipment and a 7.5-hour paid day for each participant. The most important resource was the education program itself. Developed using the needs assessment, as well as frequent meetings with the units charge nurses and nurse manager were used to show what subjects needed review. Keeping track of the patient population on this unit; the patient diagnoses, procedures and surgeries done allowed the investigator to develop a comprehensive program for these nurses. A resource binder was given to each participant which included copies of the education program and information regarding professional nursing organizations as well as certification program information. The costs to run the program and to replicate the program are listed in Appendix E.

Sustaining forces keep things going, it supports the continuation of the project (Agency for Healthcare Research and Quality, n.d.). The increase in nurse job satisfaction and quality of care would be the greatest sustaining force. This project can be sustained by the availability of the facility's nurse educators to present similar programs. If successful, similar programs can be

done for other nursing specialty units. In addition, ongoing leadership support and achieving standards of practice will be important in sustaining this project.

Feasibility, Risks and Unintended Consequences

The feasibility of completing this quality improvement study was due to the dedication of the facility's chief nursing officer to its' nurses, embracing further education and support. The nurse manager of the CSDU also made it a priority to schedule her nurses for the program at a time when nurse furloughs due to the Covid-19 pandemic made staffing a challenge.

There were no risks to the participants of the study. The only risk was if the education program did not meet the needs of the nurses. It would then have been a waste of their time and of the hospital's resources.

Though there were no unintended consequences of the study, there were some additional outcomes that are discussed in the conclusion of this paper.

Stakeholders and Project Team

Stakeholders that are vital for this project include the CSDU nurse participants and the patients on the CSDU. The hospital, and its quality of care and patient satisfaction, as well as its nurses' job satisfaction and retention are major stakeholders. This investigator is also a stakeholder not only having ownership of this project, but more importantly, as a stakeholder in the clinical outcome of many of these CSDU patients.

The project team consists of this investigator, capstone chair, DNP mentor, two critical care nurses experienced in caring for cardiac surgery patients and the CSDU charge nurses who were very helpful in determining learning needs of the new and newer nurses.

Cost-Benefit Analysis

The cost-benefit analysis should demonstrate that the benefit of this project would be worth the cost of the endeavor (Zaccagnini & White, 2015). The estimated cost of this program includes paying the participants their hourly wage of a 7.5-hour workday. At an average of $33 per hour for a sample size of 20 participants, the cost would be approximately $5000. There may have been an additional cost if extra nurses were needed to cover a shift for any of the participants. Break food was provided by the investigator and lunch food was provided to the participants by the hospital. The investigator provided a binder for each participant consisting of program material, additional educational material and information on various professional nursing organizations. The material was copied on one of the hospital's color printers. The investigator purchased the binders for an estimated cost of $60. The investigator also purchased six copies of the AACN PCCN exam questions booklets at a cost of $84. The other ten copies were purchased by the local chapter of AACN's education fund and given to the investigator for use in this project.

According to the 2020 National Health Care Retention and RN Staffing Report (NSI Nursing Solutions, Inc. 2020), hospital nursing turnover remains elevated and is a leading indicator of future finances, and patient and employee satisfaction. Hospital nursing turnover currently stands at 17.8%. The turnover rate of the CSDU nurses is unknown at this time. The average cost of turnover for one bedside nurse is $44,375. The literature has shown a positive correlation of increased self-efficacy and nursing knowledge to job satisfaction leading to decreased nursing turnover. The real benefit is that better-prepared nurses provide quality care leading to improved patient satisfaction and better patient outcomes. While these are not

quantifiable, they are priceless in value. Refer to Appendix F for a list of the project's costs and benefits.

Mission, Vision and Goals

The mission of this project was to increase the self-efficacy and nursing knowledge of the CSDU nurses by providing an evidence-based cardiac program based on their needs allowing for quality care to be given to each patient. The vision for this program was that high-quality nursing care will be provided for every patient on the CSDU no matter how complex. Patient satisfaction and outcomes will improve. For the nurses working on the CSDU, their increase in self-efficacy and nursing knowledge will lead to engagement and job satisfaction. The main goal of this program was to evaluate if an evidence-based cardiac education program would increase the self-efficacy and nursing knowledge of the newer nurses working on the high-acuity CSDU. Although beyond the scope of this project, a long-term goal would include utilization of similar programs to newer nurses on other specialty units.

Project Process and Outcomes

The process and outcomes for this project were:

- Obtain demographic information of the participants such as the number of years working as a nurse, previous nursing positions, education
- Provide the cardiac education program for participants meeting the inclusion criteria by summer 2020
- Measure the change in the participant's self-efficacy utilizing the pre- and post-test results from the General Self-Efficacy Scale
- Measure the change in the participant's nursing knowledge utilizing the pre- and post-test results from the test based on American Association of Critical

Care Nurses (AACN) Progressive Care Certified Nursing (PCCN) exam cardiac questions.

- Share results of QI project with leadership at the clinical site after the DNP project defense.

Logic Model

Woo, Lee, and Tam (2017) described different outcome measures for advanced practice nurses and found that nursing interventions improve quality of care, patient satisfaction and clinical outcomes. The nurses working on this fast-paced, high-acuity CSDU are often frustrated and stressed. Outcome measures for this PICO are the level of self-efficacy and nursing knowledge of the CSDU nurses. Increased levels of both can lead to higher nursing job satisfaction as well as improved patient care and patient satisfaction.

A logic model can be utilized to assist in the planning, implementation, and evaluation of an endeavor (W.K. Kellogg, 2004). It is presented as a table that illustrates a plan of action and a measurement of success. It includes resources needed to put together the evidence-based educational program lasting approximately 7.5 hours.

Activities included completion of the educational program and binders of program information and resources as well as the scheduling of the date, time, and location of the education program.

Outputs are the cardiac education program with resource binders for each participant, and the administration of the pre- and post-tests for both self-efficacy and nursing knowledge.

Short term outcomes would be an increase in self-efficacy and an increase in nursing knowledge, improvement in understanding cardiac disease processes and the care required for these patients. Long term outcomes would be the continued interest and motivation to learn new

tasks and seek out knowledge regarding quality patient care. An improvement in job satisfaction and less job turnover for these nurses and an increase in the education programs for nursing staff would also be long term outcomes.

The impact of this project would be the increase in the quality of patient care, improved clinical outcomes and improved patient satisfaction. This investigator hopes that a culture change will take place of embracing new or newer nurses working in any unit, by providing in-depth education and orientation. A logic model for this project is depicted in Appendix G and the timeline is described in Appendix H.

