Pressure Injury Protocol

Jorilynn Lima

Touro University Nevada

DNP 767: In partial fulfillment of the requirements for the Doctor of Nursing Practice

Project Team: Dr. Alyssa Sturm DNP, APRN

Dr. Theresa Tarrant PhD, RN, CNE

October 19, 2021

Abstract

Pressure injury is a patient safety issue and is costly to healthcare organizations. The main objective of this DNP project was to implement a pressure injury protocol, evaluate staff adherence to the protocol, and to decrease the number of hospital-acquired pressure injuries. The Donabedian framework was used as a guide for the project. Protocol implementation included education of staff about the protocol and prevention of pressure injury. A chart audit of patients pre and post protocol implementation was conducted. The findings include staff participation and adherence to the protocol with a 100% shift assessment documentation, and every two hours turning documentation at 98.3%. Limitations include the 100% achievement of the post-test after the CBL education that required the nurses to re-take the test to achieve a 100%. Another limitation is the relationship of the documentation of IPOC as it relates to the Braden score where only half of the IPOC was documented during analysis. The limitation showed that even with proper documentation of the Braden score, the IPOC documentation is dependent on the Braden score so if the Braden score is less than 18, an IPOC will be documented and if the score is 20, no IPOC is documented.

Keywords: pressure injury, hospital acquired pressure injury

Table of Contents

Pressure Injury Protocol

Pressure injuries are a common issue facing healthcare facilities. Pressure injuries are a patient safety issue which can affect the length of stay (LOS) and the quality of life of the patient. The key to avoid pressure injury is prevention, although risk factors may contribute to pressure injuries even with the best intentions of the provider (Sumarno, 2019). Risk factors like age, cardiac disease, diabetes mellitus, renal disease, use of vasopressors and other comorbidities play a part in pressure injuries (Cox et al., 2020).

Pressure injury occurrences in healthcare facilities vary from stage 1 to stage 4. Stage 1 is a non-blanchable area, with redness, and change in the firmness of intact skin. Stage 2 is a partial thickness loss with exposed dermis. Stage 3 is a full-thickness wound but the muscle, tendon or bone is not exposed, and stage 4 is a full-thickness wound where you can see the bone, muscle, or tendon (Alderden et al., 2019). Stage 1 and stage 2 pressure injuries that occur in healthcare facilities need to be addressed promptly to prevent pressure injuries from progressing. In addition, deep tissue injury (DTI) or unstageable pressure injury is when the depth of the injury is not known, skin is not broken and has a purple or maroon color which progresses to stage 3 or 4 pressure injuries when it opens (Schellack, 2020). Stage 3 and 4 injuries need to be reported as an adverse event to the California Department of Public Health (CDPH) (Bartleson, 2015). These pressure injuries are treated differently and may include surgical intervention. When stage 3 or 4 pressure injuries do not close after the different conservative interventions, surgical reconstruction or flap may be considered (Braafhart et al., 2020). Pressure injury prevention includes turning the patient every two hours, two nurses assessing the skin (known as a four eyes assessment) within four hours of admission or transfer of the patient to a different unit or level of

care, shift to shift assessment, taking pictures of the pressure injury, and use of a skin assessment tool such as the Braden risk assessment tool and proper documentation (Spader, 2018).

Background

Pressure injuries are a concern in healthcare facilities and can happen at any age to patients who are medically compromised and who cannot turn on their own. Nursing care of patients to prevent pressure injury is important. This includes turning a patient every two hours in the following positions: right side, supine and left side. This also includes proper assessment and documentation (Mitchell, 2018). Pressure injury prevention is a goal in healthcare facilities due to patient outcomes and the associated costs. The cost of pressure injuries in the United States is approximately $9.1 to 11.6 billion per year (Agency for Healthcare Research and Quality [AHRQ], n.d.). The cost to treat a patient with a pressure injury ranges from $20,900 to $151,700 per pressure injury (AHRQ, n.d.). Medicare pays $43,180 per hospital stay (AHRQ, n.d.). Pressure injury lawsuits are the second most common claim for wrongful death (AHRQ, n.d.).

Interventions in place to prevent pressure injury includes assessment of the patient's skin on admission, appropriate documentation every shift using the Braden scale, and repositioning the patient every two hours to help maintain skin integrity of the patient (Cyriacks & Spencer, 2019). The Braden scale is a tool used in skin assessment which is composed of sensory perception, skin moisture, activity, mobility, nutrition, friction and shear (Chen et al., 2017).

Problem

A hospital acquired pressure injury (HAPI) increases the LOS of the patient and has a higher financial burden than patients without HAPI. On average, patients with pressure injuries cost a facility $37,288 with an average LOS of 30.4 days compared to $13,924 and 12.8 days

respectively for patients without pressure injuries (Anthony et al., 2004). HAPI contributes to an increased cost to the hospital due to fines from Centers for Medicare and Medicaid (CMS) as a "never event". A never event is an incident that happens to a patient in a hospital that can be prevented (Floyd et al., 2020). HAPIs are a reportable issue with a cost of $30,000 to $40,000 fine (Floyd et al., 2020).

The problem at the project practice site is there is not a pressure injury protocol in place and there have been an increased number of reported Stage 3 and Stage 4 pressure injuries to the CDPH. In December 2019, Risk Management and the wound care nurses reported that the unit had a deep tissue injury that evolved into a stage 4 pressure injury. In January 2020, another patient had developed a stage 3 pressure injury. The current process that is in place at the practice site is not consistent. The current process includes an initial assessment with four eyes, shift assessment, any changes in the pressure injury and the turning schedule of the patient. Past audits show that there is some improvement in the documentation of the nurses. However, there continues to be missing documentation. The missing documentation needs to be addressed in order to be compliant with the action plan submitted to CDPH.

The project lead will develop a pressure injury protocol that will be implemented by the staff nurses at the practice site. A protocol is important because it will help guide the practice in ensuring prevention and patient safety. The protocol will help reduce pressure ulcer injuries and improve documentation at the practice site.

Project Question

The project site currently does not have a pressure injury protocol in place. Using the Population, intervention, comparison, implementation and outcome (PICOT) format, the project question will seek to answer: will healthcare providers using the pressure injury prevention

protocol (P): compared with current practice (I): result in an increase in protocol adherence and identification of pressure injuries (C): comparing their understanding about pressure injury prevention before and after implementation (O): in a four-week time period (T). The project question is: will implementing a pressure injury protocol at the practice site help improve provider adherence and patient outcomes when compared to the current practice of identifying pressure injury without a specific protocol?

Search Methods

Reviewing the literature on a subject matter is important as it provides the evidence to support the Doctor of Nursing Practice (DNP) project. Literature review helps with benchmarking and identifying best practices as well as identify gaps (Bemker & Schreiner, 2016).

The Cumulative Index to Nursing and Allied Health (CINAHL), Embase, PubMed, Medline, and Elton B. Stephens Company (EBSCO) databases were searched using the keywords: elderly, pressure ulcer, pressure injury, decubitus, assessment, and prevention. Under CINAHL review of the keywords, a total of 397 articles were found. The Embase database initially found a total of 192,091 articles. After refining the search, the number of articles went from 65,981 to 12,223 and finally down to 123 articles pertinent to the search. A PubMed search initially showed 72,306 articles and the search was refined which revealed 9,495 articles. Medline at EBSCO search showed 25,249 articles using the keywords and was narrowed down revealing 6,260 articles. A good search strategy helps avoid duplication, manage the keywords, manage the databases and find the appropriate literature (Reavy, 2016). The search was further minimized to 27 articles using exclusion and inclusion criteria.

The search methods included the following inclusion criteria: 1) peer reviewed articles; 2) published between January 2015 to December 2020; 3) addressed pressure injury, assessment and prevention; and 4) articles written in English. Articles that were excluded from the search were: 1) articles that address pediatric patients; 2) articles not written in English; 3) articles that were published outside the recent five years; 4) duplicate articles; and 5) articles that addressed wounds not related to pressure injuries. The currency, relevance, authority, accuracy and purpose (CRAAP) test is a way to determine if the evaluated articles are acceptable for use in a hospital setting. Currency speaks of the timeliness of the literature, when it was published or posted; relevance is how the literature relates to the importance of the topic; authority is the source or author of the literature; accuracy speaks to the reliability of the literature and is it supported by evidence; and purpose of the literature if is it informational or trying to persuade (Meriam Library, 2010). A total of 27 articles were reviewed using the CRAAP test.

Review of Study Methods

Out of the 27 articles, there were a total of 8 articles that were eliminated; as these articles discussed prevalence and other wounds, and included articles that needed further studies, which resulted to a total of 19 articles that met the inclusion criteria. The literature reviewed included quality or performance improvement, observational study, scoping review, retrospective review, systematic and meta-analysis, descriptive study, qualitative descriptive study, interventional study, mixed method and systematic study. The performance improvement and quality improvement methods were found to be relevant to the DNP project because they will help provide the expected outcomes in preventing pressure injury, education to staff and patients, and improved quality of patient care (Aquino et al., 2019).

Systematic review is the comprehensive analysis and synthesis of the primary research based on human health and health policy (Reavy, 2016, p. 84). A meta-analysis uses quantitative study that gathers information from other studies which increases the number of variables (Reavy, 2016). Mixed method is combination of quantitative and qualitative study. Qualitative study looks at the human aspect that shapes the information and truth (Reavy, 2016). Retrospective study looks at what had happened before the study was done using existing data (Hess, 2004). Quality improvement focuses on the process and control the variants to improve the outcome (Moran et al., n.d.). Descriptive studies help to achieve a better understanding of the data (Reavy, 2016).

