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Perioperative Pressure Injury Prevention Education Program

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Walden University

College of Nursing

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Stephanie Reed

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University

2026

Abstract

Perioperative Pressure Injury Prevention Education Program

by

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MS, Walden University, 2008

BS, College of Notre Dame of Maryland, 1993

Diploma, Union Memorial Hospital School of Nursing, 1985

Project Submitted in Fulfillment
of the Requirements for the Degree of
Doctor of Nursing Practice

Walden University

May 2026

Abstract

Pressure injuries (PIs) are localized injury to the skin and/or underlying tissue, usually over a bony prominence, resulting from sustained pressure including pressure associated from shear. Surgical patients are estimated to represent 42% of hospital acquired PIs. PIs result in poor patient outcomes, increase length of stay, add billions to health care costs are no longer reimbursed by Centers for Medicare/Medicaid Services. Prevention of PI is different in the perioperative setting due to the complexities of surgery. This project focused on developing, delivering, and evaluating a robust education program for perioperative staff on PI prevention in the perioperative setting. The theory of planned behavior was used to guide the education program. The clinical question guiding this project was: Does staff education increase knowledge among perioperative nurses regarding evidence-based practices regarding PI prevention in perioperative patients? All perioperative staff present for the Thursday morning in-service time at the project site were included in the education program. A pretest of knowledge on prevention practices was administered to the 84 staff present. The education program was then provided. Immediately following the education program, a posttest consisting of the same questions as the pretest was provided. Twenty-two complete sets of data were then compared. The data showed an increase in the median overall score on posttest scores, demonstrating increased knowledge. Providing staff knowledge on PI prevention practices will be important to include during onboarding of staff. A revised education program will be offered to all new employees. Prevention PI in surgical patients promotes positive social change in the delivery of nursing care.

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Table of Contents

List of Tables	iii
Section 1: Nature of the Project	1
Introduction.....	1
Problem Statement	4
Purpose Statement.....	6
Nature of the Doctoral Project	7
Significance.....	7
Summary	8
Section 2: Background and Context	9
Introduction.....	9
Concepts, Models, and Theories.....	9
Relevance to Nursing Practice	10
Local Background and Context	17
Role of the DNP Student.....	18
Role of the Project Team	19
Summary	20
Section 3: Collection and Analysis of Evidence.....	21
Introduction.....	21
Practice-Focused Question.....	22
Sources of Evidence.....	22
Analysis and Synthesis	23

Summary	24
Section 4: Findings and Recommendations	25
Introduction.....	25
Findings and Implications.....	25
Recommendations.....	29
Contribution of the Doctoral Project Team	30
Strengths and Limitations of the Project.....	30
Section 5: Dissemination Plan	32
Analysis of Self.....	32
Summary.....	34
References.....	35
Appendix A: Education Program.....	43
Appendix B: Pretest/Posttest Questions.....	62

List of Tables

Table 1. Pressure Injury Occurrence by Stage in the Past Year	17
Table 2. Pretest/Posttest Score Comparison	28
Table 3. Incorrect Responses Comparison.....	29

Section 1: Nature of the Project

Introduction

Pressure injuries (PIs) are defined as “localized injury to the skin and/or underlying tissue, usually over a bony prominence, resulting from sustained pressure (including pressure associated from shear” (National Pressure Injury Advisory Panel [NPIAP],2019 National Pressure Ulcer Advisory Panel [NPUAP]2012). PIs were previously referred to as ulcers. *Injury* is the preferred term currently; however, *ulcer* is still used as a term depending on the reference.

The mechanics behind PIs are important to understand. The biggest factor is that of mechanical load. Soft tissue that has been subjected to any type of force based on contact with the soft tissue and a solid surface is considered mechanical load. Two types of mechanical load are shear force and normal force. If the skin surface is perpendicular to the force, that is normal force. If the skin surface is parallel to the force that is shear force (NPIAP, 2019). The mechanical load that has been sustained causes a PI to develop. The scenarios that may occur are that a low mechanical load for a short period of time or a high mechanical load for a short period of time or a combination of both, which generally occur near a bony surface, influences that skin to create a deformed area to the skin and subdermal tissues. The type of load and timeframe the patient is susceptible to in order to fully implement prevention techniques is unknown. It is not known exactly how much pressure or time results in an injury. Friction and shear also contribute to the development of PIs in the perioperative setting (Kimsey, 2019; NPIAP, 2019; Scott, 2015a).

According to the NPIAP (2019), PIs are categorized into stages: Stage 1, Stage 2, Stage 3, Stage 4, unstageable or deep tissue injury. Stage 1 is defined as non-blanchable erythema. Non-blanchable erythema is skin that possesses an area of redness that when touched does not change color and is intact. Skin can also be painful, exhibit a temperature change or be firm or soft. Stage 2 is defined as loss of part of the skin. Skin may appear as a red-pink wound bed of a shallow ulcer or as an intact/open blister. A Stage 3 injury is defined as complete loss of the skin, the fat is visible however, bone, muscle or tendon are not seen. Stage 4 injury is defined as loss of all the tissue and therefore muscle, bone or tendon are exposed. *Eschar*, which is defined as dead tissue, can also be present on the wound. An unstageable wound is an injury in which the base of the wound is not visible due to the presence of slough and/or eschar in the wound. This type of wound requires that the slough and or eschar be removed to fully assess, which at times may not be possible. Deep tissue injury presents as a localized area of purple/marron skin that is still intact or may also have a blood blister present. In comparison to the tissue adjacent, tissue may present as firm, mushy or a have a difference in temperature (NPIAP, 2019). Skin that is darker makes determining stages difficult as many programs do not focus on assessment of darker skins as well as the skin tone may mask pathology that is present (Pusey-Reid, 2023).

Surgical patients are estimated to represent 42% of hospital-acquired PI (HAPI; Wadlund, 2010). The Agency for Healthcare Research and Quality (AHRQ) estimated that in the years between 2014 to 2017 an additional \$1.72 billion dollars was added to health care costs (Kimsey, 2019). Operating room (OR) PIs are recognized to have an

etiology that is more complex as a result of changes that occur to the metabolic and circulatory systems in conjunction with the increased pressure a surgical patient experiences during their surgical procedure (Fred et al., 2012). The requirements of surgery make it almost impossible to manage pressure and shear forces in surgical patients. There may be times when the OR table needs to be tilted to the side, which will subject the patient to forces that are exerted as the surface of the skin is shifted from the deep tissue. This is known as *shearing* (Aronovitch et al., 1999). The increased pressure a patient exudes onto the OR table as a result of the general anesthetic compounded with the increased pressure that those assisting during the surgical procedure combine to increase the risks to the patient (Aronovitch et al., 1999).

A multitude of factors increase the potential for surgical patients to develop PIs. These factors include (a) decreased mobility due to anesthetic agents, (b) poor nutritional status, (c) low hematocrit, (d) shear and friction, (e) length of procedure, (f) microclimate, (g) vasopressor use intraoperatively, and (h) comorbidities. Increased pressure from the prolonged immobility of anesthesia combined with decreased blood flow during the operative procedure influences this chain of event (Kimsey, 2019). However, it is recognized that many pressure ulcers may not develop for up to five days postoperatively which makes it harder to link the development of the injury to the surgical procedure (AORN, 2023; Fuzy & Vega, 2016; Scott, 2015). Perioperative PIs may present as non-blanchable erythema, purple discoloration of the skin, or blistering of the skin (Scott, 2015b).

PI rates in all patient care areas at the project site are above the rate set by the site. Despite strategies to address PI prevention, elevated PI rates persist in the perioperative department. To date, the focus has been on inpatient PI reduction, with no attention to perioperative HAPI rate. Perioperative HAPI rates are increased. Creating, delivering and evaluation of a robust education program for the staff in all phases of perioperative staff aimed at PI prevention will provide staff foundational knowledge. Nursing care will be impacted as a result of this education program. Staff knowledge on prevention strategies will ideally increase the patient outcome and decrease overall cost of care and length of stay.

Problem Statement

PIs are a risk of surgical procedures and not reimbursed by the Centers for Medicare/Medicaid (CMS), which increase costs and poor patient outcomes. PI rates at the project site have been as low as 2.03 per 1,000 patient days and as high as 4.25 per 1,000 patient days. The OR in the last year has had a total of 41 PIs. These PIs are further categorized as follows: 11 Stage 1, 18 Stage 2, zero Stage 3, zero Stage 4, seven deep tissue PI (DPTI), and three unstageable. Zero is the goal for any PIs. PIs are a preventable outcome if evidence-based practices (EBPs) have been employed is the rationale that CMS utilizes when denying reimbursement for the development of hospital-acquired conditions (Denholm,2008; Department of Health and Human Services, 2014; Kimsey, 2019). Across the system of the project site, there is a focus by nursing leadership to reduce the incidence of PIs in the face of higher rates in the past 2 years.

