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Protecting the Integument: Changing Nursing Practice to Prevent Pressure Injuries

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Date of Submission: July 19, 2020

Protecting the Integument: Changing Nursing Practice to Prevent Pressure Injuries

Dedication

This project is dedicated to all the residents and patients I have worked with over the last 26 years that have developed pressure injuries. I would like to give honor and thanks to God for allowing me to care for his people and provide them with exceptional care. I have worked with some healing hands, wound nurses, and assistants, Vivian Redmon, RN, WCC, Yumeka Potts, LPN, Treatment Nurse, Audrey Smith, CNA, restorative aide, and Alisha LaPrade, CNA, Staffing Coordinator. Thank you for the excellent services you have provided to wound care and patients overall.

I would also like to dedicate this project and my degree to my Daddy who suffered from pressure injuries. My Daddy was a man of few words, but when he spoke, he meant business and he spoke volumes. I love you Daddy and I miss you so very much.

Acknowledgment

The past two years have been very stressful. There were times when I thought I would not make it to the finish line. There are many individuals I would love to acknowledge but there is only so much room. I would first like to acknowledge my kids; “For them I’d risk it all.” I push myself hard so they will push themselves harder. I would like to thank Dr. Mason Brown for instilling pride and hope in me. He believed in me from day one. I was able to write about him in four short weeks because he is such a remarkable leader. Dr. Serena Gramling and I started off rough but ended smoothly. She became my biggest fan, my most significant support, and my biggest motivator. When I wanted to give up, you would not let me. Thank you, Dr. Serena Gramling. Dr. Leigh Keith has a heart of gold and always shows concern and caring. Thank you, Dr. Keith.

There are others who step in and out from time to time and supported me one way or another, and I would like to thank you all also. I would like to express my appreciation to Audrey Smith for allowing me to use her hotspot. Yumeka Potts, thank you for helping me with my questions. Chasity Carter, thank you for proofing my papers, supporting me, and pushing me to keep going. Lenette Upshaw, thank you for always encouraging me to do my homework, and calling me her little genius. I would like to acknowledge Shy for reminding me of my assignments and being an ear for me to vent. Finally, I would like to acknowledge Abby (my dog) for all the late nights you would fall asleep, wake up, and come over and lick my face. Thank you to everyone that thought of me and prayed for me during my time of need.

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Abstract

The purpose of this project is to assess and improve nurses' knowledge of pressure injuries and pressure injury preventions using evidence-based guidelines and a southeastern United States hospital's skin integrity policy. My population of focus is direct care professional nurses caring for adults and geriatric patients in the acute care setting.

Design and Methods: The DNP student's project is a quality improvement project using a Quasi-experimental design, which includes using a pre-test (Appendix A) and post-test (Appendix B). FADE (Appendix C) is the quality improvement method chosen for this project. FADE (Appendix C) is an acronym representing focus, analyze, develop, execute/evaluate.

Results: A paired t-test was run to determine if there were differences in pre-test (Appendix A) and post-test (Appendix B) scores. Pre-test (Appendix A) scores (M=89.96, SD=13.53) were lower than post-test (Appendix B) scores (M=99.2, SD=1.89), a statistically significant difference, $M=7.46$, 95% CI [5.34, 9.60]; $t(49)=7.06$, $p=0.05$.

Conclusion: Educating nurses in acute care on pressure injuries, staging, and prevention increases their knowledge. The nurses completed pre-tests (Appendix A), received education, and completed post-tests (Appendix B). There was a noticeable increase in the post-test scores following the educational session. The pre-test (Appendix A) mean score 91.76 and the post-test (Appendix B) mean score was 99.22. There was a 7.46 percent increase in the scores after the staff was educated.

Implications for Nursing: The acute care nurses are aware of the updated definition for pressure injury, the changes in pressure injury stages and terminology. They are knowledgeable of the risk factors for pressure injuries and preventive measures.

Key Words: Nurses, pressure injuries, risk factors, preventative measures, stages, Braden Scale score, acute care hospital, reimbursement.

Protecting the Integument: Changing Nursing Practice to Prevent Pressure Injuries

Introduction

All American citizens are entitled to quality healthcare. Even with proper care, some individuals may have experienced pressure injuries during their hospitalization. Bedside nurses often consult wound care nurses to implement preventive interventions for patients when they could have initiated a preventative protocol immediately upon admission. Implementation of a preventative protocol has the potential to reduce the number of pressure injuries, improve outcomes, and decrease wound care related costs in a large urban hospital in the southeast region of the United States.

Healthcare leaders in the facility chosen for this project noticed an upward trend in the incidence of pressure injuries, resulting in a need for a protocol change for protecting skin integrity. They believed that patients would receive the most benefit from proactive staff with the nurse-driven protocols for skincare upon admission. This initiative would provide early intervention to protect and maintain skin integrity. The purpose of this project is to assess and improve nurses' knowledge of pressure injuries and pressure injuries prevention techniques using evidence-based guidelines.

According to Bauer, Rock, Nazzal, Jones, and Qu (2016), an average of 60,000 Americans deaths occur yearly from pressure injury complications. Risk injuries associated with the development of pressure injuries are malnutrition, hypotension, incontinence, peripheral vascular disease, cardiovascular disease, diabetes, and fractures. There were 1.8% of patients within the US population from 2008-2012 that have had at least one pressure injury. The overall pressure injury rate of men (2%) was higher than the women (1.6%). Areas for patients to most likely develop areas were lower back/sacral/coccygeal (47%), buttock (17%), heels (14%), other

areas (9%), and hips (5%). The stages were identified as follows: stage 1(16%), stage 2 (38%), stage 3 (20%), stage 4 (19%), and unstageable (7%) (Bauer, Rock, Nazzal, Jones, & Qu, 2016).