This DNP project will focus on quality and performance improvement. These two methodologies will be helpful when developing the pressure injury protocol for this DNP project. Performance improvement will address the skin assessment and lack of documentation (Vowden & Vowden, 2015). Quality improvement will address the nursing education and clinical judgement on how to address pressure injury (Kim et al., 2020). Quality improvement will use the documentation data from chart review to improve clinical care in reducing pressure injury (Hain, 2017).

Review Synthesis

The common concepts identified in the literature reviewed were use of the Braden scale, performance improvement, prevention, patient participation, nutrition, repositioning, nursing education and training. Current evidence shows that education of nurses, nutrition and patient participation are critical to preventing pressure injuries (Yilmazer et al., 2019). Nutrition screening within 24 hours of admission and rescreening identifies patients with unintentional weight loss, changes in appetite, and changes in laboratory values (Munoz et al., 2020).

Involving patients and families in the pressure injury prevention is critical in order to address beliefs, practice and their own understanding of pressure injury (Payne, 2016). Staff education using a competency based education focusing on pressure injury prevention and assessment of pressure injury from other wounds helps nurses with identifying early onset of pressure injury (Aquino et al., 2019).

In summary of the literature review, treatment, prevention, knowledge and understanding of the patient, training of nursing staff and communication is key in preventing pressure injury (Payne, 2016). Treatment modalities include the use of algorithms, bundles, use of technology, and equipment. Providing proper nutrition, repositioning and documentation contributes to a successful pressure injury prevention. The use of prevalence studies and root cause analysis (RCA) after a pressure injury is found helps with putting the process in place to identify the issues that need to be addressed (Black, 2019). Education, training of staff, improving knowledge base and understanding of pressure injuries is effective in increasing staff compliance in documentation and following the treatment guidelines (Vowden & Vowden, 2015).

In the education and training of staff, the use of competency-based education and didactic education in two hour increments helps the nurses retain the subject matter but providing training longer than two hour increments makes it hard for the nurses to retain information. Active learning is lasting and providing breaks helps during learning (Mcguire, n.d.). Things initially learned are improved and has better recall during the second time it is discussed (Ariel & Dunlosky, 2010). Just in time training also helps with addressing skin issues at the bedside (Nelson et al., 2019). Just in time training is used by preceptors when they identify a gap in the nurse's knowledge and the orientation needs to be flexible (Nelson et al., 2019). The use of Braden risk scale based on the literature review was not as promising compared to the

Jackson/Cubbin scale in predicting pressure injury for critically ill patients (Higgins et al., 2020). In addition, further literature reviewed revealed the Braden scale showed low validity due to the therapeutic nursing interventions being done (Wilchesky & Lungu, 2015).

Impact of the Problem

The literature review showed there are a number of studies that aim to minimize or prevent pressure injuries using different modalities that can be replicated (Roberts et al., 2016). The nurses' positive attitude towards learning and performing also contributes to a successful protocol (Barakat-Johnson et al., 2018).

One gap in quality that is noted at the practice site is the nursing documentation. The lack of nursing documentation did not include interventions on prevention of pressure injury at the practice site. Documentation is of importance as this is a way that healthcare providers communicate with each other regarding a patient which includes change from the patient baseline (Teytelman, 2002).

Addressing the Problem with Current Evidence

A pressure injury protocol will help address deficits in documentation of pressure injuries by nursing staff. Nursing staff needs to be educated on the proper assessment and documentation of pressure injuries consistently (Team et al., 2019). Active participation of nurses in addressing pressure injury and documentation helps decrease the incidence of hospital acquired pressure injury (HAPI) (Roberts et al., 2016). Early patient referral to a wound care specialist helps mitigate further skin damage and wound care specialists know how to address the psychological issues that the patient is going through (Annesley, 2019). Documentation needs to include patient handoff and risk of pressure injury to the next nurse (Agency for Research and Quality [AHRQ], n.d.).

Literature Theme Development

Prevention

Prevention is the key to not having any pressure injuries. Part of preventive care is nursing knowledge, nutrition and patient's willingness to participate in their own care (Mitchell, 2018). Identification of opportunities to improve nursing education and practice is key to preventing pressure injury (Barakat-Johnson et al., 2018). Patient participation in their care, and explanation of pressure injury prevention which includes repositioning, healthy eating, and mobilization is important (Hultin et al., 2019). Patients may refuse to participate in their care and nurses should investigate why the patient does not want to participate (AHRQ, n.d.). The nurse also needs to document the patient's refusal to participate, refusal to reposition and explain to patient the importance of repositioning (AHRQ, n.d.).

Nutrition

Nutrition is essential to health and lack of nutrition affects the skin which is associated with pressure injury (Munoz et al., 2020). Nursing education and knowledge gained from training helped the nurses to teach patients and families about pressure ulcers and how to prevent them from occurring (Feng et al., 2016). At risk patients need to be monitored for signs of malnutrition, dehydration, laboratory values that need to be addressed with the physician (Mitchell, 2018).

Documentation

Documentation of pressure injuries includes the location of the pressure injury, size, exudate if any, tunneling, skin color, temperature, inflammation, odor, pain, turgor and the surrounding area (Kačalová & Žiaková, 2019). This is part of the National Pressure Injury Advisory Panel (NPIAP), European Pressure Ulcer Advisory Panel (EPUAP) and Pan Pacific

Pressure Injury Alliance (PPPIA) recommendations. These advisory panels are in agreement that pressure injuries or pressure ulcers are classified into four grades (stage 1 to 4) and two separate stages, unknown depth and suspected deep tissue injury (Kačalová & Žiaková, 2019). Accurate documentation provides continuity of care, improved communication, accountability and responsibility to address any questions or issues in a complaint or litigation (Vowden & Vowden, 2015).

Project Aims

Specific, measurable, attainable, relevant and timely (SMART) goals were used to define the aims of the project (Bjerke & Renger, 2017). This DNP project aims to provide a protocol for nurses at the practice site to implement when doing a complete initial skin assessment. This project aims to educate the nurses at the practice site on the appropriateness of documentation. In addition, the project aims to decrease the incidence of pressure injuries in the unit within a one-month timeframe.

Project Objectives

The objectives of this DNP project include:

1. Develop a pressure injury protocol based on the evidence to be implemented by staff nurses at the practice site
2. Provide an education training on the pressure injury protocol to nursing staff
3. Evaluate if there is an increase in pressure injury documentation
4. Evaluate compliance of staff nurses use of pressure injury protocol by performing a chart audit after the 4-week implementation.

Theoretical Framework

The Donabedian framework (Appendix A) will support this DNP project. The Donabedian framework is based on three tenets which includes structure, process and outcome (SPO). A sound structure leads to good process which leads to good outcome (Ameh et al., 2017). The framework looks at "prevention, rehabilitation, coordination of care, physician-patient relationship, societal values and economic efficiency" (Ayanian & Markel, 2016, p. 206). Patient-centered care and value based payment were outcomes of the Donabedian framework (Ayanian & Markel, 2016).

Historical Development of the Theory

The Donabedian framework was developed by Avedis Donabedian. He was a physician who was hired by the School of Public Health at the University of Michigan (Best & Neuhauser, 2004). In 1966, Donabedian wrote Evaluating the Quality of Medical Care which was published by the Milbank Quarterly (Donabedian, 2005). The article discussed the structure, process and outcome of quality health care (Donabedian, 2005). Donabedian's framework evaluated the quality of the physician-patient relationship (Donabedian, 2005). The article focused on the methods and evaluation of the methods to provide a guide in the assessment of quality of medical care (Donabedian, 2005). Donabedian focused on the importance of standards that can lead to quality outcomes that can be replicated (Ayanian & Markel, 2016).

Application to DNP Project

There are three tenets of the Donabedian framework which will support the DNP project. These tenets must be fully explored and then related to the DNP project in order to adequately assess the project implementation.

Major tenet of the theory

There are several tenets of the Donabedian framework which include structure, process and outcome (Hall & Roussel, 2016). Each tenet is linked to each other and provides a guideline to improve quality care. Resources like equipment, medical supplies, adequate staffing and organizational support helps the nursing staff meet the goal of providing quality care (LoPorto, 2020).

Structure

Structure is the physical and the organizational aspect of care settings which includes the equipment, staff, finance, operations, facilities that support the care of the patient (McDonald et al., Jun 2007). The structure of this project includes the medical unit of the practice site, nursing staff, wound care nurses, maintenance staff, and support staff which includes the house supervisor, food and nutrition staff, medical records and environmental services staff. Medical records and the electronic health record (EHR) provide the source of information needed in the project (Donabedian, 2005). The finance part of structure is the budget of the unit. Operations include the day-to-day operations. Equipment and other resources will be the wound care items that will be needed when a patient has pressure injury. Structure is the setting, the administrative system and the providers where care is provided (Ayanian & Markel, 2016).

Process

Process pertains to the care of the patient, what the care entails, and it is in the middle of the Donabedian framework diagram because it needs the organization to provide resources to do the work (McDonald et al., Jun 2007). The project site provides the needed staff to care for the patient based on the staffing grid. At the project site medical floor, the staffing ratio is 1:5 which

means one nurse for every five patients. In order to properly care for the patient, the unit must have enough nursing staff to provide the care. For a patient with a pressure injury, the nurse needs to do the assessment of the wound, check the physician orders and the recommendation from the wound care nurse on how to do the dressing change. In this example, the nurse will need the wound care supplies available in order to complete the dressing change. The nurse may also have to premedicate the patient if the patient experiences pain when dressing change is done. New tools implemented and practices used in the care of the patient is also a part of the Donabedian process (LoPorto, 2020).