Methodology and Evaluation Plan

QI Project Study Design

A quantitative study design was used for this quality improvement project. A design utilizing a one-group, pre- and post-test that measured both self-efficacy and nursing knowledge before and after the educational program. Alessandri, Zuffiano and Perinelli (2017) described the measurement of progress through pre- and post-tests as a powerful tool in providing feedback regarding the measurement of effectiveness of an intervention.

The independent variable, or the variable that the investigator controls and affects the dependent variable was the evidence-based cardiac education program that was presented (US National Library of Medicine, n.d.). The dependent variable, or the variable that the investigator was interested in, was the CSDU nurses' levels of self-efficacy and nursing knowledge. Extraneous variables influence the relationship between the independent and dependent variables (Jones, 2016). The nurses had different education and differences in experience. They also had various mentors in their orientation. Other extraneous variables could have been the nurse's attitude, perhaps not feeling that the need any further education. Some may have been fatigued

from shift work. During the program presentation, the investigator may have given non-verbal cues without realizing.

This QI project study approach allowed for the comparison of the pre- and post-education test results and pre- and post-self-efficacy assessment results and evaluated if an evidence-based cardiac education program improved the participants' nursing knowledge and self-efficacy.

Population and Sampling Parameters

In the recruitment of study participants, purposive sampling was used (Terry, 2018) where the investigator specifies the characteristics of the population of interest and then locates the individuals who match those characteristics. The inclusion criteria for this project were nurses working in the CSDU, who have worked as a nurse for three years or less, or new to working on a specialty-care unit. Exclusion criteria were float nurses that do not routinely work on the CSDU. There were 22 nurses that met this inclusion criteria. They were all asked in person by the investigator if they would be interested in participating. The plan for the education program was discussed as well as an assurance that participation was voluntary. See Appendix I for an information sheet explaining the quality improvement project that was given to each participant.

Power analysis shows how large samples should be to minimize the risk of a Type II error, or the likelihood of incorrectly accepting a false null hypothesis (Polit, 2010). The likelihood is high when a sample is small. The sample size for this project was planned to be 20 participants considering vacation time or illness. If all 22 nurses were available, the number of participants would have been 22. Due to issues with scheduling, 16 nurses were able to participate.

Terry (2018) discussed that if a population is 100 or fewer, the entire population should be used. The participants in this project will be homogenous which is a benefit to this small sample size. Using 0.5 as the significance criterion, .80 as the power, the population effect size of 0.5, the sample size should be 34. Changing the effect size to 0.8 yields a sample size of 15. Terry discussed that although the power should be high, setting it too high may result in a sample size that is not practical and that a value of 0.8 is often used in practice.

Setting

The setting for this project was a large tertiary hospital within a 5-hospital healthcare system. The hospital is home to the Heart Center. Patients are transferred here from the other four hospitals and outlying facilities to obtain the highest level of care. The CSDU has 40 beds, 8 private rooms with negative pressure for patients needing various types of isolation. The patient population includes patients being transferred out of critical care units, emergency room patients needing close monitoring, catheterization lab patients after undergoing procedures or device implants and severe heart failure patients. There is frequent transferring of patients to open up beds on this unit.

Description of Educational Intervention

The educational program was initially planned to take place in a large room of a medical office building which is adjacent to the hospital's parking ramp. Set up with comfortable tables and chairs and a small kitchen area for break and lunch items, it has excellent lighting; the ceilings are low and makes for a comfortable learning environment. It is located away from the hospital which would prevent interruptions and help to maintain focus. Due to mandatory social distancing, the education program location had to be changed to one of the larger conference rooms located in the hospital. The room was able to use a divider to make the room smaller and

more comfortable. The room had multiple tables that allowed proper distancing, and extra tables were added with coffee, snacks and education materials. The date of the program had to be postponed in order to allow for an adequate number of participants.

Printed copies of the demographic survey and pre-tests were distributed immediately prior to the education program. The participants were asked to write the same number or letters on all of their paperwork to de-identify each person. There was no time limit given for the pre-tests and everyone had completed them in less than 15 minutes. A sign-in sheet was passed for attendance and taken by the unit nurse manager.

The intervention took place in one 8-hour day. As noted in Appendix J, topics included coronary artery disease, valvular heart diseases, atrial fibrillation and ventricular arrhythmias, cardiac devices, heart failure, post-operative cardiac surgery patients, medications, and diagnostic tests. The topics were presented in lecture form and each topic included case studies from actual occurrences on the nursing unit. Also incorporated throughout the program were discussions of "what would you be concerned about in a patient with a diagnosis of…". The participants called out answers. There was no calling on individuals and all of the nurses participated.

The education program was developed using evidence-based practice resources including information from the American Heart Association (AHA) and the American Association of Critical Care Nurses (AACN) (2016). The educators included the investigator and a Cardiovascular ICU nurse very experienced in caring for critically ill cardiac patients. A binder was given to each participant which included program notes, multiple resources, and membership information for professional nursing organizations. Lunch and break food were

supplied. A paid education day was provided to each participant. The nurse manager of the CSDU provided nursing coverage for those who attended.

Data Collection and Intervention Procedure

The investigator followed the steps below when implementing this QI project:

1. Obtained IRB approval from Regis University and site approval letter
2. Nurse manager provided list of nurses that met inclusion criteria
3. Spoke individually to nurses explaining program and provide information sheet
4. Prepared EBP educational program
5. Obtained participant's demographic data, GSE survey and nursing knowledge pre-test
6. Present program for one 8-hour day
7. Obtained GSE survey and nursing knowledge post-test

Measurements (Study Instruments)

Demographics were collected from each participant immediately before the educational session. Nominal and ordinal data were collected and included the number of years that they have worked as an RN on the CSDU, previous RN experience and education. See Appendix K for demographic tool.

The investigator utilized the General Self-Efficacy Scale (GSE) for pre- and post-test levels of self-efficacy. For nursing knowledge, a 15-question test based on the cardiac education program given and the American Association of Critical Care Nurses (AACN) Progressive Care Certification exam was used as a pre- and post-test for nursing knowledge. The tests were completed directly before and after the presentation of the education program.