Medical management of “pressure ulcers cost \$9.1 billion to \$11.6 billion per year in the United States” (Berlowitz et al., 2015, p. 9). In November 2008, the Centers for Medicare and Medicaid Services (CMS) discontinued reimbursements for stage 3 and 4 pressure injuries because they felt that hospitals should improve in the area of patient safety and decrease hospital-acquired conditions (Bauer et al., 2016). The Hospital-Acquired Condition (HAC) Reduction Program encouraged the hospitals to make patients stays safer. Medicare has saved an estimated 350 million dollars a year through the HAC Reduction Program ("Hospital-Acquired Condition (HAC)," n.d.). This forced healthcare facilities to be more proactive in preventing skin breakdown. According to Bauer et al. (2016), there are more than 2.5 million individuals who acquire pressure injuries annually in the US, as reported by the Agency for Healthcare Research & Quality (AHRQ). The average cost per admission for a stage 3 pressure injury in acute care can range from \$5,900-\$14,840. Stage 4 can range from \$18,730 to \$21,410. More than 17,000 lawsuits are filed annually due to the financial burden of pressure injuries (Bauer et al., 2016).

Background

According to Edsberg et al. (2016), the transfer of energy or the absence of injury that causes bodily harm is an injury. A pressure injury is the result of an object or pressure over a boney prominence for a prolonged period of time. A pressure injury can be painful with damaged and/or open skin. In 2016, the National Pressure Ulcer Advisory Panel (NPUAP) changed the terminology from pressure ulcer to pressure injury and revised the staging of injuries. To prevent confusion between other medical terms such as stage IV and intravenous (IV), the use of Roman

numbers was changed to Arabic numerals. There are different types of pressure injuries ranging from stage 1 to stage 4. Stage 1 is where the skin remains intact but has erythema and is nonblanchable. In stage 2, the dermis is exposed, and partial-thickness of the skin is a loss. Stage 2 can consist of an intact blister, serum-filled, or ruptured blister. Stage 3 is where full-thickness skin is a loss, and subcutaneous layers are affected. Stage 4 is a pressure injury where full-thickness skin loss is noted, and it extends into the muscle or as far as the bone. There may also be some sloughing or eschar present in stage 4 injuries. The term unstageable is used to describe an obscured wound bed with slough or eschar and where there are full-thickness skin and tissue loss. Deep tissue injuries have discoloration of deep red, maroon, or purple that is nonblanchable or can have a blister that is blood-filled (Edsberg et al., 2016).

The goal of this project was to improve nursing staff knowledge of pressure prevention interventions and provide a revised pressure injury staging system using evidence-based guidelines. Research has shown that preventative measures such as nutritional support, risk assessment, pressure redistribution surfaces, moisture control, and repositioning reduces the cost of treating wounds and decreases the number of pressure injury incidence (Ocampo et al., 2017). Preventing pressure injuries requires an interdisciplinary approach for all patients with a focus on other disease processes while applying evidence-based practice. Preventative measures have been found to reduce infections, pain, and even death (The Joint Commission, 2016). The prevention of pressure injuries can also reduce the development of stage 3 and 4 pressure injuries. Stage 3 and 4 pressure injuries may be considered a sentinel event by The Joint Commission because they are preventable and may contribute to premature mortality. In addition, in 2008, stage 3 and 4 pressure injuries were considered a hospital-acquired condition that would not be reimbursed because it was preventable (The Joint Commission, 2016). This

project currently has the support of an interdisciplinary committee consisting of members from the wound care department, the dietician, informatics, quality management, risk management, nursing leadership, and other leaders within the hospital.

Problem Statement

The current practice within the project facility is for the nursing staff to screen all patients to determine if they are at-risk for skin breakdown and implement interventions as indicated by the current policy. Patients identified as being at-risk are those with a Braden Scale score of 18 or less, advanced age, poor nutrition, immobile, and those who are hemodynamically unstable. However, the staff does not have an updated standard set of interventions to follow, and the wound care nurse is often consulted unnecessarily. This problem became apparent when nurses began reporting problems with the existing policy. In response to those reports, hospital leaders decided to reconvene and began revising the wound care policy. Implementation of a revised policy screening would require staff education, along with electronic medical record adaptation.

PICO(T)

For nurses in direct care with adult and elderly patients, will providing educational intervention versus no intervention increase their knowledge of the importance of implementing preventative measures to protect the integument?

Organizational Description of Project Site

The DNP project implementation site was a nonprofit urban hospital in the southeast region of the United States. This facility is licensed for over 100 beds offering multiple healthcare services and specialties. The facility offers advanced wound care for many types of wounds, such as diabetic ulcers, pressure injuries, sickle cell ulcers, traumatic wounds, pyoderma gangrenosum, and many more. A variety of treatments are available including hydrogel, medi-

honey, santyl, mepilex border dressings, air mattress, waffle cushions, and deep debridement. The electronic medical record (EMR) will also need to be updated to reflect the new policy guidelines and interventions. With the revised policy, the new interventions will either auto-populate in the EMR once the Braden score is entered into the EMR or the interventions will be set-up as options for the licensed nurses to choose from in the EMR. This educational project is appropriate for this particular site because there has been a significant increase in pressure injuries. Reducing the occurrence of pressure injuries within the facility will improve patient outcomes and decrease financial burdens.

Review of the Literature

According to Petzold, Eberlein-Gonska, and Schmitt (2014), pressure injuries are more likely to occur in intensive care units (ICU) (4.77%) than on medical-surgical units (0.59%) on medical-surgical units. A prospective cohort study was conducted over four years on inpatients in a German tertiary care facility. The study was analyzed using univariate and multivariate analysis. There were a total of 246,162 patients included in the study from January 1, 2007, to December 31, 2011. The data was calculated using the incidence of pressure injuries during hospitalization and the prevalence of pressure injuries at admission. The confidence interval (CI) was 95%. There were a total of 1914, in patients who developed a pressure injury. The incident of pressure injuries was a range of 0.0% to 12.7% (0.78%, 95% CI 0.74-0.81%). The prevalence of pressure injuries was 1.21% (95% CI 1.16-1.25%, n=2971). During this time, researchers found that pressure injury risk incidence increased with age, length of stay, and patients admitted to ICU. As far as limitations, there was only one. The researchers were not able to evaluate all of the individual items on the Braden Scale due to the patient clinical complexity level. The following risk factors were not assessed during this study and should be included in future

studies; obesity, smoking, history of diabetes, and cardiovascular disease. The results of this study indicated that the use of evidence-driven preventive measures might decrease the incidence of pressure injuries (Petzold, Eberlein-Gonska, & Schmitt, 2014).