Outcome

Donabedian discussed the validity of outcome as the recovery, restoration and survival and with it comes limitations like disability after survival (Donabedian, 2005). There are several outcomes that can be derived from the pressure injury protocol. The first outcome is the full recovery of the patient, with the pressure injury healing properly prior to discharge. The second outcome is the complete documentation of the nurses during the stay of the patient when a chart review is done. The third outcome is the decrease in the number of pressure injuries in the unit. The fourth outcome is physician collaboration and adherence to the project. In addition, Donabedian stated that some outcomes are easy to measure like death (Donabedian, 2005, p. 693).

Setting

The setting will take place in a 600 bed Magnet designated hospital in southern California. The Magnet recognition program is a roadmap to nursing excellence including autonomy, and education awarded by the American Nurses Credentialing Center (ANCC) (American Nurses Credentialing Center [ANCC], n.d.). The project site just completed the third

Magnet survey in January which was done virtually. Due to the current pandemic, the virtual Magnet visit is dynamic, and nurses rise to the challenge using innovation and determination (Phan & Radovich, 2020). The practice site is a 25-bed medical unit that admits patients with diagnoses like nausea, vomiting, diarrhea, wound care, chronic pain, diverticulitis, and pancreatitis, to name a few. The practice site utilizes Cerner, an electronic health record (EHR). There were incentives associated with meaningful use for healthcare facilities to move to an electronic health record, which collect and store the data which makes it accessible to healthcare providers (Diez Roux et al., 2015).

Population of Interest

A population is made of people and may be the patients, the physicians, the nurses, and staff (Sylvia & Terhaar, 2018, p. 98). It is counted as a unit of analysis based on the perception of the experience of the person (Sylvia & Terhaar, 2018). The population of interest consists of the direct and indirect population. The direct population of interest for this DNP project are the Registered Nurses (RN), the Patient Care Associate (PCA), the Patient Flow Coordinator (PFC) and the student nurses. The PCA are also known certified nurse assistants (CNA) or aides. The PFC are charge nurses. The 25-bed Medical unit practice site has twenty nurses, fourteen PCAs and four PFCs. The unit secretary and the Clinical Supervisor will be excluded from the project. The indirect population of interest for this DNP project are the patients. The ages of the patients in this DNP project are from 18 and above.

Stakeholders

There are different types of stakeholders: the influencer who is able to influence the operations of the organization; the claimant who wants the interests, rights, and titles; the collaborator who cooperates with the organization regardless of the power to influence or claim

on resources; and the recipient who is affected by the actions of others in the organization (Miles, 2015).

The key stakeholders that will be involved in the project are the clinical supervisor, wound care nurses and director. The clinical supervisor will be the one to ensure the unit has proper staffing. The project lead will report to the director of how the project is going. The wound care nurses together with the project lead will support the work of the nurses during the project.

An affiliation agreement (Appendix B) was needed between the university and the practice site to implement the project. An affiliation agreement represents two entities working together to promote partnerships, as well as promote cultures of inquiry to support the staff nurse to be involved in research and innovation (Vlasses, 2008).

Interventions

An intervention is defined as an action to help improve a situation or medical condition (Oxford University Press, 2021). In developing the interventions for the DNP project, it is important that it can meet the project objectives.

The interventions for the DNP project include:

1. The project lead will develop a pressure injury pre and post-test for the staff nurses. The objective of the pre-test is to gauge the understanding and knowledge of the nurse on pressure injury prevention and documentation. The post-test will be used to evaluate if the nurses gained additional knowledge about pressure injury prevention after an educational presentation.
2. An educational PowerPoint presentation was developed by the project lead. The PowerPoint presentation will be used to educate the nurses after taking the pre-

test. The presentation will also include the importance of documentation, taking photographs of the skin and continuous monitoring of the patient's skin to prevent further breakdown.

3. A pressure injury protocol was developed by the project lead. The pressure injury protocol is a guideline for the nurses to follow as part of their assessment and documentation. It is a guide that even a novice nurse can easily understand and follow.
4. The project lead will meet with stakeholders at the practice site and discuss the pressure injury protocol.

Tools

Chart Audit Tool

A review of the available tools at the practice site was completed and one tool was chosen to be used as part of the DNP project. The tool which will be used is the chart audit tool. The variables in the tool are: patient identification, sex, age, Braden score, plan of care, two-hour turning, shift assessment, pressure injury site, pressure injury measurement, four eye documentation on admission, picture of pressure injury on admission, four eye documentation on discharge, picture on discharge, wound consult, initiation of treatment and documentation per Certified Wound Oncology Nurse (CWON) recommendation, date of audit, comments, name of nurse. The project site chart audit tool was revised by the project lead with the permission of the wound care manager (Appendix). The revised chart audit tool is an Excel spreadsheet that shows the different variables that the project leader will be looking at when doing the audits. An effective way of addressing issues in the clinical setting is by doing audits which paves the way for collaboration and an important toolkit to help improve quality outcomes (Shuldham, 2017).

Pre and Post-Test

Pre and post-tests help gauge the knowledge gained from training or education (Shivaraju et al., 2017). The pre and post-test is a questionnaire that the project lead developed. The nursing staff will be asked to complete the questionnaire both pre-implementation and post-implementation of the educational presentation. The pre and post-test will measure staff knowledge and understanding of pressure injury. The questionnaire contains six questions about skin assessment and pressure injury prevention. The wound care team and their manager will review and provide their feedback prior to having the project team and project mentor validate the tool. In order to ensure that the questionnaire is relevant to the project, a content validity index (CVI) was performed by the project lead and submitted to the project team for validation. Content Validity (CV) pertains to the tool, the survey, or a simulation scenario to check for an adequate prepared definition of the objectives and outcomes (Rutherford-Hemming, 2015). The mean total is 3.72 indicating that the questions are relevant.

PowerPoint Presentation

A PowerPoint presentation may improve the teaching and learning experience of students and teachers, and help facilitate the structure of the presentation professionally. In addition, a PowerPoint presentation may appeal to different learning styles and create interest, with the format allowing for easy distribution to the students (Hashemi et al., 2012). The PowerPoint presentation (Appendix F) will be developed by the project lead and used to provide education to the nursing staff. The PowerPoint presentation is based on evidence-based literature and will include the input of the wound care team at the practice site. The PowerPoint will provide detailed information about the pressure injury protocol and the need for education of nurses

about pressure injury prevention. The PowerPoint presentation hand-out will be provided to the nursing staff during the education process.

Pressure Injury Protocol

The project lead will develop the pressure injury protocol using evidence-based practice. The protocol will be shared with the project mentor and the wound care team to provide additional information. The nursing staff will implement the pressure injury protocol. The protocol is a checklist of what the nurse will do on admission or transfer of a patient to identify, or promote continued interventions for pressure injury.

Study of Interventions/Data Collection

The project lead will conduct chart audits of data collection in the implementation phase of the DNP project. To maintain confidentiality of the patient information, each chart will be assigned a combination of a letter and number system. An electronic medical record (EMR) is in place at the practice site. The benefits of the EMR are improved quality of care, efficiency and convenience of care (Office for Civil Rights [OCR], n.d.). The project lead will conduct the chart audit four weeks following the implementation of the pressure injury protocol on the medical unit by the staff nurses. The chart audit will monitor the compliance of the nurses in following the protocol. The documentation of the nurses will be audited to see if there is a relationship between the documentation and increase in the number of pressure injuries. The staff nurses will be assigned a number system to protect their privacy and maintain confidentiality. Pre and post-test data will be collected and evaluated to determine if the knowledge gained is applied during the implementation.

Ethics/Human Subjects Protection

The Institutional Review Board (IRB) performs the regulative review and the ethical review (Rhodes, 2016). The purpose of the IRB is to protect the rights and welfare of the people who participate as subjects in the research (Food and Drug Administration [FDA], 1998). There is no Institutional Review Board (IRB) approval needed by the practice site as this is a quality improvement (QI) project and no re research is being done. The QI project received approval from the Director of Research and Innovation at the practice site. The IRB determination forms were completed and submitted to the Touro University Nevada (TUN project team for review to ensure this project meets te criteria for a QI project. There will be no compensation for the participants of the QI project. Participation of nursing staff is mandatory. The QI project will include a review of patient charts using a combination of letter and number system to assure confidentiality. Ethical issues deal with policy, procedures, and rules that govern the behavior of humans. A project lead has a responsibility to protect the confidentiality of participants and patient information, and respect the rights of all individuals throughout the project.

Measures/Plan for Analysis

In the analysis phase of the project, t-test will be used to evaluate the pre and post-test scores of the nurses. A t-test is used when there are two groups of data and a comparison of the mean score is needed (Pallant, 2020). The assumption from the pre and post-test data is that there will be an improvement on the scores of the test. The data collected from the chart audit will be evaluated using a non-parametric test to see if the protocol was followed. In evaluating the strength of the relationship between two variables, in repeated measures, a non-parametric test is used (Pallant, 2020, p. 222). The assumption from the data collected from the chart audit is that there will be a decrease in hospital acquired pressure injuries. The IBM Statistical Package for

Social Sciences (SPSS) Statistics software program version 27 will be used to analyze the data. There may be a need for a statistician who will review and analyze the data. The project lead will be the one to hire the statistician.