PIs affect morbidity, mortality and quality of life for patients. Tschannen et al. (2012) found in their study of 3,225 surgical patients, that individuals who develop PIs have increased length of stays related to increased care requirements and/or surgery to treat the PI, and required increased nursing care which translates into higher nursing costs. In addition, they also found that 2.5 million patients are treated annually for PIs. Approximately 60,000 of those patients succumb due to the associated complications of PI development (Tschannen et al., 2012). Sepsis is an example of one such complication associated with PI development. Extra financial stress to one's hospital stay of 3.5–5 extra days (Wadlund, 2010) can result in \$9.1–\$11.6 billion annually (Leaf Healthcare, 2014). Not included is the litigation that may result, the penalties imposed by the government, and lowered performance metrics of the hospital. Additionally, CMS no longer provides additional reimbursement when a patient develops a Stage 3 or 4 PI, which represent 59% of all injuries (Padula & Delarmente, 2019), during the course of their care. CMS considers this a health care associated condition (Mathias, 2013) that is preventable. Compounding the non-reimbursement for Stage 3, Stage 4, or Unstageable PIs, hospitals are required to report these to the office of health care quality as they are considered never events.

Reviews at the project site reveals practice deficits related to lack of knowledge regarding PI prevention. Education of staff regarding prevention could greatly benefit patient care and outcomes. This project has the potential to impact patient care for all patients undergoing surgical procedures at the project site.

Purpose Statement

The purpose of this program was to develop, deliver and evaluate a robust education program for the perioperative staff aimed at PI prevention in the perioperative setting. The education provided the following: pathophysiology of PI development and silicone border dressing (SBD) properties which affect its ability to help prevent PI development.

The Association of periOperative Registered Nurses (AORN) is the professional organization for perioperative nursing speciality. This organization publishes guidelines that incorporate EBP for inclusion in perioperative nursing care practice. The project site utilizes them to guide nursing practice. The guidelines undergo periodic reviews to ensure they are the most up to date. The current AORN Pressure Injury Prevention Guidelines (AORN, 2023) were last reviewed in 2023. The guidelines include best practices and an analysis tool to assist with assessing practice. Presently, there is a lack of a robust education program that encompasses risk reduction of PI development for perioperative patients. The guiding question of the project is Does staff education increase knowledge among perioperative nurses regarding EBPs regarding PI prevention in perioperative patients?

NPAIP (2019) guidelines provide PI prevention EBP strategies to patients in the inpatient settings. Wound ostomy continence nurses utilize this reference while providing consultations regarding care of patients in the inpatient setting who have developed or at risk of developing PI. These guidelines reference the specialized needs of patients in the

OR throughout the document. Patients from the Emergency Department and inpatient units often require surgical procedures as well.

Nature of the Doctoral Project

The purpose of this program was to develop, deliver, and evaluate a robust education program for the perioperative staff aimed at PI prevention in the preoperative setting. Pretests regarding staff knowledge of PIs development and prevention were completed prior to the administration of the educational program. Upon completion of the program, posttests were administered to measure learning by the project team's product. The content was the same for the pretest and posttest. The AORN Guidelines informed the content in the development of the pre and posttests. The pretests and posttests were created by me. A comprehensive literature search, inclusive of the AORN guidelines, guided the content so as to include the best practices and most current information.

Significance

Stakeholders of this program include registered nurse staff in all phases of perioperative care, the departmental, project site central and project site system wide skin integrity committees and the safety/quality staff. Each occurrence of a HAPI can cost the organization a minimum of \$44,000 and as much as \$128,000 (Kirkland-Walsh et al., 2015), which can place an enormous financial burden to the system. This financial pressure combined with the non-reimbursable associated costs by CMS places health care organizations with an imperative to remove this barrier to poor quality outcomes and decreased reimbursements. Riemenschneider (2018) stated that reduction in OR PIs can be achieved with the application of a five-layer SBD. Additionally, the use of the

dressings for patients undergoing surgery is endorsed as a prevention practice with the potential to lower the rates of occurrence (Sillmon et al, 2021).

Patients entrust us with their lives when they enter our buildings. We need to ensure that this trust is maintained by providing high quality safe patient care. The focus of health care under the Affordable Care Act (ACA) places a high importance on preventative care. Preventative care has value at any point in the healthcare dynamic. Better patient outcomes and experiences benefit all. The professional responsibility of implementing EBPs is that of dissemination with other colleagues which benefits positive social change.

Summary

PIs are considered a preventable occurrence. When a patient develops a PI, the effect is wide reaching. These occurrences affect the hospital's bottom line with the potential of litigation, lower quality care, and higher length of stays and increased nursing care costs. The reality of CMS reimbursement is that it will be affected by an HAC which results in decreased revenue. The patient's and health care system's best interests to prevent these from occurring are a priority.

Section 2: Background and Context

Introduction

The problem addressed in this project is that staff lack the knowledge regarding PI prevention while patients undergo surgical procedures. The identified gap in practice is currently staff lack the knowledge of PI prevention to reduce development of HAPI while in the perioperative setting. The purpose of this program was to develop, deliver and evaluate a robust education program for the perioperative staff aimed at PI prevention in the perioperative setting. Preventing PIs is a high priority. PIs are a patient dissatisfier, increase costs for the organization, result in CMS penalties (Kimsey, 2019) and affect Nursing Database of Nursing Quality Indicators (NDNQI) scores. Maryland's pay for performance approach is now being adopted in other states. Every organization faces the challenge of providing high quality care with limited dollars while executing high quality care. Focusing on hospital acquired injuries benefits all. Staff need the right knowledge and tools to affect this goal.

Concepts, Models, and Theories

The theory of planned behavior (TPB) was used to guide this education program. The theory of reasoned action was developed by Ajzen and Fishbein. Icek Ajzen modified their theory to develop the TPB (Boslaugh, 2022; Change, 1998; Rollon, 2020; Wahyuni et al., 2021). TPB asserts before a person engages or does not engage in any behavior, consideration of consequences of their actions guides the decision. Three key elements are a part of TPB: attitude, subjective norms and perception of the behavior control by the individual. TPB has been applied specifically as a means to change

perioperative documentation (Rollon, 2020). TPB model best aligned the changes desired of this project.

Relevance to Nursing Practice

Recognition of factors that prevent PI, which are (a) pressure reduction and redistribution, (b) proper positioning, (c) astute assessments and documentation in all phases of care, (d) assessment between nurse handoff and receipt of care, and (e) the optimization of comorbidities before surgery to the extent possible, are critical for all nurses to appreciate the importance how their care can impact the development of PI in surgical patients (AORN, 2023). Giachetta-Ryan (2015) stated that surgeries lasting longer than 3 hours net an occurrence rate of pressure ulcer development in twenty-three percent of this patient population. Pressure ulcers may not be present for up to 3 days after the procedure, which can complicate identification of the true source.

PIs add cost, pain and an increased length of stay to patients. Pressure ulcers are considered an HAC. Beginning in 2008, CMS no longer reimburses for HAC. This means that the hospital system loses money as a result of the increased care the patient required due to the HAC (Kimsey, 2019; Serrano et al., 2020; Yoshimura, et al., 2023) For example, if the patient was admitted for coronary artery bypass grafting and develops a PI, CMS will only reimburse for the cost of care associated with a coronary artery bypass grafting; they will not reimburse for the care associated with the PI. It is estimated that the extra cost to provide care for a HAC PI range from \$500 to \$70,000, with an average cost of \$10,708 (Padula & Delarmente, 2019); this adds an estimated \$1.3 billion dollars annually to healthcare costs (Kimsey, 2019). CMS has already defined 14 HACS that will

not be reimbursed (Department Health Human Services, 2014). This logic predicts that the list will become longer as more HACS are added to it. In addition, many private insurers take their cues from CMS and it is very possible that they will in turn implement this practice. All hospitals need to provide high quality care that has positive patient impact while maintaining financial health by achieving maximum reimbursement for services rendered. Current literature supports standardized approach to PI prevention. Guidelines developed by NPIAP and AORN explicitly endorse the use of SBDs as a prevention strategy.

I conducted a search of the literature using the CINHAL database within the Walden University Library, the Welch Library within Johns Hopkins and Google scholar. Google scholar was also used in effort to obtain some articles identified that were not available that could be accessed using the Welch database within the Johns Hopkins library system. Key search words were *pressure ulcers*, *pressure injury*, *silicone border dressing*, *surgical patient*, and *perioperative and pressure ulcer prevention*. This search netted 33 articles. One article specifically addressed the pediatric population; the rest are directed at adult populations.