Bauer et al. (2016), conducted a retrospective study between 2008-2012 on 670,767 acute care patients to determine the impact of pressure injuries on short-term outcomes and to identify patient characteristics in the United States associated with having one or more pressure injuries. The statistical analysis was done using the t-test for the comparisons group. To compare categorical data, chi-square was used during the study. Multivariate analysis, linear, and logistic regression were used to analyze the potential risk factors of the study. The study found that more Americans, specifically African American men, developed more pressure injuries than any other race. African Americans' prevalence of pressure injuries was significantly higher (2.4 &, n=119,113 out of 4,979,112), $p < 0.05$. They also found that malnutrition was the highest risk factor for developing pressure injuries (11.5%, risk ratio=8.45, CI: 8.41-8.5, $p < 0.001$). Another interesting finding from the data was Medicare patients were also at higher risk for developing pressure injuries than Medicaid, private insurances, and self-pay patients (93.5%, $p < 0.005$). In this study, 47% of the patients developed pressure injuries on their lower back/sacral/coccygeal areas. The rate of development of pressure injuries to the lower back/sacral/coccygeal areas was at a higher rate than any other area. Limitations of this study included erroneous coding, missing data, and differentiating hospital-acquired pressure injuries from community-acquired pressure injuries (Bauer et al., 2016).

Edsberg et al. (2016), was appointed by the National Pressure Ulcer Advisory Panel (NPUAP) to conduct an extensive literature review to revise the pressure ulcer definition and the pressure ulcer stages. This literature review took place from January 2015 until April 2016. Two

hundred forty-two articles were reviewed. The advisory panel decided to change the terminology of pressure ulcer to pressure injury. The panel agreed to change pressure ulcers to pressure injury because ulcers did not accurately describe the wound and an injury is caused by energy being transferred or the absence of energy. Pressure injury was defined as being an injury to the skin that develops over a bony prominence as the result of prolonged pressure to the area. Advisory panel members also found it be more efficient to use Arabic numerals instead of Roman numerals to prevent confusion with Roman numeral IV with IV medications (Edsberg et al., 2016).

Miller, Emeny, and Freed (2019) conducted a descriptive study over three years using a multidisciplinary team approach to reduce hospital-acquired pressure injuries. The goal was to document all hospital-acquired pressure injuries, reduce full-thickness preventable pressure injuries, and to establish hospital-wide interventions to prevent further pressure injuries. Findings reflected an 89% reduction in hospital-acquired full-thickness pressure injuries. Research findings suggested that a multidisciplinary team approach can be successful in reducing preventable pressure injuries. Although gaps were noted in the team's knowledge and assessment tools, additional knowledge was gained by the hospital's certified wound care nurses surrounding staging and staging appropriately. It was also noted that patients might have been unintentionally excluded due to a lack of education and under-reporting by staff nurses (Miller, Emeny, & Freed, 2019).

Ocampo et al. (2017), conducted a narrative review of the literature from 2004-2015 concerning the economic evaluations on strategies to prevent hospital-acquired pressure injuries and the cost of pressure injuries. The goals were to determine which preventative measure had an economic evaluation, to assess the evaluations strengths and weaknesses, and to decide which

economic evaluations to incorporate in the future. Research findings suggested the higher the stage of the pressure injury, the higher the cost. For example, in 2006, the cost of a stage 2 ulcer was \$44,000 while the cost of a stage 4 ulcer was \$90,000. Limitations of this study included designed heterogeneity, cost components, and intervention complexity. In conclusion, hospital-acquired pressure injuries are costly and challenging. The use of multiple or single preventative approaches such as pressure reduction mattresses, nutrition, and specialized preventative bandages can result in cost-/effective strategies (Ocampo et al., 2017).

Evidence-Based Practice: Verification of Chosen Option

Based on the review of the literature, a pre-test (Appendix A), education, and post-test (Appendix B) was given to the nursing staff. Interaction with acute care nursing staff was conducted virtually. Consents (Appendix C) and pre-test (Appendix A) were electronically scanned and sent to the unit manager. Once they completed those forms, the unit manager electronically submitted the information back to the writer. A powerpoint presentation was developed with voice recording and sent electronically to the staff for their review and education. Once the education was complete, the staff was sent the post-test for completion. All post-tests were returned electronically.

Theoretical Framework/Evidence-Based Practice Model

The conceptual frameworks guiding this project are the Neuman systems model and Change Theory by Kurt Lewin. Neuman systems model by Betty Neuman is a systems-based model that unifies nursing concerns and is used as a guide for nursing practice, education, research, and administration. Since the introduction of Neuman's systems model in 1970, the model has undergone many changes. Neuman's systems model is holistic, flexible, and comprehensive. The model's focus is on actual or potential environmental stressors and how the

patients may respond to those stressors (see Appendix A). The model uses primary, secondary, and tertiary nursing prevention (Appendix F) measures and interventions to maintain and retain desirable patient wellness (Butts & Rich, 2018).

There are three concepts of Lewin's Change Theory: driving forces, restraining, and equilibrium. Lewin's change theory model focuses on a dynamic force that moves in opposing directions within an organization. While participants in the change theory are pushing against the change, Lewin's dynamic force pushes the participants toward change (Butts & Rich, 2018). Petiprin (2016) describes Change Theory as dynamic forces working in different directions.