Analysis of Results

The mean overall score on the pre-test was 70% (95% CI: 63.4 – 76.5%) with a standard deviation of 13.89 and a range of 50-100%. This means that, on average, nurses answered two questions incorrectly. After the educational training, post-test scores indicated a higher mean overall score of 80% (95% CI: 74.0 – 86.0%) with a standard deviation of 12.80 and a range of 67-100%. On average, nurses answered only one question incorrectly during the post-test. A one-tailed *t*-test showed that this increase in score was statistically significant ($t(19) = 2.04$, $p = 0.03$). In other words, these results would only be expected to happen by chance in 3% of random samples.

Table 1

Results Comparison of Pre and Post Test Scores

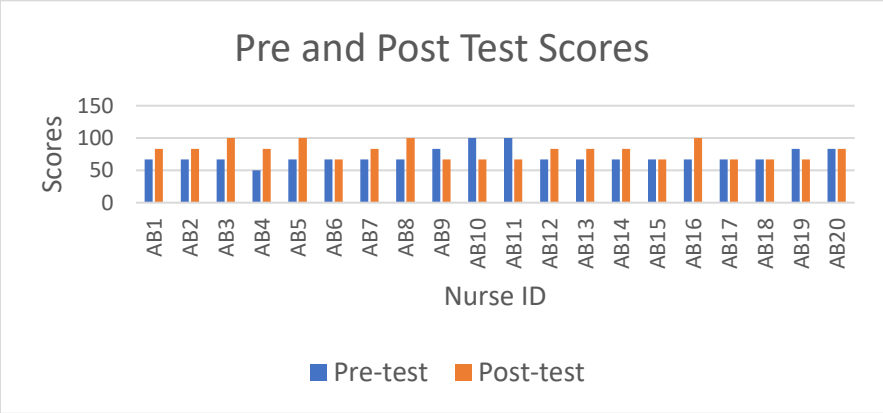


Table 2 shows the number of correct and incorrect responses to each question in both the pre- and post-tests. Two questions (Q2 and Q3) witnessed a two-fold increase in the number of

correct responses, while two others (Q1 and Q5) actually produced a decrease in the number of correct responses.

Table 2

Responses Provided by Nurses on Pre-and Post-Tests Measuring Knowledge of Pressure Injury Prevention

		Pre-Test		Post-Test	
Question		Correct	Incorrect	Correct	Incorrect
1	Appropriate skin assessment(s) for pressure injury	19 (95%)	1 (5%)	16 (80%)	4 (20%)
2	Appropriate assessment(s) for redness on bilateral heels	6 (30%)	14 (70%)	13 (65%)	7 (35%)
3	Component(s) of skin documentation for discoloration	7 (35%)	13 (65%)	14 (70%)	6 (30%)
4	Frequency of turning for redness	18 (90%)	2 (10%)	18 (90%)	2 (10%)
5	Timing of wound care consultation	19 (95%)	1 (5%)	16 (80%)	4 (20%)
6	Initiation of pressure injury plan of care	15 (75%)	5 (25%)	19 (95%)	1 (5%)

In total, 60 charts were audited prior to the implementation of a pressure injury protocol and 60 charts were audited four weeks after the educational training and implementation. These chart audits showed that, prior to the implementation of a pressure injury protocol, nurses documented the shift assessments (98.3%), four eyes documentation (81.7%), and turning every two hours

(73.3%) for the majority of patients. The Braden score and initiation of an individualized plan for care (IPOC) were only documented in approximately half of the charts (46.7% and 51.7%, respectively). Each of these aspects of documentation improved after the educational training and implementation of the protocol, with shift assessments reaching 100% documentation and turning approaching complete documentation (98.3%). However, only turning every two hours showed a statistically significant improvement after implementation ($x^2 = 15.42$, $p = 0.000$). Documentation of the Braden score, four eyes documentation, and initiation of IPOC also did not demonstrate any statistically significant improvement; the small improvements seen among these may have been due to chance. For example, the *p* value of the change in Braden score documentation ($p = 0.27$) indicates that, had there been no impact from the intervention provided, 27% of random samples would have demonstrated a change equal to that which was observed.

Table 3.

Pearson's Chi-Squared Statistics Comparing Proportion of Charts with Documentation Among Pre- and Post-Implementation Audits

	Pre-Implementation		Post-Implementation		X^2	*P*
	Yes	No	Yes	No		
Braden score	28 (46.7%)	32 (53.3%)	34 (56.7%)	26 (43.3%)	1.20	0.27
Shift assessments	59 (98.3%)	1 (1.7%)	60 (100.0%)	0 (0.0%)	1.01	0.31
Four eyes documentation	49 (81.7%)	11 (18.3%)	53 (88.3%)	7 (11.7%)	1.04	0.31
Two hour turning	44 (73.3%)	16 (26.7%)	59 (98.3%)	1 (1.7%)	15.42	0.00
IPOC initiated	31 (51.7%)	29 (48.3%)	33 (55.0%)	27 (45.0%)	0.13	0.71

Discussion of Findings

The Donabedian theory has three domains: structure, process and outcome (Ayanian & Markel, 2016). One of the objectives of the DNP project was to develop a pressure injury protocol that the nurses will implement at the project site. Developing the protocol provided the structure that the nurses need to ensure proper assessment and documentation is done. The project lead developed a pressure injury protocol that the nurses were educated on. Based on the chart audit results, the nurses followed the pressure injury protocol and there was improved compliance from the nurses in following the protocol. A customized protocol helps drive the sustainability of the change in practice (Prasad et al., 2020).

The process domain was addressed during education of the nurses and chart audits. Another project objective of the DNP project was to provide education training on pressure injury protocol to the nursing staff. A CBL education was provided and just in time training done with the staff regarding the protocol and pressure injury prevention.

The outcome domain involved the pre and post-test results, chart audit, and the audit results. The increase in the knowledge of the nurses about pressure injuries and its prevention is based on the data gathered. This was observed on the post-test after the nurses did the CBL education and just in time training performed by project lead. The post-test showed the overall score of the nurses at 80% is statistically significant. The other project objective was to evaluate the compliance of the nurses use of the pressure injury protocol by performing a chart audit and to evaluate if there is an increase in pressure injury documentation. The chart audits showed that there was an increase in pressure injury documentation of the nurses after the education. The nurses' documentation did not show a statistically significant improvement due to the N of 60.

There were no pressure injuries noted during the chart audits after the implementation of the protocol was done showing improved compliance to the pressure injury protocol.

The DNP project will assist nursing and the organization decrease hospital acquired pressure injuries. It will help the organization in decreasing the costs and CDPH reporting of stage 3 or stage 4 hospital acquired pressure injuries. It will help nursing increase time spent on quality patient care. The DNP project can be replicated in the other units to help increase compliance in nursing documentation to prevent pressure injuries. The patient and the nursing population in the unit is diverse. The patient and nursing population consists of different cultures, race and gender preference. Diversity of the patients create a unique working environment where the awareness of the differences between patients by the nurses together with the management of the differences creates a great advantage, thereby increasing productivity (Starc & Erjavec, 2017).

Limitations

Limitations were identified within this project. One limitation of the project is the post-tests all achieved a 100% result after the CBL education. The CBL education required a perfect score to pass and all nurses would re-take the test until 100% result was achieved, skewing the results of the project. To correct this, the project lead ignored the artificial results and recover the raw test results in order to have valid data for the analysis. Another limitation is the documentation of the IPOC as it relates to the Braden score. The analysis showed that only half of the IPOCs were documented. Braden scores were documented by the nurse every shift as part of their assessment. The chart audit asks if the Braden score is 18 or less. If the Braden score is higher than 18, the nurse do not have to document an IPOC because the patient is not high risk. The limitation lies in the fact that even with the proper documentation of the nurse of a Braden

score, the IPOC documentation is dependent on the specific Braden score. Per the organization's clinical policy, the nurse will document the IPOC based on Braden scores of 18 or less so if a patient's Braden score is 20, no IPOC will be documented.

Dissemination

Dissemination of project findings will be conducted using a PowerPoint presentation and poster presentation. The project lead will present a PowerPoint Presentation to the stakeholders, the nursing leadership of the host organization as well as the unit where the project was implemented. Sharing the information gathered from the project with the nurses at a staff meeting will allow the nurses to review the data and how their hard work affected the goal outcome of no hospital acquired pressure injuries. There will also be a PowerPoint presentation to the Touro University Nevada faculty and colleagues. The project lead will submit an abstract for a poster presentation to the Association of Rehabilitation Nurses (ARN) conference in 2022, the Wound, Ostomy, and Continence Nurses Conference (WOCNext) and the Annual Reasearch Nursing Symposium at the host organization.

Project Sustainability

Project sustainability will be achieved through continuous audits, providing education and mentoring the project site nurses. This will aid in the prevention of future pressure injuries as well as continued improvement of documentation. In order to sustain the project at the project site, the plan is to slowly integrate the Pressure Injury Protocol and education to the other units. The project lead will train the clinical supervisors in the different units of the project site on how to conduct the chart audits.

