

2020

Clinical Practice Guideline: Maintaining Skin Integrity in the Surgical Patient

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Walden University

College of Nursing

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Erin Price

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Walden University

2020

Abstract

Clinical Practice Guideline: Maintaining Skin Integrity in the Surgical Patient

by

Erin Renne Price

MSN, Walden University, 2012

ADN, Amarillo College, 1999

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

Walden University

November 2020

Abstract

The purpose of this project was to develop clinical practice guidelines for intraoperative positioning that will help prevent deep tissue injury and skin breakdown. Maintaining skin integrity in the surgical patient by preventing deep tissue injuries and skin breakdown is an identified gap in practice for surgical patients in the Operating Room environment that a clinical practice guideline could positively impact. To assist in achieving the development of a clinical practice guideline to maintain skin integrity, Benner's novice to expert theory addressing the educational needs for novice operating room nurses was applied. The clinical practice guideline, based on evidence, should be made available to the peri-operative nurses that would include evidence-based guidance on positioning devices. A comprehensive literature search was performed, and the evidence obtained was synthesized based on the hierarchy of evidence table. The guideline was evaluated by a multidisciplinary expert panel using the Agree II tool. The multidisciplinary team consisted of an Operating Room Registered Nurse, a Certified Registered Nurse Anesthetist, and an Anesthesiologist. Each of the panel members is currently working in the operating room and has had at least 12 years of recent experience in that service line. The expert panel had additional recommendations that were included with the final guideline. A final clinical practice guideline was established for the project. Establishing a clinical practice guideline to prevent skin breakdown and deep tissue injuries will demonstrate a social change by assisting the nurses to adequately manage the surgical patient's needs, improve quality outcomes for the patients, and increase reimbursements for the facilities.

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Dedication

This project is dedicated in honor of Peri-Operative Nurse professionals. No one knows our work like we do. Our strong work at times goes un-noticed by our patients because they are under anesthesia, but our work keeps them safe when they are the most vulnerable.

Acknowledgments

First, I would like to acknowledge my God. He gives me strength, both physical and mental to continue to reach for the stars. Thank you to my mom, Kay King, and my Grammy, Elaine Landers for never giving up on me even when believing in me wasn't easy. Thanks to my kids, Shannon and Tatum Price for their patience and understanding for the nights that homework came before family time or home cooked meals. Last, but not least, thank you for the countless professors and preceptors that have led by example and endured questions after questions to ease me of additional stress.

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Section 1: Nature of the Project

Introduction

Skin is an impressive, multifunction organ with supportive and protective purposes. It is complex and provides a barrier against bacteria, helps maintain hydration, and helps with thermoregulation. Skin is a sensory organ that signals touch, pain; it accounts for 16% of total body weight (Rush & Muir, 2012).

Early recognition of patients at high risk for skin breakdown and deep-tissue injury is an essential part of preventing postoperative complications related to skin integrity. Skin serves as a protective barrier against the external environment (Hampton, 2010). Deep-tissue injuries can be described as an area of breakdown in the skin and underlying structures caused by pressure or friction ([EPUAP], 1998). In surgery, there are other causes of deep-tissue injuries that put patients at increased risk, including but not limited to, anesthesia-induced hypotension, hypothermia, and patient positioning (Scott & Buckland, 2005). Preventing deep-tissue injuries, including skin breakdown, can decrease a patient's length of stay, improve morbidity and mortality rates, and decrease the cost of an admission.

Early identification of patient risk is the first step in preventing pressure damage (Benbow, 2009). Having a protocol for OR nurses would help prevent skin breakdown and deep-tissue injury in the surgical patient. From 12–66% of surgical patients develop a pressure ulcer (Schouchoff, 2002). The practicum site was concerned about the incidence of deep-tissue injury—they are reported in the practicum site's quality improvement monthly meetings—and asked me to do my project on this issue. The data on patient

complications, including deep-tissue injuries, are obtained from monthly questionnaires sent to providers since the patients are at the facility for only 23 hours or less.