The Philosophy and Model/Conceptual Framework

The conceptual frameworks used for this DNP project were basics of Neuman's philosophy. Neuman's philosophies are holism, reality, and wellness, as well as four metaparadigm concepts, which are person, environment, health, and nursing. Holism is an equilibrium, where all the parts work together as a whole. The patient's perspective represents reality. Wellness is discussed and negotiated between the patient and the nurse, and it is measured in degrees. Wellness is determined by the individual. The degree of wellness is based on how healthy that individual perceives themselves to be. Betty Neuman referred to human beings as clients in her model. In this project paper, the term "patient" will be substituted for the client (Butts & Rich, 2018).

According to Petiprin (2016), there are three stages and three concepts that are somewhat similar. The three stages are unfreezing, change, and refreeze (Appendix E, Three stage model). The three concepts are driving forces, restraining forces, and equilibrium.

Neuman Systems Model

Neuman Systems Models explained that knowing something about one part of a system leads us to know something about another part of a system. This can be interpreted as knowing how an environmental stressor can affect a patient, how the patient responds to the stressor, and apply the most effective interventions (Butts & Rich, 2018). Some examples of environmental stressors for the patients in the DNP project are nutritional status, skin moisture, activity tolerance, decrease sensation, mobility issues, friction, and shear forces. Other stressors identified as risk factors are age, sex, admissions from home or other facilities, the patient length of stay, receiving treatment in critical care, overall morbidity, Braden Scale scores of 18 or less, and the patient clinical complexity level (PCCL) (Petzold et al., 2014).

According to Butts and Rich (2018), the Neuman models present three levels of prevention as interventions; primary prevention (Appendix F), secondary prevention (Appendix F), and tertiary prevention (Appendix F). Primary prevention (Appendix F) offers health promotion and maintenance. Primary prevention (Appendix F) for this project occurred when nurses implemented interventions upon admission to the patients to prevent pressure injury development. Secondary prevention (Appendix F) is the reaction after the stressor has caused an effect. Secondary prevention (Appendix F) for the project occurred when nurses implemented interventions. The goal of tertiary prevention (Appendix F) is to prevent further complications after the patient has been treated by un prevention (Appendix F). Tertiary prevention (Appendix F) for this project included providing interventions, such as diligent handwashing and sterile dressing techniques, to avoid cross contamination or further spread of microorganisms for those who have already developed a pressure injury. Neuman's Systems Model supports the promotion

of optimal patient system stability. Nurses can actively contribute to this by assessing the effects of stressors and adjusting the interventions as needed (Butts & Rich, 2018).

Kurt Lewin: Change Theory

According to Butts & Rich (2018), unfreezing (Appendix E, Three stage model) is unlearning old behaviors, moving gives individuals the means to accept new behaviors, and refreezing is a state of equilibrium. Petiprin (2016) describes unfreezing (Appendix E, Three stage model) as an act of letting go of old behaviors. This can be accomplished through the three concepts; driving forces, restraining forces, and equilibrium. Driving forces causes change to occur by pushing in the direction of the change. Restraining forces pushes the individual in the opposition direction of change. Equilibrium is the medium between driving forces and restraining forces. To achieve unfreezing (Appendix E, Three stage model), driving forces have to be increased, restraining forces have to be decreased, and equilibrium occurs when driving forces and restraining forces meet and there is no change. Change is a process that causes the individual's feelings, behaviors, and thoughts to change. Refreezing is when the change becomes a habit. Refreezing prevents the individual from returning to their old habits. In this project, the nursing staff will have to let go of the old behaviors and be pushed toward accepting the new change while finding a balanced state and maintaining the change (Petiprin, 2016).

Goals, Objectives, and Expected Outcomes

Goals	Objectives with intervention	Expected Outcomes
<ul style="list-style-type: none"> • The nursing staff will demonstrate improved knowledge of pressure prevention interventions and revised pressure injury staging systems as evidence by improved post-test (Appendix B) scores. • The timeline (Appendix G) for this DNP project will be three months. 	<ul style="list-style-type: none"> • The writer completed a baseline assessment of the nursing staff's knowledge of pressure injury prevention interventions and pressure injury staging. • The writer educated the nursing staff on pressure injury prevention techniques using evidence-base guidelines. 	<ul style="list-style-type: none"> • The nursing staff demonstrated an improvement in knowledge of skin assessment, risk assessment, and pressure injury staging from pre-test (Appendix A) scores to post-test (Appendix B) scores.

Project Design

Type of project

The project is a quality improvement project. Quality improvement focuses on processes and outcomes, which leads to measurable improvements in healthcare (Moran, Burson, & Conrad, 2017). The quality improvement focused on in this project is a system-wide initiative of a revised skin injury prevention protocol. The project design was a quasi-experimental, which tested the nurses' knowledge in skin assessment, skin risk assessment (Braden Scale), updated staging system, and how to implement the revised skin protocol. By utilizing this pre-test (Appendix A) post-test (Appendix B) design, the level of knowledge (independent variable) was measured before and after the educational session is conducted. The project had three phases. Phase one was a pre-test (Appendix A) that measured a baseline assessment using a modified version of The Pieper-Zulkowski Pressure Ulcer Knowledge Test (PZ PUKT) version two. Phase two was a an educational session provided on pressure injury prevention with an updated staging system using evidence-based guidelines. Phase three consisted of a post-test distribution to those who received the educational session to measure the effectiveness of the educational sessions.

FADE (Appendix C,) was the quality improvement method chosen for this project. FADE (Appendix C) is an acronym representing focus, analyze, develop, execute/evaluate. Focus represents defining and verifying the process that needs to be improved. The process that required improvement in this project was to improve the nurses' knowledge of pressure injury prevention. Analyze references collecting and analyzing the data to establish baselines, identify root causes, and finding a solution. Develop refers to the action plan for improvement, which includes implementation, communication, and measuring/monitoring. The process of development for this project were the project goals, objectives, and expected outcome (Patient

Safety Quality Improvement., 2000-2020). The goals of this DNP project is that nursing staff will demonstrate improved knowledge of pressure prevention interventions and revised pressure injury staging system by using knowledge guided by evidence-based guidelines to improved post-test scores. The objectives of this DNP project were for the writer to complete a baseline assessment on the nursing staff's knowledge of pressure injury prevention interventions and pressure injury staging, to educate the nursing staff on pressure injury prevention techniques using evidence-based guidelines, and reassess nursing knowledge following the educational session. The expected outcomes were that nursing staff would demonstrate an improvement in knowledge of skin assessments, risk assessments, and pressure injury staging from pre-test (Appendix A) scores to post-test (Appendix B) scores. Execute/evaluate refers to the implementation of the action plan and ensuring an ongoing plan to monitor success. This project executed this portion by assessing the nurses' prior knowledge (pre-test) (Appendix A) and educating them. The evaluation was measured by administering a post-test (Appendix B) to see if there was any improvement in the knowledge level of the nurses from the pre-test (Appendix A) to post-test (Appendix B) (Moren et al., 2017).