References

Agency for Research and Quality. (n.d.). *Preventing pressure ulcers in hospitals* (Content last reviewed October 2014). Agency for Healthcare and Quality, Rockville, MD. https://ahrq.gov/patient-safety/settings/hospital/resource/pressureulcer/tool/index.html

Alderden, J., Zhao, Y., Thomas, D., Butcher, R., Gulliver, B., & Cummins, M. (2019). Outcomes associated with stage 2 pressure injuries among surgical critical care patients: A retrospective cohort study. *Critical Care Nurse*, *39*(4), 13–19. https://doi.org/10.4037/ccn2019598

Ameh, S., Gómez-Olivé, F., Kahn, K., Tollman, S. M., & Klipstein-Grobusch, K. (2017). Relationships between structure, process and outcome to assess quality of integrated chronic disease management in a rural south african setting: Applying a structural equation model. *BMC Health Services Research*, *17*(1). https://doi.org/10.1186/s12913-017-2177-4

American Nurses Credentialing Center. (n.d.). *Magnet Recognition Program*. Retrieved March 15, 2021, from https://www.nursingworld.org/organizational-programs/magnet/

Annesley, S. H. (2019). Current thinking on caring for patients with a wound: A practical approach. *British Journal of Nursing*, *28*(5), 290–294. https://doi.org/10.12968/bjon.2019.28.5.290

Anthony, D., Reynolds, T., & Russell, L. (2004). The role of hospital acquired pressure ulcer in length of stay. *Clinical Effectiveness in Nursing*, *8*(1), 4–10. https://doi.org/10.1016/j.cein.2004.02.002

Aquino, C., Owen, A., Predicce, A., Poe, S., & Kozachik, S. (2019). Increasing competence in pressure injury prevention using competency-based education in adult intensive care unit.

Journal of Nursing Care Quality, *34*(4), 312–317. https://doi.org/10.1097/ncq.0000000000000388

Ariel, R., & Dunlosky, J. (2010). The sensitivity of judgment-of-learning resolution to past test performance, new learning, and forgetting. *Memory & Cognition*, *39*(1), 171–184. https://doi.org/10.3758/s13421-010-0002-y

Ayanian, J. Z., & Markel, H. (2016). Donabedian's lasting framework for health care quality. *New England Journal of Medicine*, *375*(3), 205–207. https://doi.org/10.1056/nejmp1605101

Barakat-Johnson, M., Barnett, C., Wand, T., & White, K. (2018). Knowledge and attitudes of nurses toward pressure injury prevention. *Journal of Wound, Ostomy and Continence Nursing*, *45*(3), 233–237. https://doi.org/10.1097/won.0000000000000430

Bartleson, B. (2015). *CDPH clarifies hospital reporting on pressure ulcers, deep tissue injuries* (February 19, 2015) [AFL 15-03]. California Hospital Association.

Bemker, M., & Schreiner, B. (2016). *The dnp degree & capstone project a practical guide* (1st ed.). DEStech Publications, Inc.

Best, M., & Neuhauser, N. (2004). Avedis Donabedian: father of quality assurance and poet. *Quality Safety Health Care*, *13*, 472–473. https://doi.org/10.1136/qshc.2004.012591

Bjerke, M., & Renger, R. (2017). Being smart about writing smart objectives. *Evaluation and Program Planning*, *61*, 125–127. https://doi.org/10.1016/j.evalprogplan.2016.12.009

Black, J. M. (2019). Root cause analysis for hospital-acquired pressure injury. *Journal of Wound, Ostomy and Continence Nursing*, *46*(4), 298–304. https://doi.org/10.1097/won.0000000000000546

Braafhart, M., de Laat, H. E., Wagner, T., van de Burgt, E. W., Hummelink, S., & Ulrich, D. J. (2020). Surgical reconstruction of pressure ulcers in spinal cord injury individuals: A single- or two-stage approach? *Journal of Tissue Viability*, *29*(4), 319–323. https://doi.org/10.1016/j.jtv.2020.08.004

Chen, H.-L., Cao, Y.-J., Zhang, W., Wang, J., & Huai, B.-S. (2017). Braden scale (alb) for assessing pressure ulcer risk in hospital patients: A validity and reliability study. *Applied Nursing Research*, *33*, 169–174. https://doi.org/10.1016/j.apnr.2016.12.001

Cyriacks, B., & Spencer, C. (2019). Reducing HAPI by cultivating team ownership of prevention with budget-neutral turn teams. *MedSurg Nursing*, *28*(1), 48–52.

Diez Roux, A. V., Katz, M., Crews, D. C., Ross, D., & Adler, N. (2015). Social and behavioral information in electronic health records. *American Journal of Preventive Medicine*, *49*(6), 980–983. https://doi.org/10.1016/j.amepre.2015.08.027

Donabedian, A. (2005). Evaluating the quality of medical care. *Milbank Quarterly*, *83*(4), 691–729. https://doi.org/10.1111/j.1468-0009.2005.00397.x

Feng, H., Li, G., Xu, C., & Ju, C. (2016). Educational campaign to increase knowledge of pressure ulcers. *British Journal of Nursing*, *25*(12), S30–S35. https://doi.org/10.12968/bjon.2016.25.12.s30

Floyd, E., Hodgkins, R., Naylon, L., Noon, M., Sirotti, L., & Monaro, S. (2020). The costs and benefits of pressure injury point prevalence auditing. *Wound Practice and Research*, *28*(2). https://doi.org/10.33235/wpr.28.2.66-74

Food and Drug Administration. (1998). *Institutional Review Boards frequently asked questions* (Current as of 4/18/2019). https://www.fda.gov/regulatory-information/search-fda-guidance-documents/institutional-review-boards-frequently-asked-questions

Hain, D. J. (2017). Focusing on the fundamentals: comparing and contrasting nursing research and quality improvement. *Nephrology Nursing Journal*, *44*(6), 541–544.

Hall, H. R., & Roussel, L. A. (2016). *Evidence-based practice: An integrative approach to research, administration, and practice* (2nd ed.). Jones & Bartlett Learning.

Hashemi, M., Azizinezhad, M., & Farokhi, M. (2012). Power point as an innovative tool for teaching and learning in modern classes. *Procedia - Social and Behavioral Sciences*, *31*, 559–563. https://doi.org/10.1016/j.sbspro.2011.12.103

Hess, D. (2004). Retrospective studies and chart reviews. *Respir Care*, *49*(10), 1171–1174.

Higgins, J., Casey, S., Taylor, E., Wilson, R., & Halcomb, P. (2020). Comparing the braden and jackson/cubbin pressure injury risk scales in trauma-surgery icu patients. *Critical Care Nurse*, *40*(6), 52–61. https://doi.org/10.4037/ccn2020874

Hultin, L., Karlsson, A.-C., Öhrvall, M., & Gunningberg, L. (2019). Information and communication technology can increase patient participation in pressure injury prevention. *Journal of Wound, Ostomy and Continence Nursing*, *46*(5), 383–389. https://doi.org/10.1097/won.0000000000000568

Kačalová, K., & Žiaková, K. (2019). The issue of documenting pressure ulcers: Literary review. *Kontakt*, *21*(3), 254–262. https://doi.org/10.32725/kont.2019.034

Kim, G., Park, M., & Kim, K. (2020). The effect of pressure injury training for nurses: A systematic review and meta-analysis. *Advances in Skin & Wound Care*, *33*(3), 1–11. https://doi.org/10.1097/01.asw.0000653164.21235.27

LoPorto, J. (2020). Application of the donabedian quality-of-care model to new york state direct support professional core competencies: How structure, process, and outcomes impacts

disability services. *Journal of Social Change*, *12*(1). https://doi.org/10.5590/josc.2020.12.1.05

McDonald, K., Sudaram, V., & Bravata, D. (Jun 2007). *Closing the quality gap: a critical analysis of quality improvement strategies* (Vol. 7: Care Coordination). Rockville (MD): Agency for Healthcare Research and Quality.

Mcguire, S. Y. (n.d.). *Teach students how to learn: Strategies you can incorporate into any course to improve student metacognition, study skills, and motivation*. Stylus Publishing.

Meriam Library. (2010). *Evaluating information - applying the CRAAP test*. California State University, Chico. https://library.csuchico.edu/sites/default/files/craap-test.pdf

Miles, S. (2015). Stakeholder theory classification: A theoretical and empirical evaluation of definitions. *Journal of Business Ethics*, *142*(3), 437–459. https://doi.org/10.1007/s10551-015-2741-y

Mitchell, A. (2018). Adult pressure area care: Preventing pressure ulcers. *British Journal of Nursing*, *27*(18), 1050–1052. https://doi.org/10.12968/bjon.2018.27.18.1050

Moran, K. J., Burson, R., & Conrad, D. (2019). *The doctor of nursing practice project: A framework for success* (3rd ed.). Jones & Bartlett Learning.

Moser, A., & Korstjens, I. (2017). Series: Practical guidance to qualitative research. part 3: Sampling, data collection and analysis. *European Journal of General Practice*, *24*(1), 9–18. https://doi.org/10.1080/13814788.2017.1375091

Munoz, N., Posthauer, M., Cereda, E., Schols, J. A., & Haesler, E. (2020). The role of nutrition for pressure injury prevention and healing: The 2019 international clinical practice guideline recommendations. *Advances in Skin & Wound Care*, *33*(3), 123–136. https://doi.org/10.1097/01.asw.0000653144.90739.ad

Nelson, D. M., Joswiak, M., & Brake, K. A. (2019). “just in time” training for novice preceptors. *Journal for Nurses in Professional Development*, *35*(4), 228–231. https://doi.org/10.1097/nnd.0000000000000562

Nosek, B. A., & Errington, T. M. (2017). Making sense of replications. *eLife*, *6*. https://doi.org/10.7554/elife.23383

Office for Civil Rights. (n.d.). *Privacy, security and electronic health records*. United States Department of Health and Human Services. https://www.hhs.gov/sites/default/files/ocr/privacy/hipaa/understanding/consumers/privacy-security-electronic-records.pdf

Oxford University Press. (2021). *Intervention*. Oxford Learners Dictionary. Retrieved April 24, 2021, from https://www.oxfordlearnersdictionaries.com/us/definition/english/intervention?q=intervention

Pallant, J. (2020). *Spss survival manual: A step by step guide to data analysis using ibm spss* (7th ed.). Open University Press.