General Self-Efficacy Scale (GSE)

The General Self-Efficacy Scale (GSE) (Schwarzer & Jerusalem, 1995) is a ten-item scale which assesses the strength of an individual's belief in his or her own ability to respond to novel or difficult situations and to deal with any associated obstacles or setbacks. It normally takes two to three minutes to complete. The level of measurement was ordinal. Respondents indicate the extent to which each statement applies to them. Using a Likert scale, there are four responses to choose from ranging from "not at all true" which scores one point to "exactly true" which scores four. The total score reflects the strength of the individual's self-efficacy belief. The higher the score, the greater the individual's generalized sense of self-efficacy. A visual representation of the GSE is in Appendix L. The developer, Dr. Schwarzer has given permission to use the scale if the source and URL are cited (see Appendix M for permission). The GSE is a reliable and valid measure of the perception of self-efficacy (Cuevas & Penate, 2017). Its reliability has been studied in samples from 23 nations. Cronbach's alpha ranged from .76 - .90, with the majority in the high .80s (Schwarzer & Jerusalem, 1995). Criterion related validity is documented in numerous correlation studies where positive coefficients were found with favorable emotions, optimization, and work satisfaction. Negative coefficients were found associated with depression, anxiety, stress, and burnout.

Referenced AACN Knowledge Test

The nursing knowledge pre- and post-test is made up of 15 cardiac focused questions based on the American Association of Critical Care Nurse's (AACN) Progressive Care Certification exam. Described as a study of practice, it defines the dimensions of progressive care practice, identifying what is required of RNs practicing in progressive care settings, such as a step-down unit (AACN, 2016). Progressive care nurses across the US were surveyed to find the

significance of the various elements of their practice. Through an extensive review and evaluation, the knowledge, skills, and abilities critical to progressive care nursing were defined. The Progressive Care Certification exam is based on these skills and abilities and the knowledge required to perform them. The questions are multiple choice, nominal level of measurement. Both pre- and post-tests were completed in less than 15 minutes by the participants. The passing score for the PCCN exam is 68%. This study used 15 questions and no grade was assigned as the statistics done looked for improvement in scores. There is no published reliability or validity of this exam. See Appendix N for a list of questions used in this QI project.

Permission from the AACN Certification Corporation to use PCCN questions was requested and received if review questions were purchased for each participant (See Appendix O for permission). The local chapter of the American Association of Critical Care Nurses purchased 10 of the review booklets to be used for the education program. The investigator purchased the remaining six.

Protection of Human Subjects

The American Nurses Association Code of Ethics for Nurses (American Nurses Association, 2016) describes a fundamental principle of nursing practice as being respect for the dignity, worth, unique attributes, and human rights for all individuals. There are five basic human rights consisting of: self-determination, privacy and dignity, anonymity and confidentiality, fair treatment, and protection from discomfort and harm (Mick, 2019). As noted in Appendix P, this investigator completed the Collaborative Institutional Training Initiative (CITI) certification course. Approval was obtained from the Regis University Institutional Review Board (IRB) as well as the healthcare system where the project took place. See Appendices Q and R, respectively for these approvals.

The participation of attending the educational program was completely voluntary. There were minimal to no risks to human subjects within this project. To minimize any psychological distress or anxiety, there was no calling on individuals to verbally answer any question during the program presentation. The participants were assured that their test results were anonymous through a coding/de-identification process. The test results are stored in a locked office of the CNO and will be kept for three years, then destroyed.

Project Findings and Results

Outcome Objective 1: Obtain demographic information of the participants such as the number of years working as a nurse, previous nursing positions, education

Descriptive statistics were used for the demographic data of the 16 nurse participants including years worked on the CSDU, any additional RN work experience and nursing education. It was found that 50% of the participants had worked as an RN for less than one year, 25% had worked as an RN between one and two years, and 25% had more than two years' experience but less than three years. The mean years of nursing experience was 1.75. There were 62% that had their BSN and 38% had their AD. All the participants with an associate degree had additional RN experience. See Table 1 for demographic data of participants.

Table 1

Participant Demographics

n = 16

Demographic	Percentage	Frequency
RN <1 yr.	56%	9
RN 1-2 yrs.	19%	3
RN >2<3 yrs.	25%	4
Additional experience	37.5%	6
No additional experience	62.5%	10
AD degree	37.5%	6
BSN	62.5%	10

Objectives 2 and 3: Measure the change in the participant's self-efficacy utilizing the pre- and post-test results from the General Self-Efficacy Scale and measure the change in the participant's nursing knowledge utilizing the pre- and post-test results from the test based on American Association of Critical Care Nurses (AACN) Progressive Care Certified Nursing (PCCN) exam cardiac questions.

Inferential statistics were run, and paired sample t-tests were done. Paired sample t-tests are used when there is an interest in the differences between two variables for the same subject (Kent State University, n.d.). It determines whether the mean of a dependent variable is the same in two related groups such as pre- and post-test scores. Two pre- and post-tests were used in this project. The first was the General Self-Efficacy Scale (GSE), a ten item self-reporting measure of

self-efficacy. The second was a cardiac nursing knowledge test made up of 15 questions based on the American Association of Critical Care Nurses (AACN) progressive care exam.

For self-efficacy, the pre-scale mean was 30.44, the post-scale mean was 33.75. The t value was -11.640 and the p value was .000. For nursing knowledge, the pre-test mean was 9.63, the post-test mean was 12.81. The t value was -15.285 with a p value of .000. See Tables 2 and 3 for statistical results and level of significance. These results indicate that there is a difference in the means before and after the education, in self-efficacy and nursing knowledge. The results were statistically significant that the education program improved self-efficacy and nursing knowledge in these CSDU nurses.

Table 2

Pre-Post Descriptive Statistics for Self-Efficacy Survey and Knowledge Test

			Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre	SE	30.44	16	3.540	.885
	post	SE	33.75	16	3.173	.793
Pair 2	Pre	NK	9.63	16	1.784	.446
	post	NK	12.81	16	1.276	.319

Note: SE = Self-Efficacy Scale; NK = Knowledge Test

Table 3

Statistical Significance of Paired Samples t-Test of Self-Efficacy Survey and Knowledge Test

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	SE pre - SE post	-3.312	1.138	.285	-3.919	-2.706	-11.640	15	.000
Pair 2	NK pre - NK post	-3.187	.834	.209	-3.632	-2.743	-15.285	15	.000

As noted in Table 4, the Pearson correlation coefficient measures the strength of the association between two variables (Polit, 2010). It has a value between +1 and -1. The coefficient for self-efficacy was .948 and nursing knowledge was .904 which are both high values. Another significant correlation was noted between associate degree nurses and additional nursing experience. This was expected as the healthcare system usually hires only nurses with their BSN degree, but will hire AD nurses if they have additional RN experience. Based on the correlations, no other elements impacted the pre-test scores. It had been expected that other variables, such as length of time working as an RN would have impacted pre-test scores. The knowledge gained through the intervention was the only thing noted to improve test scores.