Project Site and Population

The project site for this DNP project was a non-profit, urban hospital established over 50 years ago in the southeast region of the United States. This urban hospital is licensed for over 100 beds offering multiple healthcare services and specialties and is Joint Commission accredited. The services provided are home health care, breast health, cardiac rehabilitation, cardiothoracic surgery, cardiovascular care center, orthopedic, neurology, surgical, behavioral health, chest pain center, family-centered maternity care, hospice, regional NICU, sleep disorders center, and many others. The community is in a thriving city where many military families live.

There are 7 crimes per 1000 residents. This data indicates that this area is 10% safer than other cities in the United States (Neighborhood Scout, 2000-2020).

Multiple resources were needed for this project. First, a facility with known pressure injury concerns was identified. Second, a preceptor was secured to identify objectives, assist in obtaining permission to implement the project, and maintain focus during the implementation phase. Third, the nursing members were chosen to participate in the project. Fourth, online data bases were needed to provide evidence-based data on preventing pressure injuries, educating nurses to use the Braden Scale, and finding a reliable tool to test knowledge before and after the educational session. Finally, a statistician was consulted for analysis of results from the pre and post-test results. The data on preventing pressure injuries assisted in developing a revised policy. Data on the Braden Scale was also essential to educate the nurses about pressure injury care based on this scale. Content from the Braden Scale was used for pre and post-tests utilizing the PZ PUKT, version 2. The post-test questionnaire provided data concerning the nurse's knowledge of pressure injury prevention and the revised staging system.

The participants in this project were the licensed nursing staff. The System Wound Care Prevention Committee which consisted of wound care staff, dieticians, informatics, quality management, risk management, nursing leadership, and members from the Professional Practice Council (which are floor nurses that are asked or appointed to be a member). The committee's role was to collect data on wound prevention, review the data, and to assist in developing a revised skin integrity policy based on the Braden Scale.

Setting Facilitators and Barriers

The facilitator of the project is the facility's educator. Her role is to ensure the nurses are educated on the revised policy. There were a total of 50 participants. Inclusion criteria for the

project are the licensed nurses employed at the facility receiving the training. The exclusion criteria were the nurses who fail to participate in any portion of the pre-test (Appendix A), education, and post-test (Appendix B) requirements. Trust and respect was established between the DNP student and staff through previous collaborative efforts. The interaction with the staff included encouraging participation in the pre-test (Appendix A) and post-test (Appendix B) and educational sessions. Evidence-based guidelines for this project were obtained through an in-depth review of the literature. Finally, a statistician was consulted to analyze the data from the pre-test (Appendix A) and post-test (Appendix B) scores.

Implementation Plan/Procedure

Measurement Instruments

A modified version of The Pieper-Zulkowski Pressure ulcer & Knowledge Test version 2 (PZ PUKT, version 2) was used to measure licensed nurses' knowledge of wound prevention, staging, and wounds. The modified PZ-PUKT, version 2 is a 72 item questionnaire where questions are answered as “true,” “false,” or “I don’t know.” The questions for this tool are divided into three sections; prevention (28 questions), staging (20 questions), and wounds (24 questions) and takes approximately 20-30 minutes to complete. During the first phase, nurses were administered a pre-test (Appendix A) to assess their knowledge of wound prevention, staging, and wounds. During second phase, the nurses received education on pressure injuries. In the third phase, the nurses were given a post-test (Appendix B) to assess their understanding of wound prevention, staging, and wounds. A strength of the PZ-PUKT version 2, is it allows the subject’s pre and post-test (Appendix A and B) results to be analyzed to compare knowledge levels of pressure injuries before and after the educational session is provided. A weakness of the

test was that it contains 72 questions, which was be time-consuming (Delmore, Ayello, Smart, & Sibbald, 2018).

Data Collection Procedures

All data were collected electronically. The data consisted of the nursing staff pre and post-test scores. The data were transcribed to an Excel spread sheet and send to a statistician for analyzation.

Pre-interventions

Initially, the preceptor and project site were selected. Once the preceptor and site were approved per protocol, the student met with the preceptor and conducted a needs assessment within the facility. One of the primary concerns at the facility was an increased incidence of pressure injuries. Upon review of the facility's wound care policy, it was found to be outdated and in need of revisions to reflect the latest evidence-based practice on pressure injury prevention, staging, the Braden Scale, and wound care. Once this problem was identified, the student conducted a thorough literature review related to pressure injuries prevention, staging, the Braden Scale, cost of treating pressure injuries, appropriate methods for assessing nurse's knowledge, and how to implement change effectively.

Intervention

This project required multiple interventions. Initially, the SWCPC met to revise the wound care policy to reflect the latest evidence-based practice. The goals of the committee were to improve wound care and prevent further tissue injury. Nurse's knowledge of wounds and wound care was assessed with a pre-test (Appendix A). Following the pre-test (Appendix A), an educational session was provided on pressure injury prevention, staging, and wounds.

Post-intervention

After the education was completed, the nurses were given a post-test to determine if their knowledge about pressure injuries improved. Participant's scores were determined by the percentage of questions they answered correctly. The scoring was labeled as low (<59% correct answers), moderate (59%-79% correct answers), or high (>80% correct answers). Once target number of nurses (50) completed the post-test, results were forwarded to a statistician for data analysis.