Payne, D. (2016). Strategies to support prevention, identification and management of pressure ulcers in the community. *British Journal of Community Nursing*, *21*(Sup6), S10–S18. https://doi.org/10.12968/bjcn.2016.21.sup6.s10

Phan, R., & Radovich, P. (2020). Achieving american nurses credentialing center magnet® designation with a virtual site visit. *JONA: The Journal of Nursing Administration*, *50*(12), e12–e13. https://doi.org/10.1097/nna.0000000000000948

Prasad, S., Hussain, N., Sharma, S., Chandy, S., & Kurien, J. (2020). Impact of pressure injury prevention protocol in home care services on the prevalence of pressure injuries in the

dubai community. *Dubai Medical Journal*, *3*(3), 99–104. https://doi.org/10.1159/000511226

Reavy, K. (2016). *Inquiry and leadership: A resource for the dnp project* (1st ed.). F.A. Davis Company.

Rhodes, R. (2016). The goodness of ethics in research ethics review. *Journal of Medical Ethics*, *44*(7), 489–490. https://doi.org/10.1136/medethics-2016-103870

Roberts, S., McInnes, E., Wallis, M., Bucknall, T., Banks, M., & Chaboyer, W. (2016). Nurses' perceptions of a pressure ulcer prevention care bundle: A qualitative descriptive study. *BMC Nursing*, *15*(1). https://doi.org/10.1186/s12912-016-0188-9

Rutherford-Hemming, T. (2015). Determining content validity and reporting a content validity index for simulation scenarios. *Nursing Education Perspectives*, *36*(6), 389–393. https://doi.org/10.5480/15-1640

Schellack, G. (2020). Basic staging and colour-coding for pressure ulcer management. *Professional Nursing Today*, *24*(2), 22–25.

Shivaraju, P., Manu, G., M, V., & Savkar, M. (2017). Evaluating the effectiveness of pre- and post-test model of learning in a medical school. *National Journal of Physiology, Pharmacy and Pharmacology*, *7*(9), 1. https://doi.org/10.5455/njppp.2017.7.0412802052017

Shuldham, C. (2017). Audits are vital nursing tools. *Nursing Standard*, *32*(11), 29–29. https://doi.org/10.7748/ns.32.11.29.s23

Starc, J., & Erjavec, K. (2017). Impact of the dimensions of diversity on the quality of nursing care: The case of slovenia. *Open Access Macedonian Journal of Medical Sciences*, *5*(3), 383–390. https://doi.org/10.3889/oamjms.2017.086

Sumarno, A. (2019). Pressure ulcers: The core, care and cure approach. *British Journal of Community Nursing*, *24*(Sup12), S38–S42. https://doi.org/10.12968/bjcn.2019.24.sup12.s38

Sylvia, M. L., & Terhaar, M. F. (2018). *Clinical analytics and data management for the DNP* (2nd ed.). Springer Publishing.

Team, V., Bouguettaya, A., & Weller, C. D. (2019). Evidence summary: Pressure injury identification benchmarking. *Wound Practice and Research*, *27*(2), 95–98. https://doi.org/10.33235/wpr.27.2.95-98

Teytelman, Y. (2002). Effective nursing documentation and communication. *Seminars in Oncology Nursing*, *18*(2), 121–127. https://doi.org/10.1053/sonu.2002.32509

Vlasses, F. R. (2008). Collaboration education -service affiliation agreement. *Journal of Nursing Administration*, *38*(4), 163–164.

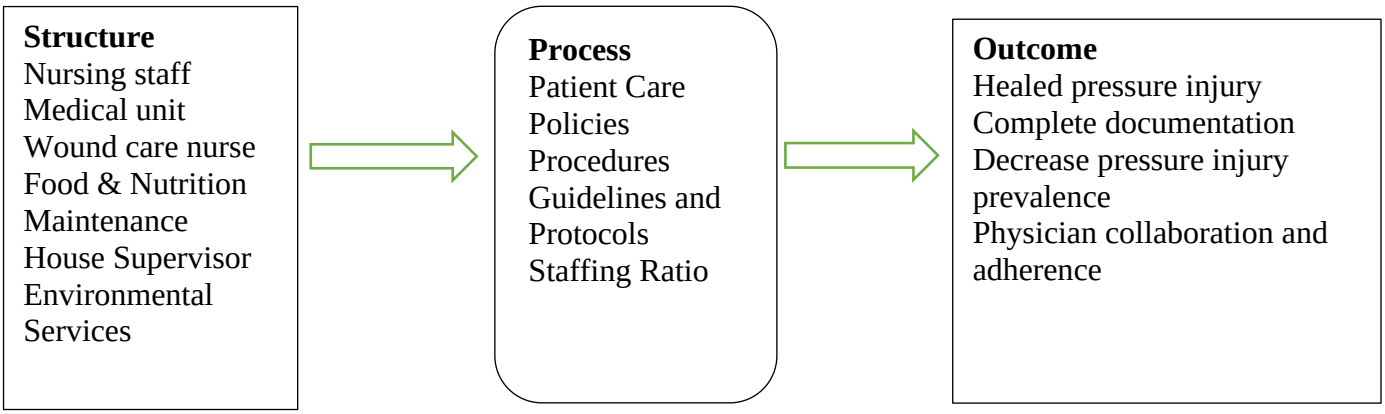
Vowden, K., & Vowden, P. (2015). Documentation in pressure ulcer prevention and management. *Wounds UK*, *11*(3), 6–9.

Wilchesky, M., & Lungu, O. (2015). Predictive and concurrent validity of the braden scale in long-term care: A meta-analysis. *Wound Repair and Regeneration*, *23*(1), 44–56. https://doi.org/10.1111/wrr.12261

Yilmazer, T., Inkaya, B., & Tuzer, H. (2019). Care under the guidance of pressure injury prevention protocol: A nursing home sample. *British Journal of Community Nursing*, *24*(Sup12), S26–S33. https://doi.org/10.12968/bjcn.2019.24.sup12.s26

Appendix A

Figure 1: Donabedian Framework



Appendix B

Chart Audit

Pressure Injury Chart Audit

FIN	Male/ Female	Age	Admission/most recent Braden of 18 or less	Q shift skin assessment documented?	Four eye documentation/photo upon admission	Q 2 hour turning documented?	IPOC initiated within 12 hours of identification of risk or actual pressure	If applicable, pressure injury site documented correctly?	If applicable, pressure injury measurement documented?	Four eye documentation/photo upon transfer?	Four eye documentation/photo upon discharge?	If applicable was Wound consult called?	Was treatment initiated and documented as per CWON recommendation?	Comments	Audit Date Done

Appendix C

Test Construction

Purpose

The purpose of this test is to gauge the knowledge and understanding of the medical nurses about pressure injuries. The education will provide proper assessment, documentation responsibilities and early detection of pressure injuries in patients in the Medical Unit.

Learning Objectives

Upon successful completion of the education, you will be able to:

- Do a proper assessment of the skin and utilizing the use of four eyes
- Differentiate a stage 1, stage 2, stage 3, stage 4, unstageable and deep tissue injury
- Be able to look for the hospital policy on skin assessment, define your role and responsibility related to care of patients with pressure injury

Population

The population is the Medical Unit staff nurses

Length of the Test

The test consists of 6 questions

Difficulty and Discrimination Levels of Test Items

The test consists of low level to moderate level difficulty questions.

Scoring Procedures to be Used

Item Format

The test is a multiple choice format

Test Blueprint

Content	Level of Cognitive Skill				
	K	C	AP	AN	Total
Skin assessment	1		1	1	
Stages of Pressure Injury	1		1		
Hospital Policy and Plan of Care	1		1		
Documentation	1		1		
Repositioning and Wound Care Consult		1	1		
Total	4	1	5	1	

General Directions for the Test and Prepare a Cover Sheet

Questions

1. **An 88 year old man is being admitted from the ED with a coccyx pressure injury. What skin assessment will the nurse do? Check all that apply.**

    a. Four eyes skin assessment with another RN
    b. Take a picture of skin
    c. Stage the pressure injury
    d. Document skin assessment

Answer: A,B,C Knowledge, Application and Analysis – Hospital policy
Rationale: Skin assessment includes skin appearance, tone, and sensation with focus on high risk areas, skin-to-skin contact or exposure to moisture (Kottner & Surber, 2016).When a patient is admitted, it is important to do a thorough skin assessment of the patient which includes asking another RN to help with assessing the skin to properly identify any skin changes that may lead to a pressure injury. A 2-RN skin assessment done on all patients upon admission or transfer and other strategies to decrease the risk of pressure injury (Rivera et al., 2020). The nurse needs to then take a picture of the patient's skin if there is any bruising, surgical incision, or any existing pressure injury. Lastly, the nurse has to stage the pressure injury.