Table 4

Correlation Coefficients and Significance

Correlations

		RN<1yr	Other Exp	AS	SE pre	SE post	NK pre	NK post
RN<1yr	Pearson Correlation	1	.348	-.234	.192	.245	.109	-.107
	Sig. (2-tailed)		.186	.384	.475	.360	.688	.694
	N	16	16	16	16	16	16	16
Other Exp	Pearson Correlation	.348	1	-.745**	.179	.094	.125	.088
	Sig. (2-tailed)	.186		.001	.507	.729	.644	.747
	N	16	16	16	16	16	16	16
AS	Pearson Correlation	-.234	-.745**	1	-.089	.105	-.093	-.118
	Sig. (2-tailed)	.384	.001		.742	.699	.731	.665
	N	16	16	16	16	16	16	16
SE pre	Pearson Correlation	.192	.179	-.089	1	.948**	.080	.019
	Sig. (2-tailed)	.475	.507	.742		.000	.767	.943
	N	16	16	16	16	16	16	16
SE post	Pearson Correlation	.245	.094	.105	.948**	1	.018	-.045
	Sig. (2-tailed)	.360	.729	.699	.000		.948	.868
	N	16	16	16	16	16	16	16
NK pre	Pearson Correlation	.109	.125	-.093	.080	.018	1	.904**
	Sig. (2-tailed)	.688	.644	.731	.767	.948		.000
	N	16	16	16	16	16	16	16
NK post	Pearson Correlation	-.107	.088	-.118	.019	-.045	.904**	1
	Sig. (2-tailed)	.694	.747	.665	.943	.868	.000	
	N	16	16	16	16	16	16	16

**. Correlation is significant at the 0.01 level (2-tailed).

Cronbach's alpha was calculated to measure scale reliability or internal consistency. For the GSE scale, Cronbach's alpha was .970 which is high. Its reliability has been studied in samples from 23 nations and ranged from .76 - .90, the majority in the high 80s (Schwarzer & Jerusalem, 1995). Cronbach's alpha for the nursing knowledge test was .922.

This data allowed the investigator to answer the study question of whether an evidence-based cardiac education program presented to Cardiac Step-Down Unit nurses would improve their self-efficacy and nursing knowledge with a yes to both.

Project Limitations, Recommendations, and Implications for Change

Limitations

A major limitation of this study was the small sample size and the use of a purposive, convenience sample instead of a random sample. Another limitation is that the study was done only in a single facility. The improvement in the post-tests may have resulted from extraneous variables outside of the investigator's knowledge or control. Some of the RNs working on the step-down unit were already attending or planning on going to school for their Masters' degree. This may have influenced how much effort given or interest in the education program. Another limitation is that the education program was given to nurses only on one specific nursing unit.

Recommendations

Based on this pilot study, recommendations would include replicating the study using a larger sample size and repeating it with other nursing units in other specialties, and in other facilities. It may be useful to question the nurses of their interest in pursuing higher education or obtaining AACN PCCN certification which may also have an impact on results.

Implications for Change

Knowledgeable and highly skilled nurses are vital in the care of our patients. As our patient population ages and their acuity level continues to rise, it becomes more important that our nurses can perform at that higher level. This pilot study supports that self-efficacy and nursing knowledge can be improved in newer nurses with an education program specific to their unit. The study also supports both Benner and Bandura's theories and illustrates the need for ongoing education for our nurses. When developing future educational programs, using professional standards of practice will be essential to ensure the expected level of practice and professional performance by nurses is met.

Summary

The purpose of this project was to evaluate if an evidence-based cardiac educational program given to newer nurses working on a high acuity Cardiac Step-Down Unit would impact their self-efficacy and nursing knowledge. Results showed that both self-efficacy and nursing knowledge had significantly improved with an educational program. An additional result from the educational program was the overwhelmingly positive response from the nurses. This investigator has been asked by the administration to provide this educational program every six months and to provide a similar program to newer nurses working in the Cardiovascular Intensive Care Unit as well. The investigator met with administration and staff educators regarding the results of this study, and there now is planned education programs for the other specialty unit nurses.

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Appendix A

Education Presentation Topics

- Coronary Artery Disease – including MI, Unstable Angina, EBP medications, PCI, pre-CABG, medical treatment
- Valvular Heart Disease – Aortic stenosis, Aortic insufficiency, Mitral insufficiency, Mitral Stenosis, Pulmonic and Tricuspid disease, Valve Replacement surgery, TAVR, MitraClip options
- Congestive Heart Failure – Systolic, Diastolic, Ischemic, Dilated, Restrictive
- Ventricular Arrhythmias, Atrial Fibrillation
- Cardiac Devices – Impella, ECMO, IABP, PM/ICD, Watchman
- Postoperative care of the Cardiac Surgery patient
- Diagnostic Tests including lab work, stress testing, echocardiography
- Pearls in Patient Care
- Professionalism in Nursing Practice – nursing organizations

Appendix B

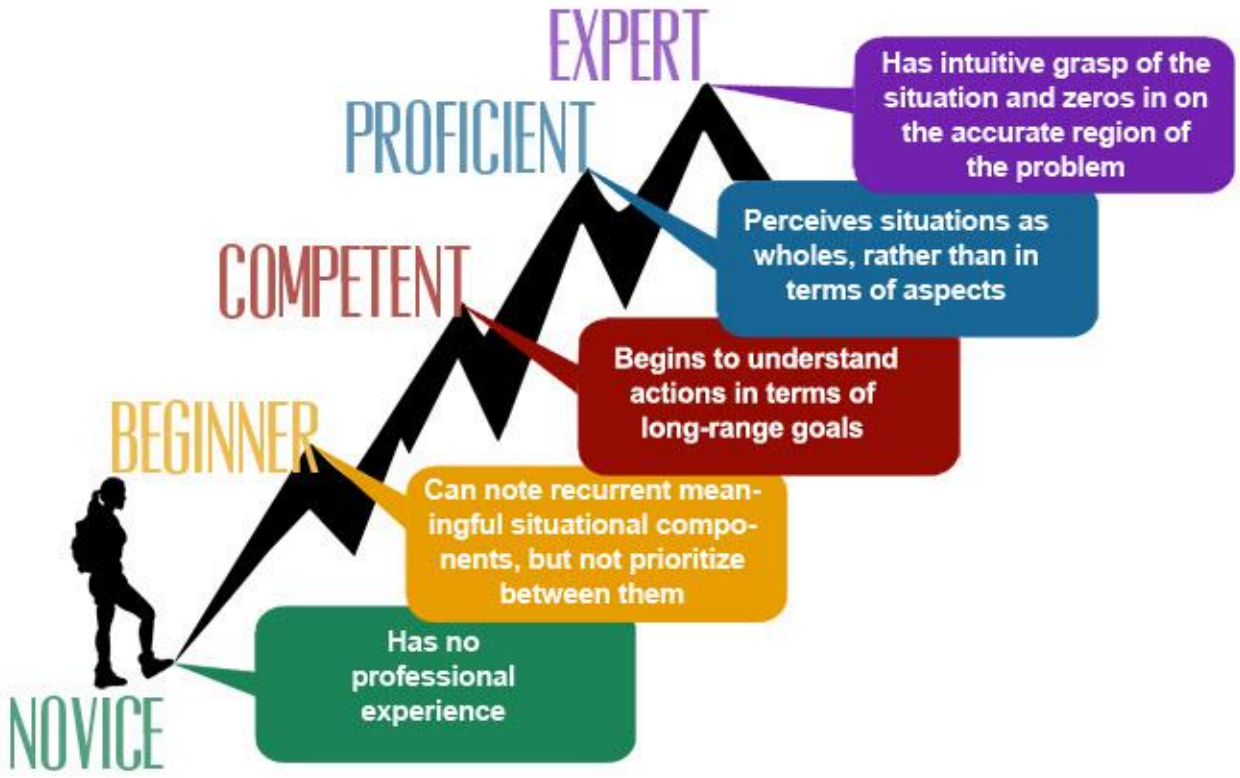
Albert Bandura's Theory of Self-Efficacy