Problem Statement

Preventing deep-tissue injury in the surgical patient is not simple. The surgical patient may experience immobility for hours during surgery. There is no opportunity to turn or reposition the patient during the intraoperative phase because of the patients positioning and draping that ensure sterility and because of the delicate nature of the surgeon's work.

The practice gap is the lack of standardized practices to maintain patients' skin integrity and prevent deep-tissue injury during surgery; this includes the lack of a risk-assessment tool specific to practice with intraoperative patients. This gap has been identified in different states, different patient populations, and different surgical settings, including inpatient and outpatient. The current practicum site was concerned about deep-tissue injury to patients and the method in which data were obtained and reported to the monthly quality improvement meetings. Postoperative pressure injuries have increased in the past year. Having an evidence-based protocol that would identify high-risk patients for skin breakdown and include the positioning devices that should be used for specific procedures could improve patient outcomes. The goal of implementing an evidenced-based protocol, as described above, would be to decrease deep-tissue injuries in surgical patients and thereby decrease postoperative complications. Patients who experience deep-tissue injuries may have a longer hospital stay, may have to endure added pain and additional surgeries or disfigurement, and may have an increased chance of mortality

(Sullivan & Schoelles, 2013). Another goal of the protocol would be to train perioperative nurses, help them feel comfortable with using the positioning devices, and to be able to articulate the rationales for their use.

Purpose Statement

The purpose of this project was to develop clinical practice guideline for perioperative services to identify surgical patients at high risk for deep-tissue injuries during surgery. The guideline would include specific positioning devices that would be required based on evidence. The project questions were as follows:

Based on the evidence, what recommendations for clinical practice guidelines should be made available to perioperative nurses?

Based on the evidence, what positioning devices are recommended?

Guidelines will help standardize care, provide education and rationales for novice perioperative nurses and other professionals, and improve patient outcomes.

Nature of the Doctoral Project

This clinical practice guideline sought to improve skin breakdown in the surgical patient by addressing the gap in practice on using positioning devices in the operating room (OR). The guideline is expected to help the nurse in identifying what positioning devices to use per procedure, depending on risk factors and the specific position of the patient for the procedure. According to the Association for Peri-Operative Registered Nurses (AORN) position statement (2016), “Deep-tissue injury prevention requires a team approach, every perioperative patient should be assessed for risk factors associated

with increased skin breakdown, and preventing deep-tissue injuries should begin prior to the patient entering the operating room.”

The Walden University Library will be utilized to access journals and other resources of evidence for the project. Google Scholar will also be used to access additional scholarly articles. Since the project began in 2014, over a six-year span, I used information published from 2010 to 2020. I searched for existing clinical practice guidelines and used key words such as *skin integrity*, *deep-tissue injury*, *OR*, and *skin risk assessment*. I found multiple articles addressing skin breakdown and several focused on the specifics of skin breakdown as it relates to the OR. I did notice that there were several more resources that had been published during the time that I was not in school. These new sources are helpful as they focus in on the perioperative patient and unique situations the OR presents when looking at deep-tissue injury prevention. For this project, I used the Walden University DNP Manual for Clinical Practice Guideline Development. The manual calls for a systematic methodology that will promote clinical practices based on the best available evidence (Hollon et al., 2014). To evaluate the end user’s opinion on the usability of the guideline, I used existing data found from the literature search as well as expertise from expert nurses and anesthesia providers at my practicum site. Creating a clinical practice guideline that includes patient risk and guides the nurse about what positioning devices to used based on evidence will help to decrease the incidence of deep-pressure injuries on perioperative patients.

Significance

The goal of this project was to develop a clinical practice guideline to assist the registered nurse position the surgical patient during the operative procedure to prevent pressure injury. I used the Walden University Clinical Practice Guideline Development manual to assist me. With fully implemented guidelines, the goal was to decrease the incidence in postoperative deep-tissue injury in the perioperative patient. To help create a clinical practice guideline to maintain skin integrity, suitable education opportunities should be identified and executed to help the peri-operative Registered Nurse. The clinical practice guideline will help staff to interpret the risk of deep-tissue injury for patients, use adequate pressure redistribution devices, and collaborate with other members of the surgical team to optimize positioning to balance exposure for the procedure with acceptable pressure on bony prominences. These guidelines will not only help nurses to adequately manage the surgical patient's needs but will improve quality outcomes and increase reimbursement.