2. **A 96 year old is being transferred from another unit. Patient has redness on his bilateral heels. What assessment is needed?**

    a. Four eyes assessment with another RN
    b. Document skin assessment
    c. All of the above
    d. Take a picture of skin when there is an existing pressure injury
    e. A,D

Answer: A,D Knowledge, Analysis and Application– Hospital policy
Rationale: When a patient is transferred from another unit, it is important for the nurse to do another four eyes assessment to check if there is any underlying skin conditions that need to be documented. A picture is needed especially if the last picture of the pressure injury was a few days ago in order to have current picture documentation.

3. **A 79 year old female patient was admitted to the Medical Unit. Patient was noted to have skin discoloration on her coccyx area and a stage 2 on her buttocks. Patient also has incision on her left hip. When the nurse received report, there was no mention of the redness on the coccyx area. Skin documentation includes which of the following?**

    a. Any redness on patient's body especially bony prominence
    b. Documented pressure injury from another unit

c. Any pressure injury found on transfer
d. Surgical incision
e. Laceration, skin tears
f. A,B,C
g. All of the above

Answer: F Knowledge and Application – Hospital policy and assessment of pressure injury
Rationale: Documenting any skin changes or existing skin conditions need to be documented.

4. **A 75 year old male patient admitted to the unit with redness on his coccyx area. How often does this patient need to be turned?**
    a. 4 hours
    b. 3 hours
    c. At least 2 hours
    d. 6 hours

Answer: A Comprehension – Hospital policy
Rationale: Patients need to be turned at least every two hours to prevent redness of the skin especially on the bony prominences.

5. **A 64 year old patient was admitted from the doctor's office. The patient has a stage 3 pressure injury on the coccyx and a deep tissue injury on the left heel and an unstageable pressure injury on the right heel. When does the nurse call for wound care consultation?**
    a. Stage 2 and above
    b. Unstageable
    c. Deep Tissue Injury
    d. All of the above

Answer: D Knowledge and Application – Hospital policy and assessment
Rationale: The wound care nurse is consulted when during assessment, a pressure injury or a potential pressure injury is noted by the nurse. The wound care nurse has the knowledge to identify skin issues that are new or may have existed prior to admission. The wound care nurse can also put in recommendations on how to do the proper treatment for the pressure injury.

6. **When is the Pressure injury Plan of Care started?**
    a. On admission
    b. When a pressure injury is initially found
    c. At the start of the shift
    d. When a patient is transferred
    e. A,B,D
    f. All of the above

Answer: E Knowledge and Application– Hospital policy and Plan of Care

Rationale: The plan of care for a patient starts on admission, continued when the patient is transferred and when a pressure injury is initially found. Care planning is identification of the patient's problem, selecting appropriate interventions to address the problem and the care plan or plan of care is the written documentation (Hooks, 2016).

References

Hooks, R. (2016). Developing nursing care plans. *Nursing Standard*, *30*(45), 64–65. https://doi.org/10.7748/ns.30.45.64.s48

Kottner, J., & Surber, C. (2016). Skin care in nursing: A critical discussion of nursing practice and research. *International Journal of Nursing Studies*, *61*, 20–28. https://doi.org/10.1016/j.ijnurstu.2016.05.002

Rivera, J., Donohoe, E., Deady-Rooney, M., Douglas, M., & Samaniego, N. (2020). Implementing a pressure injury prevention bundle to decrease hospital-acquired pressure injuries in an adult critical care unit: An evidence-based, pilot initiative. *Wound Management & Prevention*, *66*(10), 20–28. https://doi.org/10.25270/wmp.2020.10.2028

Expert Rating Form

Rating Instructions: For each item, please indicate the following:
Please rate the relevance of each item to the overall assessment and identification of pressure injury by placing a number in the first box to the right of each item.
1 = Not relevant
2 = Slightly relevant
3 = Moderately relevant
4 = Highly relevant

Item	Relevance Rating
1. An 88 year old man is being admitted from the ED with a coccyx pressure injury. What skin assessment will the nurse do? Check all that apply. a. Four eyes skin assessment with another RN b. Take a picture of skin c. Stage the pressure injury d. Document skin assessment	
2. A 96 year old is being transferred from another unit. Patient has redness on his bilateral heels. What assessment is needed? a. Four eyes assessment with another RN b. Document skin assessment c. All of the above d. Take a picture of skin when there is an existing pressure injury e. A,D	
3. A 79 year old female patient was admitted to the Medical Unit. Patient was noted to have skin discoloration on her coccyx area and a stage 2 on her buttocks. Patient also has incision on her left hip. When the nurse received report, there was no mention of the redness on the coccyx area. Skin documentation includes which of the following? a. Any redness on patient's body especially bony prominence b. Documented pressure injury from another unit c. Any pressure injury found on transfer d. Surgical incision e. Laceration, skin tears f. A,B,C g. All of the above	
4. A 75 year old male patient admitted to the unit with redness on his coccyx area. How often does this patient need to be turned? a. 4 hours b. 3 hours c. At least 2 hours d. 6 hours	
5. A 64 year old patient was admitted from the doctor's office. The patient has a stage 3 pressure injury on the coccyx and a deep tissue injury on the left heel	

and an unstageable pressure injury on the right heel. When does the nurse call for wound care consultation? a. Stage 2 and above b. Unstageable c. Deep Tissue Injury d. All of the above	
6. When is the Pressure injury Plan of Care started? **a.** On admission **b.** When a pressure injury is initially found **c.** At the start of the shift **d.** When a patient is transferred **e.** A,B,D **f.** All of the above	

(Do not distribute until your items have been reviewed and approved by your CI. You will need a total of 3 raters: CI, AM, and PM)

Step 3: Calculate your Content Validity Index

Content Validity Index Table

Item	Expert 1	Expert 2	Expert 3	Mean
1	4	3	4	3.67
2	4	4	3	3.67
3	4	4	4	4.0
4	4	3	3	3.33
5	4	4	4	4.0
6	4	3	4	3.67

The procedure consists of having experts rate items on a four-point scale of relevance. Then, for each item, the item (CVI) (I-CVI) is computed as the number of experts giving a rating of 3 or 4, divided by the number of experts-the proportion in agreement about relevance.

The content validity index is calculated using the following formula:
CVR = [(E-(N/2)) / (N/2)] with E representing the number of judges who rated the item as Moderately Relevant or Highly Relevant and N being the total number of judges.
The mean total of all of the means was 3.72 indicating that all of the questions were moderately/highly relevant.

The calculation is as follows:
CVR = [(3-(3/2)) / (3/2)]
CVR = [(3-1.5) /1.5]
CVR = 1.5/1.5

Appendix D

Protocol

Protocol Summary

The pressure injury protocol will be the guide for the nurses to follow when doing skin assessment in order to prevent pressure injuries.

Investigators/Collaborators

The pressure injury protocol will have a project lead who will be doing the education for the nursing staff, do a pre and post-test as well as observe and do audits of the documentation. The wound care nurses and the clinical supervisor will help assist with audits as well as provide just in time training to staff when needed. The project mentor will assist and help with moving the project forward.

Adult Skin Assessment Admission/Transfer

1. The nurse completes a skin assessment on admission, and on transfer to the unit. The nurse also needs to complete the four eyes assessment where another nurse will assess the patient's skin together with the assigned nurse.
2. Documentation of the full assessment including the four eyes and the name of the nurse who did the skin check is done appropriately.
3. Braden assessment is also completed on admission and every shift.
4. If there is a skin issue present, the nurse will take pictures of the patient's skin on admission, upon transfer to the unit and every Wednesday per Hospital Policy.
5. Risk for injury related to pressure injury or possible pressure injury Plan of care is initiated on admission and addressed by the nurse every shift until patient is

discharged or transferred to another unit. This must be individualized based on the patient's risk factors that were identified (i.e., pressure injury)

6. Wound Certified nurse will be consulted based on the assessment of the patient
7. Registered dietician will also be consulted based on assessment or presence of wound or pressure injury
8. Skin interventions will be modified based on reassessment and CWON recommendations

Transfer to Another Unit or Discharge

1. The nurse will complete the transfer/discharge paperwork.
2. Pictures of the patient's skin will be taken prior to transfer or discharge.
3. Complete documentation of the patient's skin including any healed pressure injury is done appropriately.
4. Wound care teaching is provided to patient and family member.
5. Physician is notified of need for home health RN to follow up on the patient's pressure injury and specific CWON recommendations for proper healing.