Bandura, 1994, 1994

Softskillsbuilder.com

Appendix C

Patricia Benner's Novice to Expert Theory



Benner, 1982

Xbrl.squarespace.com

Appendix D

SWOT Analysis

STRENGTHS	**WEAKNESSES**
- CSDU nurses want more education	- Cost of 7.5- hour day for each participant
- Strong support of CNO & nurse manager	- May be an additional cost if coverage is needed for participants
- Program geared specifically to the patient population	
OPPORTUNITIES	**THREATS**
- Increase nurses' job satisfaction, decrease turnover, increase engagement	- If disinterested participant completes tests haphazardly, can skew results
- Improve quality of care & patient outcomes	- Covid-19 has created huge financial losses causing newer employees to be "furloughed"
- Create culture of inquiry & professionalism	

W.K. Kellogg Foundation, 2004

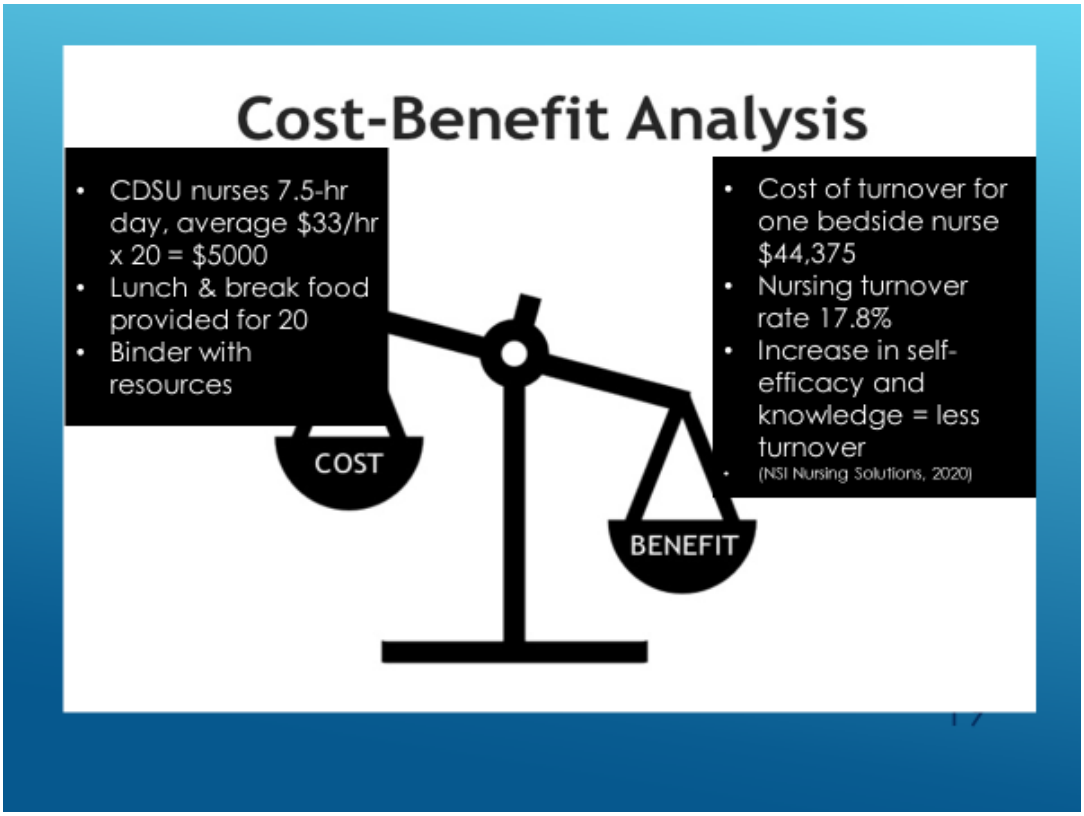
Appendix E

Cost to Run and Replicate QI Project

Items/Personnel	***Projected Cost of this Project***	***Cost to Replicate***
Investigator time	Difficult to quantify – 100 hrs	Clinical educator could present program (part of salary)
Participant time	Each participant 7.5 hrs at $33/hr	Each participant 7.5 hrs at approximately $33/hr
Room	No cost (part of hospital system)	No cost
Video Equipment/Computer	Hospital's equipment	Hospital's equipment
Food	Investigator bringing breakfast approximately $65	Hospital will pay for food
Binders & Printing	Investigator paying for binders $60, hospital printer used	Hospital can order bulk binders, hospital printer
AACN test question booklets	Investigator paid for 6 booklets costing $84	