In 2009, the National Pressure Ulcer Advisory Panel (NPUAP) defined pressure ulcers as “localized injury to the skin, and/or underlying tissue, usually over a bony prominence as a result of pressure, or pressure in combination with shear and/or friction” (Beeckman et al., 2010; Fred et al., 2012; Wadlund, 2010). Pressure ulcers are classified in one of six stages. The stages are Deep Tissue Injury, Stage I, Stage II, Stage III, Stage IV, and Unstageable (Agency for Health Care Research & Quality, 2012).

Three main causes of PI have been identified (NPUAP, 2012; NPIAP, 2019; AORN, 2023; Scott, 2015b; Walton-Geer, 2009): intrinsic and extrinsic factors and pressure. Intrinsic factors are related to the patient themselves. Examples of intrinsic factors are advanced age, obesity, low levels of hemoglobin and hematocrit, smoking history, co morbid disease (e.g., diabetes, cancer, peripheral vascular disease, neurological or respiratory diseases), medications (e.g., steroids or vasopressors), and nutritional deficiencies. Extrinsic factors are situations or conditions outside of the body, which are not present with the patient. Moisture, friction and sheer are examples of extrinsic factors. Walton & Geer (2009) defined shear “as the applied force that can cause an opposite, parallel sliding motion force in the planes of an object. Shear is affected by the amount of pressure that is exerted”. Friction is defined as “a superficial, mechanical force directed against the epidermis, resulting in increased susceptibility to ulceration. Intensity and duration define pressure” (Walton-Geer, 2009). Compression of bony prominences between soft tissue between an external surface such as a chair, bed or the like leads to pressure. Blood flow to the area is occluded when the pressure exceeds 32mmHg, which is the normal capillary filling pressure. If this blood flow is compromised for too long, it can lead to ischemia of tissue and then necrosis. Muscle has less ability to withstand these conditions than skin.

Anesthesia and temperature of the patient are extrinsic factors that also affect development of PI. Primiano et al. (2011) have identified the greatest risk factor is the time the patient spends on the OR bed: “There is an inverse relationship between pressure and time: a patient can tolerate a large amount of pressure for a short period of time or a

low amount of pressure for longer period of time without sustaining tissue damage.”

Pham et al. (2011) have identified that the occurrence of injury to the subdermal tissue under bony prominence is between the first hour and 4–6 hours after a sustained loading. The unknown is which combination these factors are the strongest in influencing the development of PI. Surgical procedures that are greater than between two and a half to three hours significantly increase the patient’s risk of developing a PI (Mathias, 2008). Consideration also should take into account the time and environment spent transferring from area to area within the hospital as this is recognized as risk factors that are not fully appreciated in the development of PI.

A cohort study was conducted by Tschannen et al. (2012) to examine the specific and surgical characteristics of patients who developed pressure ulcers. This study looked at 3225 patients in a Midwestern hospital. Significant risks identified from this study were found to be: Braden scale score on admission, low body mass index, number of vasopressors patient received, total surgery time, and multiple surgical procedures during an admission. The authors support use of clinical interventions as appropriate, combined with identifying risk of patients based on their Braden score at admission. The authors stressed the importance of a uniform and accurate admission skin assessment as an important first step in prevention.

Proper and meticulous positioning is a key strategy to prevention of pressure ulcers (Primiano et al., 2011; Wadlund, 2010; Walton-Geer, 2009). This includes consideration of the following: proper body alignment; appropriate, approved positioning devices, execution of proper transfer technique when moving the patient, omitting the use

of sheets, towels or blankets as positioning aids while ensuring adequate exposure for the procedure and maintaining safety for the patient and the application of an SBD in the supine position (Serrano et al., 2020).

Brindle's (2012) study established the benefits of SBD placement on a patient's sacrum preoperatively to be in place the length of the surgical procedure. AORN is the professional association for OR nurses. Their guidelines (AORN, 2022) are developed based on the latest evidence. In the guideline for PI prevention, there are two tools that address prophylactic dressings: the Analysis Tool and Pressure Injury Prevention. The analysis tool states to "determine the type of prophylactic dressing to be used in the perioperative setting. The PI prevention audit tool (AORN, 2023) states "applies prophylactic dressings to bony prominences or areas subject to pressure, friction and shear in patients as high risk for pressure injury." Application to the sacrum of a five-layer prophylactic dressing as a key component of prevention strategy (Kimsey, 2019; Serrano et al., 2020). SBDs are effective as they reduce the shear and /or friction effects (Yoshimura et al., 2023). The staff lack knowledge regarding the former statement. The NPUAP (2014) noted the OR a high-risk environment citing the following variables most likely play in the development of a PI: length of procedure, the American Society of Anesthesia physical status classification, and the amount of time the patient is immobilized on the OR bed. In their Clinical Practice Guideline (NPIAP,2019), there is a whole section devoted to prophylactic dressings which advocate for placement of a multilayered foam dressing for patients at risk of PI protecting the skin. This recommendation prevails despite the strength to the recommendation is listed as "weak

positive recommendation, probably do it; in defining their recommendation and level of evidence.”

A key factor in the use of prophylactic dressings is daily if not more frequent assessment of the skin underneath with the dressing is designed to accommodate. SBDs provide moisture absorption, which positively affects microclimate, and the ability to mitigate shear forces and the bony prominence pressure is decreased (Marche et al., 2024; Neyt et al., 2024).

Devices that assist in reducing pressure or that assists in the redistribution of pressure are strategies that can be used to decrease PI development in the surgical patient. SBDs help to mitigate this factor during the surgical procedure. There are two main mechanisms of an SBD that render it effective. The first is a reduction of shear/friction forces in are absorbed by the dressing, including that of body pressure. The second is the ability of the dressing to manage microclimate which controls moisture on the skin of the application site (Burton et al., 2019a, Burton, et.al., 2019b). The cost for devices can range from \$800 to \$2000 (Pham et al., 2011). This cost is minimal compared to that of litigation, and possible penalties that could be levied by regulatory bodies. There is support for a wide use practice of devices that distribute pressure in surgical patients (Walton-Geer, 2009). While it is recognized that this is very important during intraoperative care, it must be employed during the entire care episode for the patient.

Strong practices to prevent development of PIs are of paramount importance as highly encouraged by Delmore et al. (2011). These authors chronicle the changes they incorporated in identifying areas deficiency, priority selection of said deficiencies and the

processes to address. The implementation of standards for consistent practices throughout their nursing care system has been the most challenging aspect of their prevention program. With the introduction of a multipronged approach, they have been able to decrease their pressure ulcer rate from 7.3% to 1.3% in a 3-year time period. This patient-centered approach prevention spectrum focuses on: protocols and procedures, assessment, skin care, prevention of extrinsic factors, nutrition/hydration, support surfaces, patient/family education and clinical training. The AORN Guidelines (www.aorn.org) include the presence of initial and ongoing robust education centered around prevention of PI development while in the perioperative setting. The AORN Guidelines specifically identify educational elements that need to be included in the baseline educational program. Cooper et al. (2015) reinforced the belief of a system that promotes a proactive approach inclusive of surveillance, peer to peer feedback which promulgates a culture of shared accountability, new products and staff who possess a high degree of awareness are the key factors to keep rates low. NPIAP (2019) and Monfire et al (2022) fully endorse standardized documentation and use of risk assessment tools. All sources support the periodic reassessment of positioning and skin integrity while the surgical procedure is underway if this can be done without interruption to the surgery. The focus of this education program is to develop, deliver and evaluate a robust education program for the perioperative staff aimed at PI prevention in the perioperative setting. This program can have far reaching ripple effects on a positive patient outcome.

Local Background and Context

This project site is an academic medical center in an urban area and a Magnet institution. The NDNQI survey takes into consideration HAPI rates as an indicator of nursing care. If this rate is not kept at benchmark, this can place future magnet redesignations at risk. The project site places a high value on this designation. Magnet status is an attribute potential staff seek when recruiting or nursing applicants for nursing positions. The center is also on a journey to become a high reliability organization with the goal of being a zero-harm provider within the state of Maryland.

PI rates at the project site have been as low as 2.03 per 1,000 patient days and as high as 4.25 per 1,000 patient days. The project site OR in the last year has had a total of 41 PIs. PI occurrences by stage are provided in Table 1.

Table 1

Pressure Injury Occurrence by Stage in the Past Year

Stage	No. of pressure injuries
Stage 1	11
Stage 2	18
Stage 3	3
Stage 4	4
Deep tissue pressure injury (DTPI)	7
Unstageable	3

CMS no longer reimburses for PIs that develop during a hospital stay. In addition, a PI that is categorized as Stage 3, Stage 4, or Unstageable is reportable to the office of health care quality. Beginning in 2028, reporting of Stage 2 PIs will become mandatory

(www.woundvision.com/hh-pi-ecqm). The impact of this reporting change will be immense. If a hospital continues to perform in the bottom of the 25th percentile for all HACs, a 1% penalty will be imposed by CMS on future reimbursement.