Data Analysis

Quantitative data from from the pre and post-test were analyzed by a statistician. Once findings were reviewed, the DNP student was able to measure the success of the educational session and assess knowledge of wounds, preventive measures, and staging. Upon completion of the project, data was forwarded to the the System Wound Care Prevention Committee (SWCPC) for review. A paired t-test was ran to determine if there were differences in pre-test (Appendix A) and post-test (Appendix B) scores. The pre-test (Appendix A) scores (M=89.96, SD=13.53) were lower than the post-test (Appendix B) scores (M=99.2, SD=1.89), indicating a statistically significant difference, $M=7.46$, 95% CI [5.34, 9.60]; $t(49)=7.06$, $p=0.05$.

Cost-Benefit Analysis/Budget

The facility absorbed the majority of the cost related to the DNP project. The SWCPC met monthly to discuss policy changes. The estimated cost for the monthly meetings was \$155. This cost covers the five employee's existing hourly rates for one hour plus their meal. According to the SWCPC leader, the estimated cost to update the computer system and initiate the facility's new policy was \$36,250. At the time when the author spoke with the project leader, this budget was pending approval. The project was placed on hold in January 28, 2020 due to

due to meeting cancellation, resignation of project preceptor, and the COVID-19 global pandemic. A new preceptor was obtained in February 2020. The writer's project was completed, however, the facility had place the implementation of the new policy on hold indefinitely due to the Pandemic of COVID-19. The project timeline can be found in Appendix G.

Ethical Considerations/Protection of Human Subjects

Prior to project implementation, approval was obtained by the Institutional Review Board (IRB) (Appendix G, Timeline) at Jacksonville State University. Consent for implementation of a new policy and educational session was obtained at the project facility prior to project planning and implementation. These forms were locked in a cabinet with the original lock as well as an additional external padlock. All participants were represented by an assigned number to ensure anonymity. All privacy and security measures at the project site were strictly adhered to.

Conclusion

In conclusion, the purpose of this DNP project was to determine if providing direct care nurses interventions versus no interventions would increase their knowledge of the importance of implementing preventative measures to protect the integument of adult and elderly patients. The SWCPC met at monthly to develop interventions based on the Braden Scale score for the nurses to implement for patients to assist in preventing acquired pressure injuries. The SWCPC discussed policy changes, computer changes, and funding for these changes.

The nurses completed the pre-test (Appendix A), received education, and completed the post-test. There was a significant increase in the post-test scores. The pre-test (Appendix A) mean score was 91.76. While the post-test (Appendix B) mean score was 99.22. This project has proven that educationing nurses in acute care on pressure injuries, new staging, and prevention increased their knowledge on pressure injury prevention. Administrative personnel indicated that

the project has decreased the number of in-house acquired pressure injuries, however, they were not able to give an exact number for comparison.

References

- Baptist Health. (2015). *Skin Integrity: Skin Assessment, Risk Assessment, Preventing Loss of Skin Integrity*.
- Bauer, K., Rock, K., Nazzal, M., Jones, O., & Qu, W. (2016). Pressure ulcers in the United States' inpatient population from 2008 to 2012: Results of a Retrospective Nationwide Study. *Ostomy Wound Management*, 62, 30-38. <https://www.o-wm.com/article/pressure-ulcers-united-states-inpatient-population-2008-2012-results-retrospective>
- Berlowitz, D., Lukas, C. V., Parker, V., Niederhauser, A., Silver, J., Logan, C., ... Zulkowski, K. (2015). Preventing pressure ulcers in hospitals: A toolkit for improving quality of care. <https://www.ahrq.gov/sites/default/files/publications/files/putoolkit.pdf>
- Butts, J. B., & Rich, K. L. (2018). *Philosophies and theories for advanced nursing practice* (3rd ed.). Burlington, MA: Jones & Bartlett Learning.
- Delmore, B., Ayello, E. A., Smart, H., & Sibbald, R. G. (2018). Assessing pressure injury knowledge using the Pieper-Zulkowski pressure ulcer knowledge test. *Advances in Skin & Wound Care*, 31 (9), 406-412. <http://dx.doi.org.lib-proxy.jsu.edu/10.1097/01.ASW.0000540071.45158.29>
- Edsberg, L. E., Black, J. M., Goldberg, M., McNichol, L., Moore, L., & Sieggreen, M. (2016, November 1). Revised national pressure ulcer advisory panel pressure injury staging system: Injury staging system. *Journal of Wound, Ostomy and Continence Nursing*, 43, 585-597. <https://doi.org/doi:10.1097/WON.0000000000000281>

References

- slidesharecdn.com (1995). *Kurt Lewins Three stage model organizational change and developmental* [PowerPoint slides]. image.slidesharecdn.com/13-150707085742-1va1-app6891/95/kurt-lewins-three-stage-model-organizational-change-and-development-manu-melwin-joy-5-638.jpg?cb=1437059822
- Miller, M. W., Emeny, R. T., & Freed, G. L. (2019). Reduction of hospital-acquired pressure injuries using a multidisciplinary team approach. *Wounds, 31*, 108-113.
<https://www.medscape.com/viewarticle/913251>
- Moran, K., Burson, R., & Conrad, D. (2017). *The Doctor of nursing practice scholarly project a framework for success* (2nd ed.). Burlington, MA: Jones & Bartlett
- Neighborhood Scout. (2000-2020). <https://www.neighborhoodscout.com/al/prattville/crime>
- Ocampo, W., Cheung, A., Baylis, B., Clayden, N., Conly, J. M., Ghali, W. A., ... Hogan, D. B. (2017). Economic evaluations of strategies to prevent hospital-acquired pressure injuries. *Advances in Skin & Wound Care, 30*, 319-333.
https://journals.lww.com/aswcjournal/Fulltext/2017/07000/Economic_Evaluations_of_Strategies_to_Prevent.8.aspx
- Patient Safety Quality Improvement. (2000-2020).
http://josieking.org/patientsafety/module_a/methods/methods.html
- Petiprin, A. (2016). Neuman's system model. <https://nursing-theory.org/theories-and-models/neuman-systems-model.php>
- Petzold, T., Eberlein-Gonska, M., & Schmitt, J. (2014). Which factors predict incident pressure ulcers in hospitalized patients? A prospective cohort study. *The British Journal of Dermatology, 1*, 1285-1290. https://www.medscape.com/viewarticle/827230_4

References

The Joint Commission, Division of Health Care Improvement. Quick Safety; an advisory on safety & quality issues. (2016). *Preventing pressure injuries*. (Issue 25).

https://www.jointcommission.org/assets/1/23/Quick_Safety_Issue_25_July_20161.PDF

Thi, T. T., Juta, H., Paul, J., & Kesteloo, L. [PowerPointslides].