Appendix F

Cost/Benefit Analysis



Appendix G

Logic Model

RESOURCES	ACTIVITIES	OUTPUTS	SHORT & LONG-TERM OUTCOMES	IMPACT
In order to accomplish our set of activities we will need the following:	In order to address our problem or asset we will accomplish the following activities:	We expect that once accomplished these activities will produce the following evidence of service delivery:	We expect that if accomplished these activities will lead to the following changes in 1-3 then 4-6 years:	We expect that if accomplished these activities will lead to the following changes in 7-10 years:
-Evidence-based cardiac focused education program approx. 7.5 hours long. -Binders w/ program notes, resources, professional nursing organizations national and local chapter membership information -Conference room w/ break and lunch food. -Paid education day for Step-Down Unit nurses attending program. -Nursing coverage for unit so others can attend program.	-Needs assessment of Step-Down Unit Nurses. -Completion of education program by presenter and complete education binders for each RN attending. -Scheduling educational program and nursing coverage for unit.	-20 RNs with 3 years or less nursing experience to attend education program. -Presentation of educational program for one day, 8 hours including meals, w/ binder of detailed education material. -Administer pre and post tests measuring nursing knowledge and self-efficacy.	Short Term -Increase in nursing knowledge. -Increase in self-efficacy -Improved understanding of cardiac disease process and the care involved in these patients Long Term -Continued interest and motivation to continually learn new tasks and knowledge -Improved job satisfaction with less job turnover	-Increase in the quality of patient care. -Improved clinical outcomes. -Improved patient satisfaction. -Culture change to embracing new/newer nurses and those new to specialty care units, providing in-depth orientation and ongoing education Embracing a culture of inquiry and professionalism **LOGIC MODEL**

Appendix H

DNP Project Timeline

July 2018: PICO Identified, PICO refined July 2019

September 2019: Project began/ Identify participants

May 2020: Site approval letter submitted

May 2020: Submit to Regis IRB

June 2020: Site approval received

July 2020: Approval to use PCCN questions

August 2020: Regis IRB approval received

August 2020: Intervention*

August/September 2020: Complete data collection

September 2020: Analyze data, derive themes

Fall/Winter 2020: Write up final project*

April 2021: Defend proposal

*Timeline changed secondary to Covid-19 pandemic

Appendix I

Education Program Information Sheet

My name is Gail Markowski and I have worked as a Nurse Practitioner at Mercy Hospital of Buffalo since 2009, the last three years for the Cardiothoracic Surgery team. I am working towards my Doctor of Nursing Practice (DNP) degree at Regis University and am conducting a Quality Improvement project which is required for this degree.

This project will study the effect of an evidence-based cardiac education program on the nursing knowledge and self-efficacy of newer RNs working on the Cardiac Step-Down Unit. Participants will attend a one-day, 8-hour cardiac education program located on hospital grounds. Both break and lunch will be provided. Participants will be paid for a 7.5-hour workday.

Participants will be asked to fill out demographic data including years worked as a nurse, nursing experience other than working on the Step-Down Unit, and nursing education. They will complete a self-efficacy survey and a test on cardiac patient care, before and after the education program.

Participation is completely voluntary. Participation or non-participation does not affect employment in any way. There are no risks associated with participation or for not participating. To minimize any anxiety, there will be no calling on individuals to verbally answer any question during the program presentation. The participants and their test results will be completely anonymous through a coding process.

It is my hope that participants attending this education program will gain valuable information to better understand cardiac disease processes and the care required for our patients.

Thank you for your time and consideration. Please contact me at 716-289-1504 if you would like to attend this program or would like more information.

Sincerely,

Gail Markowski, ANP-C, ACNP-C, CCRN

Appendix J

Education Program Agenda

- *Participant Demographics, GSE survey, Nursing knowledge test* **(0700-0720)**
- Coronary Artery Disease – including MI, Unstable Angina, EBP medications, PCI, pre-CABG, medical treatment **(0720-0830)**
- Valvular Heart Disease – Aortic stenosis, Aortic insufficiency, Mitral insufficiency, Mitral stenosis, TAVR, MitraClip (**0830-0930)**
- *BREAK* **(0930-0945)**
- Congestive Heart Failure – Systolic, Diastolic, Ischemic, Dilated, Restrictive, Hypertrophic **(0945-1045)**
- Ventricular Arrhythmias, Atrial Fibrillation **(1045-1115)**
- Cardiac Devices – Impella, ECMO, IABP, PM/ICD, Watchman **(1115-1145)**
- *LUNCH* **(1145-1215)**
- Postoperative care of the Cardiac Surgery patient **(1215-1245)**
  Presented by Alexandra Rabarski, RN, CCRN
- Diagnostic Tests including lab work, stress tests, echocardiography **(1245-1315)**
- Pearls in Patient Care **(1315-1345)**
- Professionalism in Nursing Practice – nursing organizations **(1345-1415)**
- Q & A **(1415-1430)**
- *Participant post GSE survey and post nursing knowledge test* **(1430-1500)**

Appendix K

Participant Demographics

Participant	**# Years worked as RN at MHB CSDU**	**Additional RN experience**	**Education (AD, BSN, Other)**
#	#	**Described**	**Described**

Participants were asked to provide descriptive answers for RN experience and education.

Appendix L

General Self-Efficacy (GSE) Scale

*Not at all true_1_ Hardly true_2_ Moderately true_3_ Exactly true_4_*

1. I can always manage to solve difficult problems if I try hard enough.
2. If someone opposes me, I can find the means and ways to get what I want.
3. It is easy for me to stick to my aims and accomplish my goals.
4. I am confident that I could deal efficiently with unexpected events.
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.
6. I can solve most problems if I invest the necessary effort.
7. I can remain calm when facing difficulties because I can rely on my coping abilities.
8. When I am confronted with a problem, I can usually find several solutions.
9. If I am in trouble, I can usually think of a solution.
10. I can usually handle whatever comes my way.

Schwaruer- R.. & jequsalean. M. (1995). Generalized Self-Efficaey seale- In J. WeinmanS. Wright, & M, Johnston, Measures i'n health psychologv: A user •s popffoho. Causal und *control beliefs* (pp.35-37).Windsor- UK: NFER-NELSON.

Appendix M

Permission to use General Self-Efficacy Scale

Freie Universität Berlin

Faehbereich
Erzehurgswissenschaft t.]fid
Psytho/cgié
- Gesundheitspsych•010F -

Freie Universität Berlin, Gesundheitspsychologie (PF
Habelschwerdter Allee 45, 14195 Berlin, Germany ta:.,
Habelsch%erdter Allee •45 14195 Berlin, Germany

Professor Or Ralf Schwerzer

Fax+49 30 838 55634
health@zedat.fu-bernn.de
.fu-berlin eelgesund

Permission granted

to use the General Self-Efficacy Scale for non-commercial research and development purposes. The scale may be shortened and/or modified to meet the particular requirements of the research context.

http://userpage.fu.bertin.deßhealth/seffscal.htm

You may print an unlimited number of copies on paper for distribution to research participants. Or the scale may be used in online survey research if the user group is limited to certified users who enter the website with a password.