Appendix E

PowerPoint Education

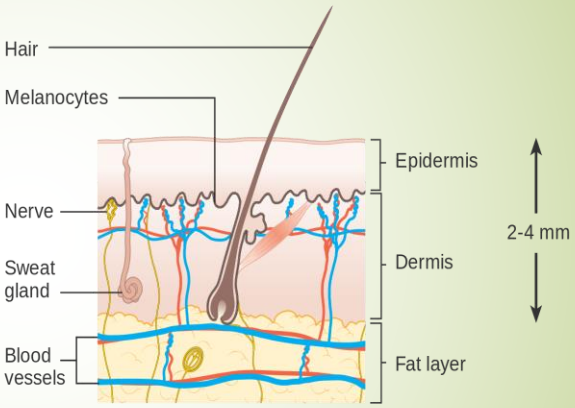
Pressure Injury Education

Jorilynn Lima

Skin Assessment

The skin is the largest organ of the body

It is made up of different layers that help protect our body

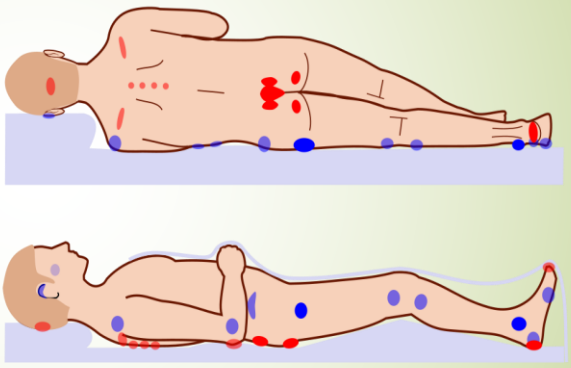


Skin Assessment

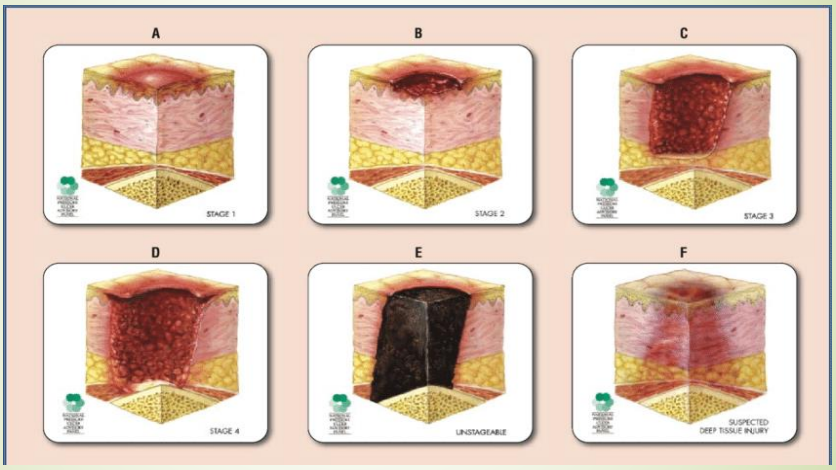
- Check the patient's skin color, temperature, turgor, moisture level and skin integrity, look for any skin-related factors that may contribute to pressure injuries such as dry skin or moisture-associated skin damage (MASD) (Agency for Research and Quality [AHRQ], n.d.)

Pressure Injury

Inspect the skin specially on bony prominences



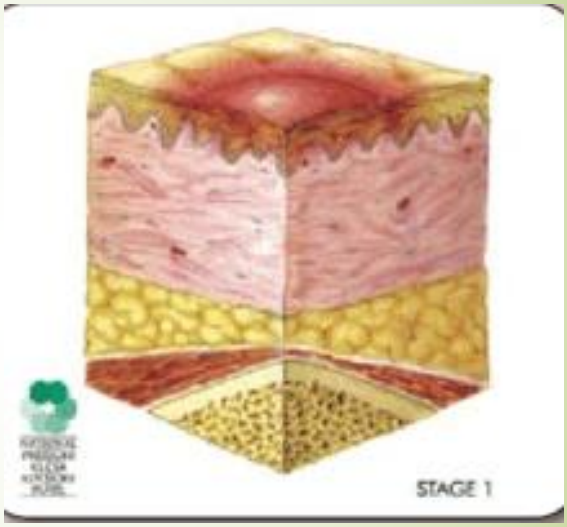
Pressure Injury Stages



Stage 1

- Non-blanchable erythema
- May appear different in darkly pigmented skin

(Huntington Hospital, 2021, p. 1)



Stage 2

- Partial thickness loss of skin with exposed dermis
- Wound is viable, pink or red
- May present as an intact blister (Huntington Hospital, 2021, p. 1)

Stage 3

- Full-thickness skin loss
- Adipose fat is visible
- Slough or eschar may be visible (Huntington Hospital, 2021, p. 2)

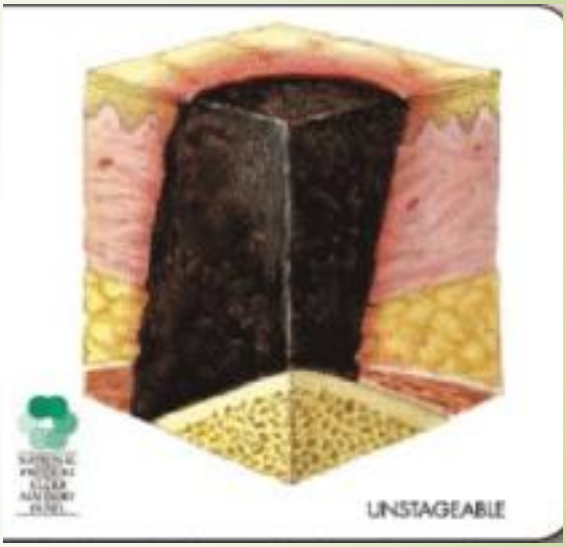
Stage 4

- Full-thickness skin and tissue loss
- May have exposed fascia, muscle, tendon
- Undermining or tunneling may occur

(Huntington Hospital, 2021, p. 2)

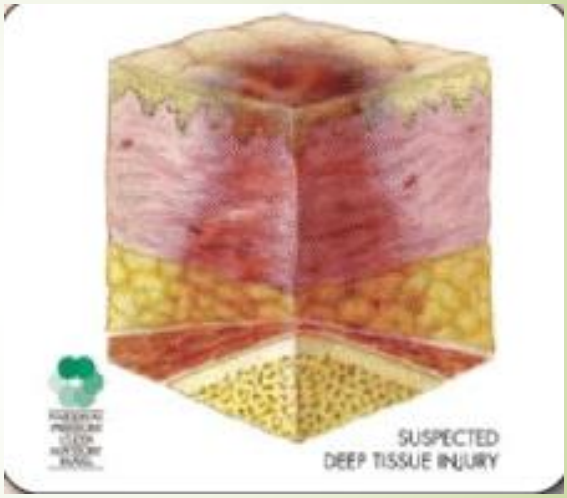
Unstageable

- Obscured full-thickness skin and tissue loss
- Tissue damage cannot be confirmed due to slough or eschar
- If slough or eschar is removed, a Stage 3 or 4 may be revealed (Huntington Hospital, 2021, p. 2)



Deep Tissue Injury

- Intact or non-intact skin with localized area of persistent non-blanchable deep red, maroon, purple discoloration (Huntington Hospital, 2021, p. 2)



Medical Device Related Pressure Injury

- Results from medical devices for therapeutic purpose
- Devices include: nasal cannula, BiPap/CPAP mask, tracheostomy, drains, NGT, Foley catheter, IVs, Central Venous Catheters, Dialysis catheters, Fecal containment device, restraints, TED hose, intermittent Pneumatic compression device, chest tubes, caps of needles, vial tops, and extra Central line caps, pulse oximeter probes, orthopedic device like cervical collars, Halo vest (Huntington Hospital, 2021, p. 3)

Repositioning

- Patients are turned at least every two hours to prevent pressure injury
- Repositioning at regular intervals helps with relieving or providing comfort and redistribution of the weight (Miles et al., 2013)
- Putting the patient on a 30-degree angle using a wedge is beneficial to avoid putting weight on bony prominences and minimizes friction and shearing (Krapfl et al., 2017)

Documentation

- Documentation of skin assessment is done on admission, on transfer of a patient from another unit, and any skin changes identified on assessment
- Document redness on bony prominence, pressure injury found on admission or from a different unit
- Surgical incision, laceration, skin tear, are not documented as pressure injury but documented as a wound
- Documentation of physician notification

Plan of Care

- Individualized plan of care (IPOC) of the patient starts on admission
- Care planning is identifying the issues or problems the patient has on admission, choosing appropriate interventions while the plan of care (care plan) is the written documentation (Hooks, 2016).
- Braden score of 18 or higher is not at risk for impaired skin integrity
- Braden score of 18 or less is at risk for impaired skin integrity

Photograph

- Photograph of pressure injuries are taken on admission, on first time it was discovered, when pressure injury is resolved or transfer from another unit and at discharge.
- Photos also needs to be done every Wednesday.

References

- Agency for Research and Quality. (n.d.). *Preventing pressure ulcers in hospitals* (Content last reviewed October 2014). Agency for Healthcare and Quality, Rockville, MD. https://ahrq.gov/patient-safety/settings/hospital/resource/pressureulcer/tool/index.html
- Hooks, R. (2016). Developing nursing care plans. *Nursing Standard*, *30*(45), 64–65. https://doi.org/10.7748/ns.30.45.64.s48
- Huntington Hospital. (2021). *Pressure injury assessment, prevention and interventions* (8740.150) [Policy]

References

- Krapfl, L., Langin, J., Pike, C. A., & Pezzella, P. (2017). Does incremental positioning (weight shifts) reduce pressure injuries in critical care patients? *Journal of Wound, Ostomy & Continence Nursing*, *44*(4), 319–323. https://doi.org/10.1097/won.0000000000000340
- Miles, S. J., Nowicki, T., & Fulbrook, P. (2013). Repositioning to prevent pressure injuries: evidence for practice. *ANMJ*, *21*(6), 32–35.

Reference

- Rivera, J., Donohoe, E., Deady-Rooney, M., Douglas, M., & Samaniego, N. (2020). Implementing a pressure injury prevention bundle to decrease hospital-acquired pressure injuries in an adult critical care unit: An evidence-based, pilot initiative. *Wound Management & Prevention*, *66*(10), 20–28. https://doi.org/10.25270/wmp.2020.10.2028