(www.npiap.com). PIs are one of the categories of hospital-acquired injuries.

Additionally, the state of Maryland is reimbursed using a Global Budget Revenue (GBR) model. This is different from how other states are reimbursed. A fixed revenue that covers the whole year is provided the beginning of the fiscal year. This fee does not factor in services that are to be provided nor the volume of patients. It is imperative that the hospital spends the dollars allocated prudently. The state also pays for performance. This means if the hospital does well in certain quality programs, their reimbursement rate is increased. Conversely, if the hospital underperforms, they will receive a decrease in their reimbursement the next fiscal year. This program is also referred to as an all-payor system in that insurance companies both public and private pay the same at every hospital in the state. (mhaonline.org)

Role of the DNP Student

I have 38 years of OR experience. My current role is that of clinical education coordinator. I am keenly positioned to emphasize the need for PI prevention. Establishing a robust education program for perioperative staff is integral in PI prevention. I am currently a member of the HAPI team within the OR which affords me additional credibility/influence to affect change. I also have worked with the wound ostomy nurse manager on follow-up after a PI had been identified as a result of surgery. My dual roles also affect my participation in the Perioperative Quality Committee including the project

site central Skin Integrity Committee. Additionally, I am asked to participate in root cause analysis with risk/safety department when such reportable injuries occur. The project site has recently impaneled a systemwide committee to address this issue of which I am a member. I have the unique opportunity to provide the perioperative perspective to patient care. I have a connection to other community hospitals who are members of our consortium. This affords me the ability to inquire about practice and strategies within the local perioperative community. The professional association membership to the AORN allows for national networking on the topic. At the past annual AORN conference, there were many posters on the topic of PI prevention. I place a high value on reducing risk of injury during surgery. My goal is to help encourage nurses to do the same.

Role of the Project Team

The project team consisted of local experts. The roles included are the manager of wound ostomy care, the departmental safety/quality nurse, the project site quality/safety nurse, senior staff on existing project site department-based skin committee and the project site central committee on skin integrity and the system committee tasked with HAPI reduction in all areas of care. Included in this team were also a clinical nurse from the unit. The team provided valuable expertise into the development of the education plan. The project team provided review and feedback during the regularly scheduled committee meetings. Each member of the project team had equal input into decisions making. As the DNP student, I was charged with coordination of the project, conducting

the pre and posttests, data analysis and the education while simultaneously communicating information and requests for input/feedback from the rest of the team.

Summary

The project site is experiencing an increase in PI rates. CMS no longer reimburses for costs associated with HAPI. Additionally, if the PI rate continues on the wrong trajectory, the project site faces penalties in future reimbursement as a consequence of inadequately preventing the development of PI. The project site has identified the need to prevent PI development in perioperative patients. The project team, under my leadership as the DNP student, provided their expertise in the development of an educational program leading to increased knowledge of PI prevention.

Section 3: Collection and Analysis of Evidence

Introduction

The purpose of this program was to develop, deliver and evaluate a robust education program for the perioperative staff aimed at PI prevention in the perioperative setting. Providing standardized education for staff will give them the knowledge to provide care for patients undergoing surgical procedures in a manner that does not cause harm and provides results in a positive patient outcome. This education will reinforce the value the department places on providing safe care to our patients.

Perioperative nurses advocate for their patients while they undergo surgical procedures. Proper education will instill a foundation which will fully inform staff about the potential for PI development while in the OR. The program will encompass all phases of perioperative care. The project team was comprised of diverse yet key members from both the perioperative department, central hospital and system wide committee. This team assisted me, the DNP student, in developing an education program to prevent PI according to the AORN Prevention of Pressure Injury Essential Guideline. The guideline specifically refers to “standard initial and ongoing education about pressure injuries” (www.aorn.org). This educational program provides staff a consistent foundation on the physiologic basis PI development and risk in the perioperative setting. The ultimate benefit will be enhanced patient care, reduced costs to patient care, and a reduction of HAPIs that are attributed to the perioperative setting.

Practice-Focused Question

PIs are a preventable outcome if EBPs have been employed. Currently at the project site, there is no standardized education provided to all staff regarding risks of PI development for all perioperative patients. The education provided the following: (a) pathophysiology of PI development including factors that contribute, (b) properties of skin, (c) prevention strategies, and (d) the importance of thorough assessment, which includes assessment of darker skin and use of a risk reduction assessment tool. Education of staff is crucial to effect change. This educational program will provided much needed knowledge to staff regarding risk reduction of PI development.

The clinical question guiding this DNP project is: Does staff education increase knowledge among perioperative nurses regarding EBPs regarding PI prevention in perioperative patients?

Sources of Evidence

A literature search was conducted in an ongoing manner using the following databases: CINHALL within Walden University, Johns Hopkin's Welch Library database, google scholar and AORN library of past issues of AORN journal. Search terms included: *pressure ulcer, pressure injury, perioperative and pressure injury and ulcer prevention, surgical patient and ulcer prevention, silicone dressings, prophylactic dressings, Scott Trigger tool, electronic health record and the NPIAP site*. This search has provided a summary of what is known as well as what is not known regarding injury prevention in surgical patients. One of the key highlights noted multiple sources is the need for education of all staff.

Prior to administration of the educational program, a pretest was administered to staff. This pretest was developed using the guideline best practice provided to prevent PI, which would demonstrate the existing knowledge among staff. Prior to education program implementation, a pre knowledge survey was given to staff. After the educational program, the same test was administered to staff. The goal of the posttest was that it would demonstrate an increase in knowledge. The data also helped to inform me of what is needed to elevate nursing practice in risk reduction of PI development in surgical patients. This risk reduction will provide a higher level of perioperative nursing care which is the goal of our care.

Dedicated education time is provided on Thursday mornings from 6:45 to 7:45. This time was used to administer the pretest and education program. Due to time constraints, it was necessary to administer the posttest the following Thursday. In order to verify the same staff have taken both tests, participants were asked to provide their mother's maiden name initials and the month and date of birth. This allowed staff to be completely deidentified. Both tests were accessible via QR code that links to a smartsheet.

Analysis and Synthesis

Pretest knowledge assessments identified existing knowledge among staff. I developed the education program based on a comprehensive review and analysis of the literature. Smartsheets provided an automation and ease of administration for both test objects. Utilizing smartsheets provided ease of data collection/comparison and further prevented me from recognizing handwriting and possibly identifying a staff member.

Access to the smartsheet was restricted to the Perioperative Educators and the business supervisor who manages the overall account.

Administration of a posttest after the education provided data for project evaluation. Posttest results were compared to pretest results. Comparison results were analyzed using descriptive statistics. The goal after the education program is that staff will have an increase in knowledge to employ PI prevention with all perioperative patients.

Summary

The purpose of this program was to develop, deliver, and evaluate a robust education program for perioperative staff aimed at PI prevention. A pretest was administered to staff to identify their current knowledge. The educational program focused on the AORN Guidelines. A thorough education program provided the following: properties of skin, mechanisms of how PI develops, and prevention strategies to reduce the risk of PI development. The posttest was the same as the pretest that was administered to those staff to measure an increase in knowledge with regards to PI prevention. Increasing staff knowledge on PI prevention will elevate the current professional organization standards by which the project site abides.

Section 4: Findings and Recommendations

Introduction

PIs are a risk of surgical procedures and not reimbursed by CMS which increase costs and poor patient outcomes. PI rates at-the project site have been as low as 2.03 per 1,000 patient days and as high as 4.25 per 1,000 patient days. In the last year, the OR has had a total of 41 PIs.

The problem addressed in this project is that staff lack the knowledge regarding PI prevention while patients undergo surgical procedures. The identified gap in practice is currently staff lack the knowledge of PI prevention to reduce development of HAPI while in the perioperative setting. The purpose of this program is to develop, deliver, and evaluate a robust education program for the perioperative staff aimed at PI prevention in the perioperative setting.

A literature search was conducted. Perioperative PI prevention education was provided to staff. Pre and posttest data were collected by the hospital. Results were sent by the hospital to me for analysis.

Findings and Implications

A literature search was conducted in an ongoing manner using the following databases: CINHAL within Walden University, Johns Hopkins' Welch Library database, google scholar and AORN library of past issues of AORN Journal. Search terms included: *pressure ulcer, pressure injury, perioperative and pressure injury and ulcer prevention, surgical patient and ulcer prevention, silicone dressings, prophylactic dressings, Scott Trigger tool, electronic health record and NPIAP site*. This search

provided a summary of what is known as well as what is not known regarding injury prevention in surgical patients. Thirty-three articles were identified that met search criteria. Thirty-two of the articles focused on adult populations. The literature was evaluated using the Johns Hopkins Evidenced Based Practice Model. One on the key highlights noted in multiple sources is the need for education for all staff.