There is no permission to publish the scale in the Internet, or to print it in publications (except 1 sample item).

The source needs to be cited, the URL mentioned above as well as the book publication:

Schwaruer- R.. & jequsalean. M. (1995). Generalized Self-Efficaey seale- In J. WeinmanS. Wright, & M, Johnston, Measures i'n health psychologv: A user •s popffoho. Causal und *control beliefs* (pp.35-37). Windsor- UK: NFER-NELSON.

Professor Dr, Ralf Schwarzer www.ralfschwarzer de

Appendix N

Nursing Knowledge Test

(Taken from AACN PCCN test questions, 2016)

1. A patient reports chest pain that is sharp, constant, worse when lying down and alleviated when sitting up and leaning forward. The most likely cause of these findings is
    A. Acute coronary syndrome
    B. Pericarditis
    C. Pulmonary embolism
    D. Abdominal aortic aneurysm

2. A patient with a history of COPD and an anterior wall myocardial infarction that occurred one year ago is now short of breath and experiencing pink, frothy sputum. The patient has a rapid irregular heartbeat with an SpO2 of 89%. The most likely cause of these signs and symptoms is
    A. Pulmonary edema
    B. Cardiac tamponade
    C. Pneumococcal pneumonia
    D. Acute respiratory distress syndrome

3. A patient is admitted to the unit with a 98% stenosis of the right coronary artery (RCA) with plans for PCI in the morning. Which EKG abnormality should the nurse anticipate?
    A. ST elevations in leads II, III and aVF
    B. ST elevations in leads I and aVL
    C. Reciprocal changes in leads V1 through V4
    D. Inverted T waves in leads I, aVL, V5 and V6

4. A patient with ACS who underwent cardiac surgery two days ago develops new onset jugular vein distention, muffled heart tones, palpitations, difficulty breathing and chest pain that worsens with coughing. Decreased peripheral pulses are noted. Vital signs are:

	3 hours ago	Current
BP	110/60	90/50
HR	96	134
RR	20	28

    What should the nurse anticipate?
    A. Pericardiocentesis
    B. Echocardiogram
    C. Administration of Dopamine
    D. Spiral computed tomography

5. After a STEMI, a patient suddenly experiences a decreased level of consciousness, a weak and thready pulse, crackles and rhonchi bilaterally in the lung fields. Vital signs are:
    BP 76/43 HR 139 RR 24 UO 5 ml past one-hour SpO2 88% on 2L via nc. What should the nurse suspect?
    A. Cerebral vascular accident
    B. Cardiogenic shock
    C. Pulmonary embolus
    D. Acute respiratory distress syndrome

6. The physician ordered metoprolol (Lopressor) for a patient with new onset rapid atrial fibrillation 5 minutes earlier without achieving rate control. The patient has a BP of 80/50 and is complaining of dizziness. Which intervention should the nurse anticipate?
    A. Warfarin (Coumadin)
    B. Check Potassium level
    C. amiodarone (Cordarone)
    D. Synchronized cardioversion

7. A patient with dilated cardiomyopathy is admitted with dyspnea, cough, palpitations and JVD. The monitor shows sinus tachycardia with a rate of 110. The nurse should anticipate management to first include
    A. Administration of an afterload reducing agent
    B. Insertion of a temporary left ventricular assist device
    C. Administration of an IV inotropic agent
    D. Insertion of a biventricular pacemaker

8. A patient develops pleuritic chest pain, shortness of breath, hypoxia and coughing 3 days after admission for heart failure. The nurse should suspect
    A. Acute respiratory distress syndrome
    B. Aortic dissection
    C. Pulmonary embolism
    D. Pericarditis

9. Following a CT with contrast, the patient develops an acute kidney injury (AKI). The nurse recognizes that the most important measure to take during the shift is
    A. Ensure the patient has a chest x-ray the following morning
    B. Arrange for dietary counseling to assist the patient with a nutrition plan
    C. Request a chaplain to come visit with the patient
    D. Accurately measure intake and output

10. A patient who was on Plavix is waiting to go for CABG. He ruled in for an MI and is being treated with ASA, BB, statin and IV heparin. His lab work shows normal electrolytes and a blood count with a hematocrit of 31 and platelets of 38,000. With no further information available, the nurse should suspect what etiology?
    A. Platelet destruction due to Plavix
    B. Splenomegaly
    C. Desmopressin acetate (DDAVP)
    D. Heparin-induced thrombocytopenia (HIT)

11. A 47-year-old male was admitted with a nstemi. He has no significant past medical history but has smoked 2 PPD since age 20. He has an angiogram planned for later today. Which medication orders might the nurse see prior to the procedure?
    A. Clopidogrel and ASA
    B. Clopidogrel and Prasugrel
    C. Clopidogrel and Meperidine
    D. Prasugrel, ASA and hydrocodone

12. A 65-year-old female with a history of pulmonary fibrosis on oxygen and steroids for the last two years was admitted with nstemi after having chest pain for 3 to 4 days. Upon assessment, she is diaphoretic, extremely dyspneic with a low BP. What is the most likely cause of her symptoms?
    A. Exacerbation of pulmonary fibrosis

B. Pulmonary embolism
C. Recurrent MI
D. Papillary muscle rupture

13. A 62-year-old with a recent diagnosis of lymphoma who received his first dose of chemo 5 days ago was admitted for a syncopal episode . Troponins were elevated and the patient had an angiogram which showed triple-vessel CAD. Cardiac surgery has been consulted as the cardiologist wants surgery to be done this admission. What would be the best plan for this patient?
    A. Take the patient to surgery immediately
    B. Plan for surgery as soon as the pre-op workup is completed
    C. Contact Oncology
    D. Obtain a PET scan

14. Which of the following patient history would be most concerning in planning CABG for a patient?
    A. COPD, quit smoking 4 years ago
    B. Left ventricular ejection fraction of 40%
    C. Cirrhosis
    D. TIA 5 years ago

15. What would be the biggest concern in planning PCI for a 75-year-old female with double-vessel CAD?
    A. History of COPD on home oxygen therapy
    B. CKD stage II
    C. History of HTN on multiple medications
    D. History of gastric ulcer one year ago

Appendix O

AACN Permission to use PCCN Questions

7/29/2020 Permission to reuse PCCN questions (Markowski) - 7/6/20

From: michael.muscat@aacn.org,
To: gailotd@aol.com,
Cc: sam.marsella@aacn.org,
Subject: Permission to reuse PCCN questions (Markowski) - 7/6120 Date.• Mon, Jul 6, 2020 12:22 pm
Attachments.• Gail Markowski 2 PCCN EXAM REVIEW 6-30-20.pdf (49K)

Gail,

Thank you for completing an application for reuse of AACN copyrighted content. A copy of your completed application is attached. I received your separate email as well explaining your intended reuse.
In your response to Q18 you mention that the exam questions you'd like to use are from the question booklet you obtained from the online AACN bookstore. We cannot permit free reuse of the paid PCCN exam questions, but you could use the practice questions in the exam booklet as they are meant for public consumption and reuse.