<https://www.slideshare.net/jasminepaul/qi-presentation>

U.S. Centers for Medicare & Medicaid Services. Hospital-Acquired Conditions (HAC) reduction program. (n.d.). [https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-](https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/HAC/Hospital-Acquired-Conditions.html)

[Instruments/Value-Based-Programs/HAC/Hospital-Acquired-Conditions.html](https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/HAC/Hospital-Acquired-Conditions.html)

[image.slidesharecdn.com/13-150707085742-1va1-app6891/95/kurt-lewins-three-stage-](https://www.slidesharecdn.com/13-150707085742-1va1-app6891/95/kurt-lewins-three-stage-model-organizational-change-and-development-manu-melwin-joy-5-638.jpg?cb=1437059822)

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Appendix A

Pre-test

Combination of Pieper Pressure Ulcer Knowledge Test and other EBP information

For each question, mark the box for True, False, or Don't Know. # _____

	True	False	Don't know
1. Stage I pressure injuries are defined as when the skin remains intact but has erythema appearance that is nonblanchable.			
2. Some risk factors for the development of pressure injuries are immobility, incontinence, poor nutrition, and altered level of consciousness.			
3. Stage 2 pressure injuries can be an intact or serum-filled ruptured blister.			
4. Stage 2 pressure injuries are when the dermis is exposed, and there is partial-thickness skin loss.			
5. Escar is healthy tissue and is good for the wound bed.			
6. The incidence of pressure injury is so high that the government has appointed a panel to study risk, prevention, and treatment.			
7. Stage 3 is full-thickness skin loss, and the subcutaneous layers are affected.			
8. Stage 4 is full-thickness skin loss and extends into the muscle tissue and could extend to the bone.			
9. Unstageable obscures the wound bed with slough or eschar, and there is full-thickness skin loss and tissue loss.			
10. Deep tissue pressure injury has discoloration of deep red, maroon, or purple that is nonblanchable or blister that is blood-filled.			
11. A good way to decrease pressure on the heels is to elevate them off the bed.			
12. A person confined to a bed should be repositioned every 3 hours.			
13. All care given to prevent or treat pressure injuries must be documented.			
14. A low Braden score of 18 or less is associated with increased pressure injury risk.			
15. All hospitalized individuals at risk for pressure injuries should have a systematic skin inspection at least daily and those in long-term care at least once a week.			
16. It is important to massage bony prominences.			
17. All individuals should be assessed on admission to a hospital for risk of pressure injury development.			
18. An adequate dietary intake of protein and calories should be maintained during illness.			
19. Every person assessed to be a risk for developing pressure injuries should be placed on a pressure-redistribution bed surface.			
20. Slough is yellow or creamy necrotic tissue on a wound bed.			
21. A pressure redistribution surface reduces tissue interface pressure below capillary closing pressure.			
22. Blanching refers to whiteness when pressure is applied to a reddened area.			
23. Shear is the force that occurs when the skin sticks to a surface and the body slides.			
24. For persons who have incontinence, skin cleaning should occur at the time of soiling and at routine intervals.			
25. Educational programs may reduce the incidence of pressure injuries			

Appendix B

Post-test

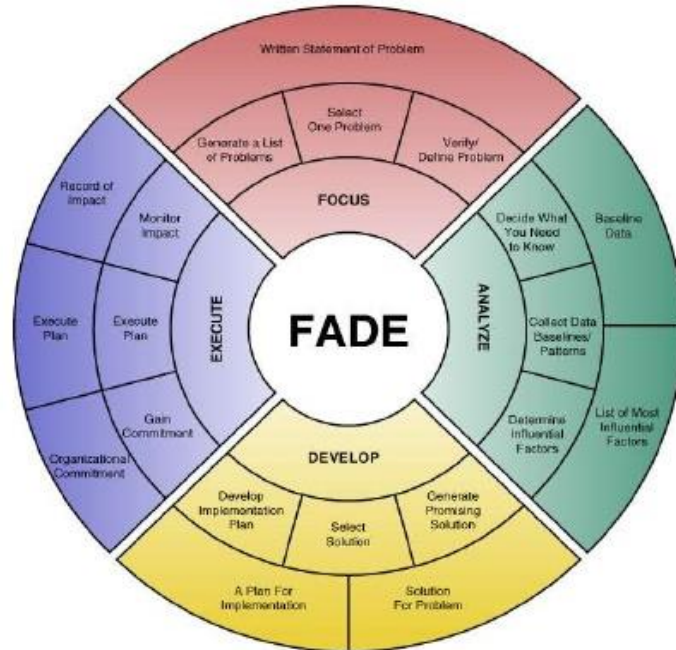
Combination of Pieper Pressure Ulcer Knowledge Test and other EBP information
For each question, mark the box for True, False, or Don't Know. #