After reviewing the literature, I developed the content of the program (see Appendix A) to include the following topics: (a) why prevention of PIs is important, (b) current PI rate of OR adult patients, (c) skin assessment pre and post op, (d) application of SBDs, (e) assessment and documentation of that action, (f) factors that affect skin assessment in darker skin, and (g) positioning aids and properties.

Perioperative PI prevention education was provided to staff November 20, 2025 after receiving IRB approval. The approval number is 11-13-25-0053575. Prior to delivering the education, all staff were provided the Walden Consent Form for Anonymous. Perioperative PI prevention education was presented to the OR staff during a standing in-service time for a duration of 1 hour and 15 minutes, therefore, a formal recruitment for participants was not conducted. The consent form was displayed on the big screen in the room for all staff to see. An opportunity to answer questions was provided. I reinforced participation in the program was voluntary. After all concerns and questions had been addressed, the pretest QR code was displayed on the screen and staff were provided time to complete using their cellphone. The content was delivered via PowerPoint presentation. Upon completion of the program, the posttest QR coded was displayed and staff were provided time to complete using their cell phones.

The pretest/posttest questions can be found in Appendix B. Thirteen questions were created by me to reflect the content of the program. Nine of the questions were true/false, four questions were multiple choice. Eighty-four tests were distributed with 22 responses received. The pretest and posttest data were compared. Table 2 includes the data of that comparison. The pretest scores ranged from 53.8% to 92.3% of questions answered correctly, with a median of 69.2. The posttest scores ranged from 69.2% to 92.3% of questions answered correctly with a median of 84.6. The posttest increase of the median scores demonstrated increased knowledge of the staff on PI prevention after the education program.

The implications of this program are that nurses had an increase in knowledge of PI prevention. This increase in knowledge will benefit the nursing community in a higher level of practice which will result in a positive care experience. The effect of this increased knowledge is a nursing community that provides care with a focus on how to prevent negative outcomes. This will result in the institution having a reputation for providing high quality care and a secondary benefit of a favorable reputation. The project site is part of a multi organization system that is on a journey to become a highly reliable organization (HRO). This increase in nursing practice will help to fuel the HRO journey. This in turn will serve as a positive motivator for other area systems to replicate PI prevention in surgical patients. Increased knowledge of perioperative nurses on strategies to prevent PI development while undergoing surgical procedures positively impacts social change in a manner that provides improved positive outcomes for patients during their care experience.

Table 2*Pretest/Posttest Score Comparison*

Pretest scores		Posttest scores	
%	<i>n</i>	%	<i>n</i>
53.8	1	53.8	0
61.5	3	76.9	0
69.2	9	69.2	4
76.9	6	76.9	6
84.6	1	84.6	9
92.3	2	92.3	3
100.00	0	100	0
Median	69.2	Median	84.6

Note. *N* = 22. Score = percentage of the 13 questions answered correctly. Percentages not rounded.

A comparison of each questions scores pre and posttest was also performed as shown in Table 2. Seven questions showed increase correct responses. Three questions showed negative correct responses. Three questions showed no change in response. Question 9 was not covered well at all since not one person improved in knowledge of that content. Question 9 was “PI develops up to ___ days after surgery.” Question 13 asked “What percentage of surgical patents develop PI?” In retrospect, the project site rates were provided; however, the average among surgical patients may not have been explicitly stated. Question 6 showed that three staff answered it incorrectly on the posttest after all had answered correctly on the pretest. Question 6 covered the barriers in assessing darker skin. It is unclear what may have been conveyed to change that knowledge in staff incorrectly.

Table 3*Incorrect Responses Comparison*

Question Number	Incorrect on Pretest	Incorrect on Posttest	Difference
1	4	1	0
2	0	0	-
3	12	3	9
4	7	0	7
5	1	2	-1
6	0	3	-3
7	2	1	1
8	0	0	-
9	18	18	-
10	1	0	1
11	14	8	6
12	0	0	-
13	17	18	-1
All	76	54	22

Recommendations

Providing education to staff on prevention of PIs for surgical patients upon hire and an ongoing basis is prudent. The education program that was provided can serve as the baseline education to be presented to staff. Given the unexpected results from some

pre/posttest results, the current education will need revision. Site leaders should discuss possible revisions and develop plan for a future implementation of this education.

Contribution of the Doctoral Project Team

The questions for the pretest/posttest were developed by me. These questions were then provided to three members of the team in order to establish face validity. All three members stated the questions addressed the information intended. The project team which included the Manager of Wound care, staff members of the OR and the Perioperative Quality Improvement staff member provided support to me in the form of discussion of ideas and emotional support. Topics of discussion included OR staff responsibilities associated with the use, assessment and documenting of SBD in general, positioning devices including OR bed mattresses and patient populations who are trending to have a high number of PI develop. These discussions occurred in the regular monthly meeting as well as ad hoc.

Strengths and Limitations of the Project

The project site is currently struggling to reduce the overall number of HAPI including those that are attributed to surgical patients. One strength of the project is that it was fully embraced by the project site. During the presentation of the education program, there was robust dialogue regarding the topic by the staff. After the presentation, one of the Perioperative Nurse Resident groups approached me. They stated they had been inspired by the presentation and wanted to build on that work for their EBP they need to complete. They further stated they could feel my passion for the topic. The topic was developed based on my analysis of current research. Existing education of PI prevention

is focused on the inpatient settings, not the OR. The project was developed to meet a need in a patient care area that is specialized and have very different variables to consider.

One limitation of the project was that the initial questions that were developed for pretest had to be shortened due to character limits of the smartsheet format used for this. The project site has a smart sheet account and therefore the desire was to use a format in which access was already established. I did not explore other programs that offer test/survey options as I was concerned about security, potential cost and the ability to receive the results in a timely manner. This change in the questions may have contributed to scores results pre and post education.

An additional limitation is that a smaller group of OR staff did not attend the program offering. The main room that is used has a capacity limit which necessitates dividing staff into groups. A group is in the room for the live meeting. The group that is not in the room is on a virtual platform viewing the meeting. There were multiple technical issues for the group that needed to attend virtually which were not known until after the meeting had started. This resulted in a group not receiving the education and lower numbers of pretest distributed and returned.

Section 5: Dissemination Plan

After the education program was provided and data analysis completed, I shared with the perioperative leadership team to discuss how the data could assist in making decisions for PI prevention. The first decision the leadership team made was to have the education program presented to the team that had missed the scheduled presentation. Leadership felt that all staff would benefit from the information. Additionally, this group would be afforded the opportunity to provide input as had occurred during the originally scheduled presentation.

The education program will also become an onboarding item for all Perioperative staff upon hire. The program will be recorded and placed in the project site's learning management system (LMS). The pretest and posttests will be also included. The LMS will afford for the questions to be worded without the limitations the smartsheet had imposed. It is hoped that staff using the LMS will better understand the questions to future measure their knowledge.

The discussion surrounding the documentation of prophylactic dressings and placement of patients on specialty mattresses post op was shared with the project site wide committee. The committee was very receptive and appreciative of this information. The documentation changes will be helpful in demonstrating care provided throughout the patients stay and will provide visibility all who are reading the chart.

Analysis of Self

Throughout the entire process of this project journey, I struggled between the scope of the project and what I could realistically accomplish in my role as a student. I

had a clear view of the deficiencies in our system and was gravitating to addressing all of the need. Once the focus on the one need was very specific and achievable within the parameters of the project, I feel my focus became very clear and purposeful. My current role of educator and one of change agent made it hard to constrain myself at times. I would find myself steering off path in an attempt to correct what was needed.

One deficit I noticed while completing this work was that we lacked HAPI rates that applied to surgical patients only and were not embedded in the inpatient rates. Excel spreadsheets are not my strong suit; however, I set up a database to track patients who developed HAPI while undergoing surgical procedure. This database tracked each patient who had an OR-attributed HAPI and the variables of their risk factors. This provided a database I was able to share with the new Quality Improvement (QI) person for the department. The staff member was able to calculate the OR HAPI rate per 1000 cases as opposed to the 1,000 days used for inpatient calculation. I was then able to share this rate with the person in charge of the hospital QI initiative to decrease HAPI rates. This data that is OR specific was very well received by the Hospital QI person and is now published on the intranet for the project site in addition to the inpatient rate. Any work that involves patient data will be done as follow up to student project and in the role as a site employee.