If you'd like to use the questions from the paid product, you can purchase one booklet per participant ($14 each for members, $17 for nonmembers: fips://www.aacn.org/store/books/200405/practice-pccnpccnk-exam-questions), as that product is copyrighted and designed for individual use.

I hope that makes sense. Thank you.
Best of luck.

Michael Muscat
Publishing Manager
American Association of Critical-Care Nurses (AACN)
27071 Aliso Creek Road, Aliso Viejo, CA 92656
(949) 433-0227 cell (800) 394-5995, (949) 268-7594 direct

Appendix P

CITI Program Certification

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)
COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Gail Markowski (ID: 8928575)
- **Institution Affiliation:** Regis University (ID: 745)
- **Institution Email:** gmarkowski@regis.edu
- **Institution Unit:** Loretto Heights School of Nursing

- **Curriculum Group:** Human Research
- **Course Learner Group:** Social Behavioral Research Investigators
- **Stage:** Stage 1 - Basic Course

- **Record ID:** 35396133
- **Completion Date:** 13-Feb-2020
- **Expiration Date:** 12-Feb-2023
- **Minimum Passing:** 80
- **Reported Score*:** 85

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Unanticipated Problems and Reporting Requirements in Social and Behavioral Research (ID: 14928)	13-Feb-2020	5/5 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	13-Feb-2020	4/5 (80%)
Conflicts of Interest in Human Subjects Research (ID: 17464)	13-Feb-2020	5/5 (100%)
History and Ethical Principles - SBE (ID: 490)	13-Feb-2020	4/5 (80%)
The Federal Regulations - SBE (ID: 502)	13-Feb-2020	4/5 (80%)
Assessing Risk - SBE (ID: 503)	13-Feb-2020	5/5 (100%)
Informed Consent - SBE (ID: 504)	13-Feb-2020	4/5 (80%)
Privacy and Confidentiality - SBE (ID: 505)	13-Feb-2020	4/5 (80%)
Defining Research with Human Subjects - SBE (ID: 491)	13-Feb-2020	5/5 (100%)
Research with Older Adults (ID: 16502)	13-Feb-2020	4/5 (80%)
Research with Critically Ill Subjects (ID: 16592)	13-Feb-2020	3/5 (60%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?k712ae749-8c45-49a1-92ae-e58c9b648803-35396133

Collaborative Institutional Training Initiative (CITI Program)
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 2 OF 2
COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Gail Markowski (ID: 8928575)
- **Institution Affiliation:** Regis University (ID: 746)
- **Institution Email:** gmarkowski@regis.edu
- **Institution Unit:** Loretto Heights School of Nursing

- **Curriculum Group:** Human Research
- **Course Learner Group:** Social Behavioral Research Investigators
- **Stage:** Stage 1 - Basic Course

- **Record ID:** 35396133
- **Report Date:** 14-Feb-2020
- **Current Score**:** 87

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
Defining Research with Human Subjects - SBE (ID: 491)	13-Feb-2020	5/5 (100%)
The Federal Regulations - SBE (ID: 502)	13-Feb-2020	4/5 (80%)
Assessing Risk - SBE (ID: 503)	13-Feb-2020	5/5 (100%)
Informed Consent - SBE (ID: 504)	13-Feb-2020	4/5 (80%)
Privacy and Confidentiality - SBE (ID: 505)	13-Feb-2020	4/5 (80%)
Unanticipated Problems and Reporting Requirements in Social and Behavioral Research (ID: 14928)	13-Feb-2020	5/5 (100%)
Research with Critically Ill Subjects (ID: 16892)	13-Feb-2020	3/5 (60%)
History and Ethical Principles - SBE (ID: 490)	13-Feb-2020	4/5 (80%)
Research with Older Adults (ID: 16502)	13-Feb-2020	4/5 (80%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	13-Feb-2020	4/5 (80%)
Consent with Subjects Who Do Not Speak English (ID: 17260)	14-Feb-2020	5/5 (100%)
Conflicts of Interest in Human Subjects Research (ID: 17464)	13-Feb-2020	5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?x712ae749-9c45-49a1-92ae-e59c9648803-35396133

Collaborative Institutional Training Initiative (CITI Program)
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org

APPENDIX Q

IRB Permission

REGIS UNIVERSITY

REGIS.EDU

Institutional Review Board

DATE:	August 13, 2020
TO:	Gail Markowski
FROM:	Regis University Human Subjects IRB
PROJECT TITLE:	[1626461-1] Improving Self-Efficacy and Nursing Knowledge in Cardiac Step-Down Unit Nurses
SUBMISSION TYPE:	New Project
ACTION:	DETERMINATION OF NOT RESEARCH
DECISION DATE:	August 13, 2020

Thank you for your submission of New Project materials for this project. The Regis University Human Subjects IRB has determined this project does not meet the definition of human subject research under the purview of the IRB according to federal regulations.

The project may proceed as written.

We will retain a copy of this correspondence within our records.

If you have any questions, please contact the Institutional Review Board at irb@regis.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Regis University Human Subjects IRB's records.

Appendix R

Site Approval Letter

Catholic Health

June 11, 2020

To Regis University Institutional Review Board (IRB):

I am familiar with Gail Markowski's quality improvement project entitled "Improving self-efficacy and nursing knowledge in nurses working on a Cardiac Step-Down Unit". I understand Mercy Hospital of Buffalo's involvement to be allowing Gail Markowski to present a one-day cardiac education program to nurses working on the Cardiac Step-Down Unit (7West), and the measurement of their self-efficacy and nursing knowledge before and after the program.

I understand that this quality improvement project will be carried out following sound ethical principles and provides confidentiality of project data, as described in the proposal.

Therefore, as a representative of Mercy Hospital of Buffalo, I agree that Gail Markowski's quality improvement project may be conducted at our agency/institution.

Sincerely,

Shari A. McDonald, RN, MSN,
MSL VP Patient Care Services
Chief Nursing Officer