	True	False	Don't know
1. Stage I pressure injuries are defined as when the skin remains intact but has erythema appearance that is nonblanchable.			
2. Some risk factors for the development of pressure injuries are immobility, incontinence, poor nutrition, and altered level of consciousness.			
3. Stage 2 pressure injuries can be an intact or serum-filled ruptured blister.			
4. Stage 2 pressure injuries are when the dermis is exposed, and there is partial-thickness skin loss.			
5. Escar is healthy tissue and is good for the wound bed.			
6. The incidence of pressure injury is so high that the government has appointed a panel to study risk, prevention, and treatment.			
7. Stage 3 is full-thickness skin loss, and the subcutaneous layers are affected.			
8. Stage 4 is full-thickness skin loss and extends into the muscle tissue and could extend to the bone.			
9. Unstageable obscures the wound bed with slough or eschar, and there is full-thickness skin loss and tissue loss.			
10. Deep tissue pressure injury has discoloration of deep red, maroon, or purple that is nonblanchable or blister that is blood-filled.			
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12. A person confined to a bed should be repositioned every 3 hours.			
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23. Shear is the force that occurs when the skin sticks to a surface and the body slides.			
24. For persons who have incontinence, skin cleaning should occur at the time of soiling and at routine intervals.			
25. Educational programs may reduce the incidence of pressure injuries			

Appendix C

FADE model

- → Focus
- → Analyze
- → Develop
- → Execute/Evaluate



(Thi, Juta, Paul, & Kesteloo)

Appendix D

PROJECT CONSENT FORM

Protecting the Integument: Changing nursing practice to prevent pressure injuries

I, _____, consent to participate in the following project presented by LaTonya Lawery, MSN, RN, Doctor of Nursing Practice student at Jacksonville State University (JSU). I am aware that my information will be kept confidential. I am aware that my name will not be used on the pre and post surveys.

I am also aware that I may opt-out of this project participation at any time. My participation does not reflect upon my job or position with the hospital.

I will not be rewarded or given any incentives for participating.

Print: _____

Signature: _____

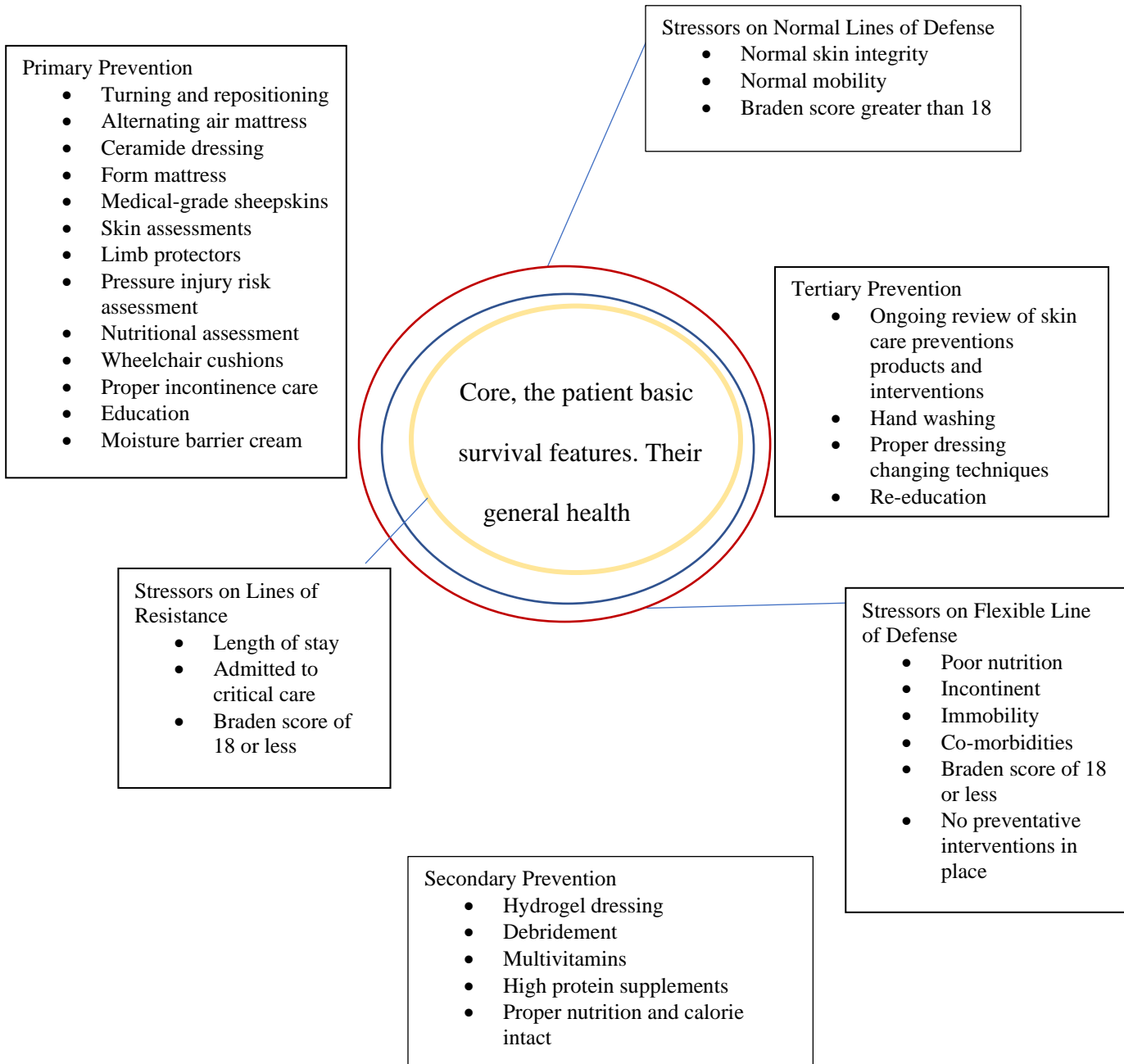
Date: _____

Three stage model



(slidesharecdn.com, 1995)

Appendix F



Petiprin (2016)

Atkinson and Cullum (2018)

Appendix G

Timeline

Table 1

Simplified Project Timeline

Tasks	Jul 19	Sep 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20	May 20	Jun 20	July 20
DNP Proposal Approval	█									
IRB Approval		█								
Project Implementation								█	█	█
Data Analysis									█	
Data Verification									█	
Data Sharing with Project Site										█
Recommendations										█
DNP Project Completion									█	
Project Submission										█