One of my long-term professional goals is to effect change in the way our department demonstrates PI prevention. This project has provided me insight into the complexities of change from an EBP perspective. Simultaneously, I have been recognized as a subject matter expert by the director of the department and other project

site central committees. I am the one who is solicited for input and/or insight from the OR perspective. This has also produced support for making needed changes in the way our electronic record allows for documentation of prevention strategies including the leadership of the informatic department. Educating the staff on prevention is one important aspect. Staff must have a transparent and barrier-free way to demonstrate those prevention strategies as they are key in determining if a PI was avoidable or unavoidable. Positive social change will be achieved throughout the process of influencing care to patients that results in improvements to patient care as this benefits all.

Summary

PI development in patients undergoing surgical procedures is a real possibility with potential negative effects to the patient, perception of nursing care, reimbursement and the overall cost of health care. Patients experiencing surgical procedures present with a unique set of variables that require an approach that is not the same as patients on the inpatient care areas of the hospital. The focus of this project was on an education program on PI prevention for patients undergoing surgical procedures. The education program did increase the knowledge of staff on prevention strategies for patients undergoing surgical procedures.

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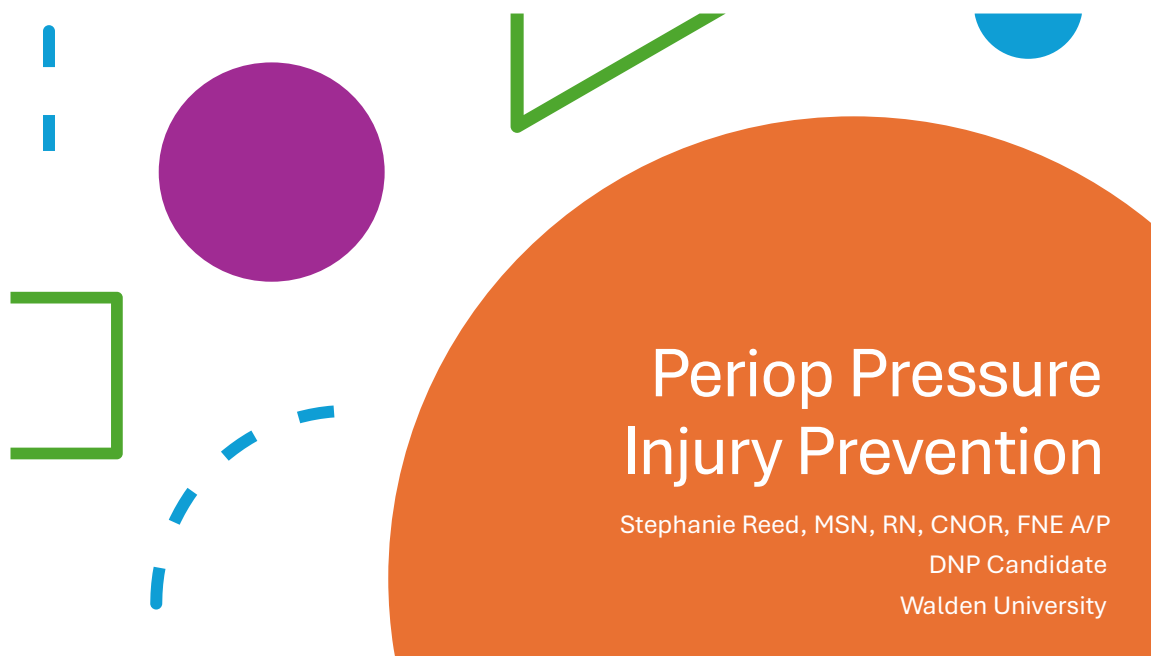
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Appendix A: Education Program



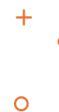
Periop Pressure Injury Prevention

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Pre Test

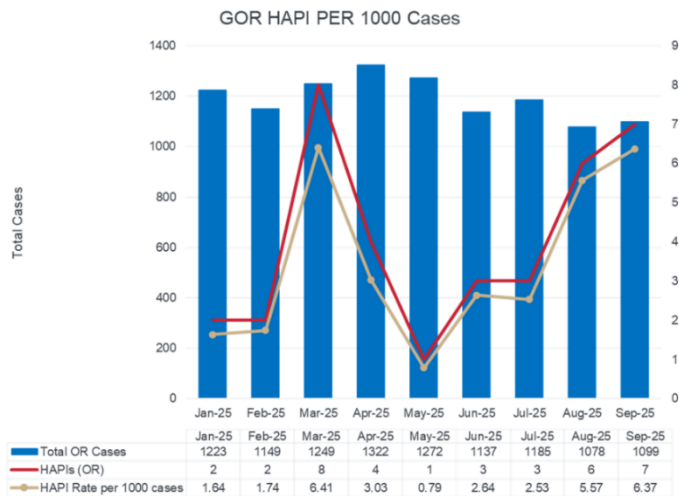


The Why?

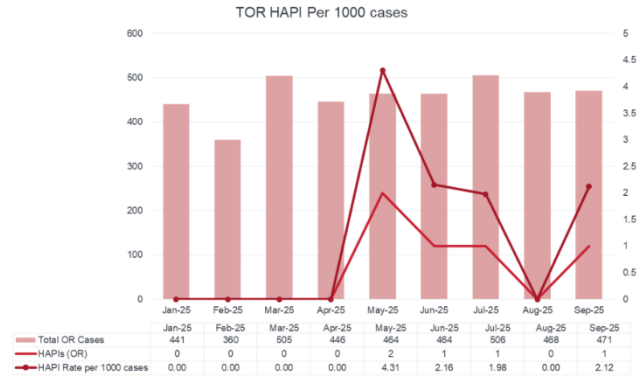


- Patient outcome
- Increased cost
- Patient satisfaction
- Reportable to office of quality
- NSNDQI → Magnet

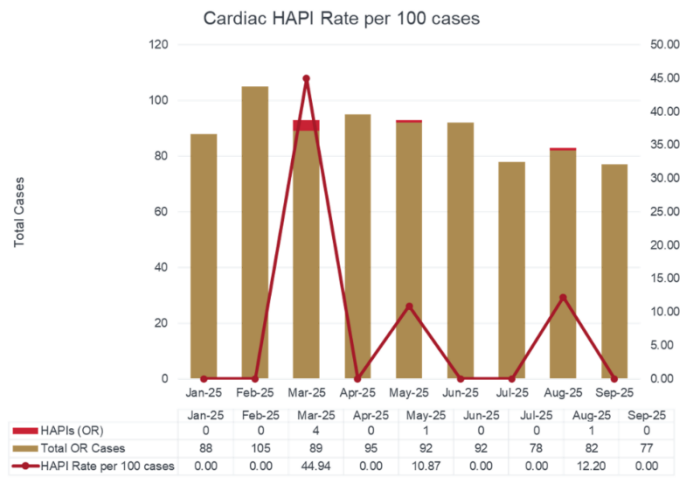
GOR HAPI



TOR HAPI



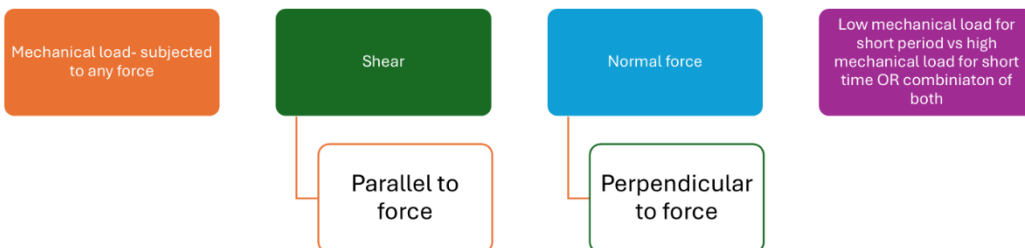
Cardiac HAPI



Pressure Injury Definition

- Localized injury to the skin and/or underlying tissue, usually over bony prominence, resulting in sustained pressure

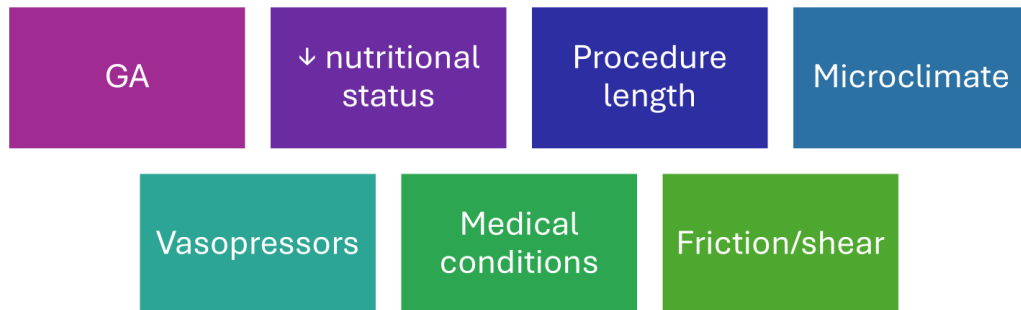
Physics of Pressure Injuries



Pressure Injury Stages

Stage 1	• Non blanchable erythema
Stage 2	• Loss of part of skin
Stage 3	• Complete loss of skin. Shallow ulcer/intact blister
Stage 4	• Loss of all tissue and muscle, bone, tendon exposed
Unstageable	• Base of wound not visible
Deep Tissue injury (DTI)	• Localized area of purple/maroon skin, intact, blood blister may be present

Risk factors



Prevention Strategies



Risk Assessment

- Method to identify those susceptible to PI and implanting interventions (AORN Guidelines)



Patient Label

Review patient record and complete data in left column.
Place a check in the right column if the answer is YES.
If two or more YES answers are present, this may indicate an increased risk of perioperative pressure injury (ulcer).

SCOTT TRIGGERS	Does it meet these qualifications?	If YES, please check here.
Age _____	Age 62 or Older	
Serum Albumin _____ g/L or BMI _____	Albumin level <3.5g/L or BMI <19 or >40	
ASA Score (circle) 1 2 3 4 5	ASA Score 3 or greater	
Estimated surgery time In hours/minutes _____	Surgery time over 3 hours Or 180 minutes**	
Two or more YESES = Surgical Patient at HIGH RISK for HAPI		
Assessment Comments: _____ _____ _____		
List measures implemented to prevent pressure injuries:		
<input type="checkbox"/> Five-Layer silicone border Dressing applied to sacrum (please apply to ALL Free Flap patients, regardless of score)		
<input type="checkbox"/> Warm water blanket placed under full length gel pad		
<input type="checkbox"/> Other measures: _____ _____ _____		

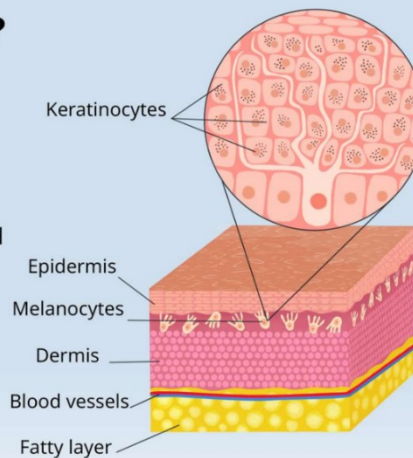
Skin Assessment

- The patient's skin condition should be assessed while the patient is able to participate in the assessment before the procedure begins, to identify any areas of skin injury, abnormal skin findings or high-risk areas (AORN Guidelines).

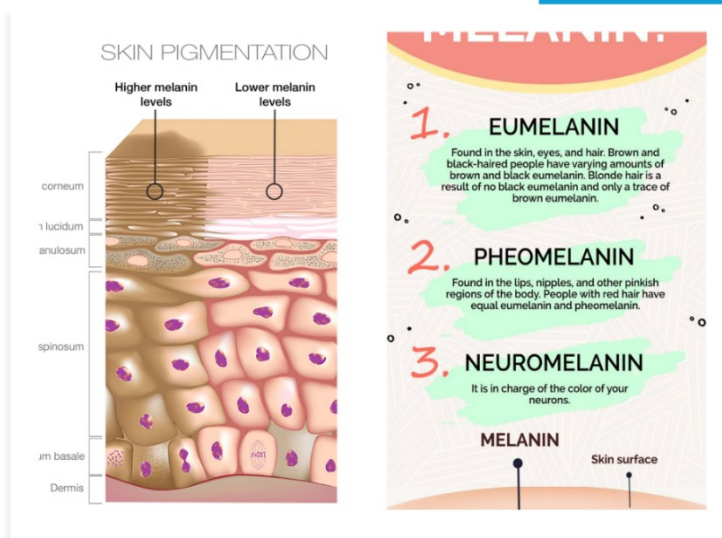


What Is Melanin?

- Melanin is a pigment made by specialized cells in the skin called melanocytes.
- It determines the tone and color of skin, hair, and iris of the eyes.
- Pale skin has less melanin than darker skin or skin that tans more easily.



Melanin



Assessing Skin

Presence/absence of erythema

Temperature

Integrity

Involve patient if possible

Assessment documented

Cyanosis	The lips and tongue will be gray or white, whereas the palms, soles, conjunctiva, and nail beds will have a bluish tinge. These findings should prompt assessment for other indicators of hypoxia. ¹⁹⁻²¹
Stage 1 pressure injury	There is no visible blanching response, and erythema might not be visible or detectable. ²² Inspect and palpate for additional skin tissue changes.
Deep tissue pressure injury	This injury might not be easily visible. Assess for preceding changes, such as pain and temperature change in the affected area. ²³
Inflammation	Inflammation can be subtle or unnoticeable to the naked eye. Skin areas with recently resolved inflammation appear darker than the patient's normal skin tone. The following techniques can be used: compare and contrast an affected and nonaffected area for increased warmth, skin color changes, and texture; examine the affected area for shine, tautness, and pitting edema with pressure; and palpate for differences in texture. ^{20, 24}
Petechiae	On darkly pigmented skin, petechiae are rarely visible. They may be visible in the oral mucosa or conjunctiva. ²⁵
Skin irritation and erythema	This may present as inflammatory or postinflammatory hyperpigmentation (affected area darker than the surrounding skin tone). ²²
Ecchymoses	Areas appear darker than a person's usual skin tone; they may be tender and easily palpable, depending on whether a hematoma is present. ²¹
Pallor	Inspect the mucous membranes for an ash gray color, using ambient lighting or a halogen lamp. Because of decreased blood flow to the skin, brown skin appears yellow-brown, and very dark brown or black skin appears ash gray. ²¹
Jaundice	Inspect the oral mucosa, especially the hard palate, for yellow discoloration. ²¹ For a more accurate determination of jaundice, examine the sclera closest to the cornea. Be aware that if the palms and soles have callouses, they may appear yellow even when jaundice is not present. ²⁰
Nails	Melanonychia, dyschromia, or chromonychia (discoloration or hyperpigmentation of the distal matrix of the nail bed) is present in 7% of people who have dark skin tone. When assessing for abnormalities, ask the patient if they have had rapid hyperpigmented changes or new onset hyperpigmentation, widening hyperpigmented stripe, triangular pigmented shape, and dystrophy of nails. ²⁵

Darker Skin tone Assessment

- https://journals.lww.com/ajnonline/Fulltext/2023/Skin_Assessment_in_Patients_with_Dark_Skin_Tone.20.aspx



Figure 1.

[Skin Assessment in Patients with Dark Skin Tone](#)

Pusey-Reid, Eleonor; Quinn, Lisa; Samost, Mary E.; Reidy, Patricia A.

AJN The American Journal of Nursing 123(3):36-43, March 2023.

doi: 10.1097/01.NAJ.0000921800.61980.7e



An erythematous nodule representing an early, expanding erythema migrans on the lower leg of a person with dark skin tone (A), and an enlarging erythema migrans on the upper thigh of a person with light skin tone (B). Photos reprinted from Bhate C, Schwartz RA. Lyme disease: Part I. Advances and perspectives. J Am Acad Dermatol 2011;64(4):619-38, with permission from Elsevier.

Figure 2.



[Skin Assessment in Patients with Dark Skin Tone](#)

Pusey-Reid, Eleonor; Quinn, Lisa; Samost, Mary E.; Reidy, Patricia A.

AJN The American Journal of Nursing 123(3):36-43, March 2023.

doi: 10.1097/01.NAJ.0000921800.61980.7e

Erythema migrans on a patient with dark skin tone (A) and light skin tone (B). Photos courtesy of the Centers for Disease Control and Prevention / Gary Wormser (A) and James Gathany (B).



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20

Documentation

Edit New Skin Condition

Pre-Op Skin

Site
 Grounding Operative Casual Positioning Tourniquet Warning

Quick Selection

Temperature
 Cold Cool Hot Warm

Appearance

Anaerotic	Ashen Gray	Birthmarks	Black	Blechy	Bruising	Cyanotic	Dark Tan
Dusky	Ecthymosis	Edematous	Flushed	Jaundice	Leathery	Moles	Mottled
Pale	Petechiae	Pink	Port wine stains	Purple	Rash	Redness Blanchable	Redness Non-Blanchable
Ruddy	Sallow	Scaly	Scleral Jaundice	Skin Tags	Teething	Ulceric Frost	White
White Spots							

Integrity

Abrazion	Bleeding	Blisters	Broken	Burns	Cracked	Excor Tissue	Fragile	Gangrenous	<input checked="" type="radio"/> Intact	Laceration	Necrotic	Open Wound
Peeling	Pustules	Scab	Tears	Ulcers								

Moisture
 Diaphanous Dry Moist

Comments

21

Pre op skin assessment

“Warm, dry, elastic, fragile, bruising bil. wrists L upper arm, surgical incisions bil. groins”

“Warm, dry, scab/scrapes bil. shins, vertical scar midline chest, scar/ingrown hair on chest”

“Warm, dry, significant bruising over body”

“Abrasion entire body, bruising all over, areas of cracked dry skin noted on knees, hands, etc.”

Edit New Skin Condition

Post-Op Skin

Site

Grounding Operative **Visual** Positioning Tourniquet Warming

Quick Selection

Warm, Dry, Intact

Warm, Moist, Pink

Temperature

Cold Cool Hot Warm

Appearance

Anasarca	Ashen Gray	Birthmarks	Black	Blotchy	Bruising	Cyanotic	Dark Tan
Dusky	Echymosis	Edematous	Flushed	Jaundice	Leathery	Moles	Mottled
Pale	Petechiae	Pink	Port wine stains	Purple	Rash	Redness Blanchable	Redness Non-Blanchable
Ruddy	Sallow	Scaly	Scleral Jaundice	Skin Tags	Terting	Uremic Frost	White
White Spots							

Integrity

Abrasion	Bleeding	Blisters	Broken	Burns	Cracked	Eschar Tissue	Fragile	Gangrenous	Intact	Laceration	Necrotic	Open Wound
Peeling	Pustules	Scab	Tears	Ulcers								

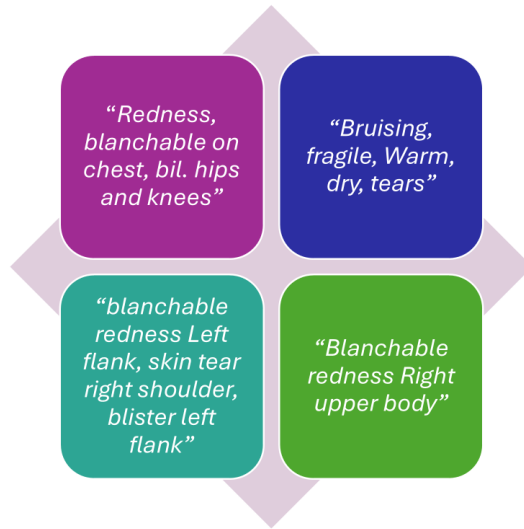
Moisture

Diaphoretic **Dry** Moist

Comments

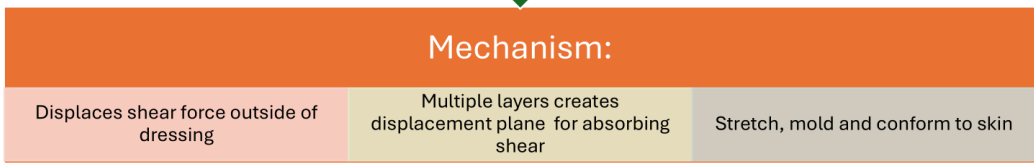
Blanchable erythema anterior chest superior to bilateral nipples approximate area 2x2cm; blanchable erythema to bilateral iliac crests approximate area 1.5x1 cm.

Post op skin assessment



Prophylactic Dressings

Apply prophylactic dressings to bony prominences or the other areas subjected to pressure, friction and shear in those identified high risk (AORN Guidelines).



Prevention: Prophylactic Dressing

- Prophylactic dressings can also be placed on other impacted pressure areas
 - Patient with severe kyphosis
 - Dependent hip or shoulder when positioned lateral
 - Lateral chest when using axillary roll or flexing the table for prolonged cases
 - Other bony prominences in patients with minimal subcutaneous tissue
- Main distribution stocks multiple sizes in addition to the standard quadrilobe dressing
 - Multi site dressing
 - Rectangular dressings in a variety of sizes



Prevention: Prophylactic Dressing

- Controls microclimate
- Redistributes pressure
- Five layer Construction

Unique five-layer construction absorbs fluids and redistributes pressure⁷⁻¹⁷

Breathable
Film layer provides a bacterial barrier

Discreet
Strikethrough-masking layer

Hyper-absorbent
Lock-away core helps minimize leakage of fluid

Protective
Hydrocellular foam cushions, absorbs exudate

Gentle and secure
Silicone adhesive wound contact layer can be repositioned¹⁸ and may reduce trauma to the wound during dressing changes

Nearly
2X
longer wear
time than
other dressings¹



Pre Op Documentation of Silicone border dressings

The screenshot displays the 'Prophylactic Dressings' application interface. The top window shows the 'OTHER' section with 'Heel' selected under 'Prophylactic Dressing Location(s)'. The bottom window shows 'Sacrum' selected, with a 'Create Note' dialog box open for 'Other Dressing' with the comment 'Risk area'.

Our Values
 Respect and Integrity | Teamwork and Collaboration | Excellence and Innovation | Diversity and Inclusion

Post Op Prophylactic Dressing

The screenshot displays the 'Flowsheets' application interface. The 'Skin Breakdown Prevention/Positioning Interventions' table is visible, showing 'Sacrum' with 'Applied' status and 'Lifted for Skin Inspection' note. The 'Braden Total Score' is 1041.

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Post op Prophylactic Dressing/Specialty Bed

Skin Breakdown Prevention/Positioning Interventions	
Braden Total Score	
Braden Friction and Shear Score	
Bedframe	Specialty Mattress
Mattress Type	Specialty Mattress
Repositioned	
Head of Bed Elevated	
Supportive Devices	
O2 Device Skin Barrier Applied	
Prophylactic Dressing Location(s)	Sacrum; Other (comm...)
Sacrum Dressing	Applied <input type="checkbox"/> Lifted for Skin Inspection
Other Dressing	Other <input type="checkbox"/> Removed

Our Values

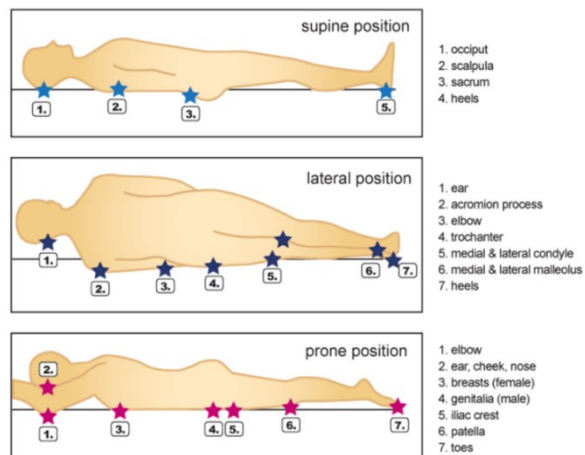
Respect and Integrity | Teamwork and Collaboration | Excellence and Innovation | Diversity and Inclusion

30

Please document “P” for Prevention or “T” for treatment



Positioning



Pressure redistribution

Best supports surfaces are those that provide adequate pressure redistribution with low pressures and highest skin contact area. (AORN guideline).

No more than 3 layers.

Positioning considerations

Proper alignment

Approved positioning devices

Proper transfer technique

Pressure redistributing surfaces

Silicone border dressing application (SBD)

Positioning items

Pink Pad

Gel rolls

Gel Pad

Heel protectors

Bean Bag

Mayfield

Peg Board

Foam

Post Test



Appendix B: Pretest/Posttest Questions

1. Risk asses. Identified those are risk for PI
 - a. True
 - b. False
2. All pts. receive an overall skin assessment
 - a. True
 - b. False
3. Towels/sheets are positioning devices
 - a. True
 - b. False
4. Positioning devices should have
 - a. Support
 - b. Padding
 - c. Pressure redistribution
 - d. Comfort
5. Silicone border dressings are effective in PI
 - a. True
 - b. False
6. Darker skin is easier to assess
 - a. True
 - b. False

7. Non blanchable erythema is a risk factor
 - a. True
 - b. False
8. PI develops because of pressure or shear
 - a. True
 - b. False
9. PI develops up to ___ days after surgery
 - a. 1
 - b. 5
 - c. 2
 - d. 3
10. GA is a risk factor to PI development
 - a. True
 - b. False
11. Surgery of > ___ hours increase risk for PI
 - a. 2 hours
 - b. 5 hours
 - c. 12 hours
 - d. 3 hours
12. SBD is lifted for skin assess after surgery
 - a. True
 - b. False

13. What percentage of surgical patients develop PI

- a. 20%
- b. 60 %
- c. 42%
- d. 35%