Stakeholders for this doctoral project include a multitude of specialties, such as anesthesia, surgeons, nursing staff, and administration from the practicum site. Other stakeholders could include patients, families, and vendors. Identification of patients at high risk for skin breakdown during an operative procedure and having a clinical practice guideline to methodically position and evidence based preventive interventions (e.g., using gel and foam padding) can positively impact patient outcomes as well as the financial well-being of the facility. Hospital-acquired deep-tissue injury and skin breakdown increases patient morbidity and mortality. It also decreases CMS payments.

This guideline has the potential to promote confidence in perioperative nurses by guiding them to use best practices to prevent complications due to deep-tissue injury and skin breakdown.

The outcome of this project included a clinical practice guideline that will allow nurses to assess the risk of deep-tissue injury and skin breakdown specific to the patient's perioperative period, guide nurses on best positioning and positioning aids to help reduce pressure on bony prominences. Finally, this Clinical Practice Guideline will assist to improve patient outcomes by preventing deep-tissue injury and skin breakdown and thus decreasing length of stay, additional suffering for the patient, and secondary infections. A thorough literature review was completed to assess and employ current evidence that supports positive patient outcomes. The Essentials of Doctoral Education for Advanced Nursing Practice identifies many benefits of the practice-focused DNP program (American Association of Colleges of Nursing (AACN), 2006). Essential II is focused on systems leadership for quality improvement. The DNP graduate must be prepared to improve patient and healthcare outcomes through initiatives that improve healthcare delivery. Essential III includes discovering knowledge via the examination and synthesis of literature and applying the newfound knowledge into practice (AACN, 2006). Essential IV looks at collaboration within a discipline for improving patient outcomes (AACN, 2006). This project embodies Essential IV by bringing together a multidisciplinary group, including anesthesia, surgeons, and nursing to improve the patient's outcome.

Summary

In Section 1 of this paper, I described the current knowledge gap for the perioperative nurse related to assessing risk for deep-tissue injury and skin breakdown and the use of positioning devices for the surgical patient. I explained the need for an evidence-based standard practice guideline for this gap. I explained the nature of the project, identified the stakeholders, and highlighted the importance of the clinical practice guideline. In section 2, I will review Benner's novice to expert model and provide information about the practicum site and my role on the project.

Section 2: Background and Context

Introduction

Currently, most nursing documentation includes the use of the Braden Risk Assessment scale to help nurses determine a patient's risk for skin breakdown (Hovan, 2017), although every perioperative patient is considered a high risk due to the scoring of the scale. The Braden scale is a useful tool in other specialty areas but does not provide useful information specifically related to the perioperative patients. All perioperative patients will score in the high-risk category on the Braden Risk Assessment scale due to their specific situation in surgery including but not limited to immobility, *non per os* (nothing by mouth) status, and the anesthesia-induced unconscious state. Therefore, the Braden scale is not used in the perioperative setting. Perioperative patients and nurses across the country need a more specific protocol that identifies patients who would be at an increased risk due to the unique surgical positioning, length of the procedure, and patient-specific co-morbidities. Section 2 will look at Benner's novice to expert model, the relevance of the project on nursing, local background and context, and the role of the DNP student.

Concepts, Models, and Theories

The theoretical framework is the basis for the project; it provides contextual understanding, and guides the process (McEwen & Wills, 2011). Terry (2015) explained the importance of understanding the link between nursing theory, practice, and research. Benner's novice to expert theory implies five levels of proficiency: novice, advanced beginner, competent, proficient, and expert (Dumchin, 2010). The theory explains that

the way to become an expert nurse is to develop skills and competence in caring for the patient over time through education and experience (see Figure 1).

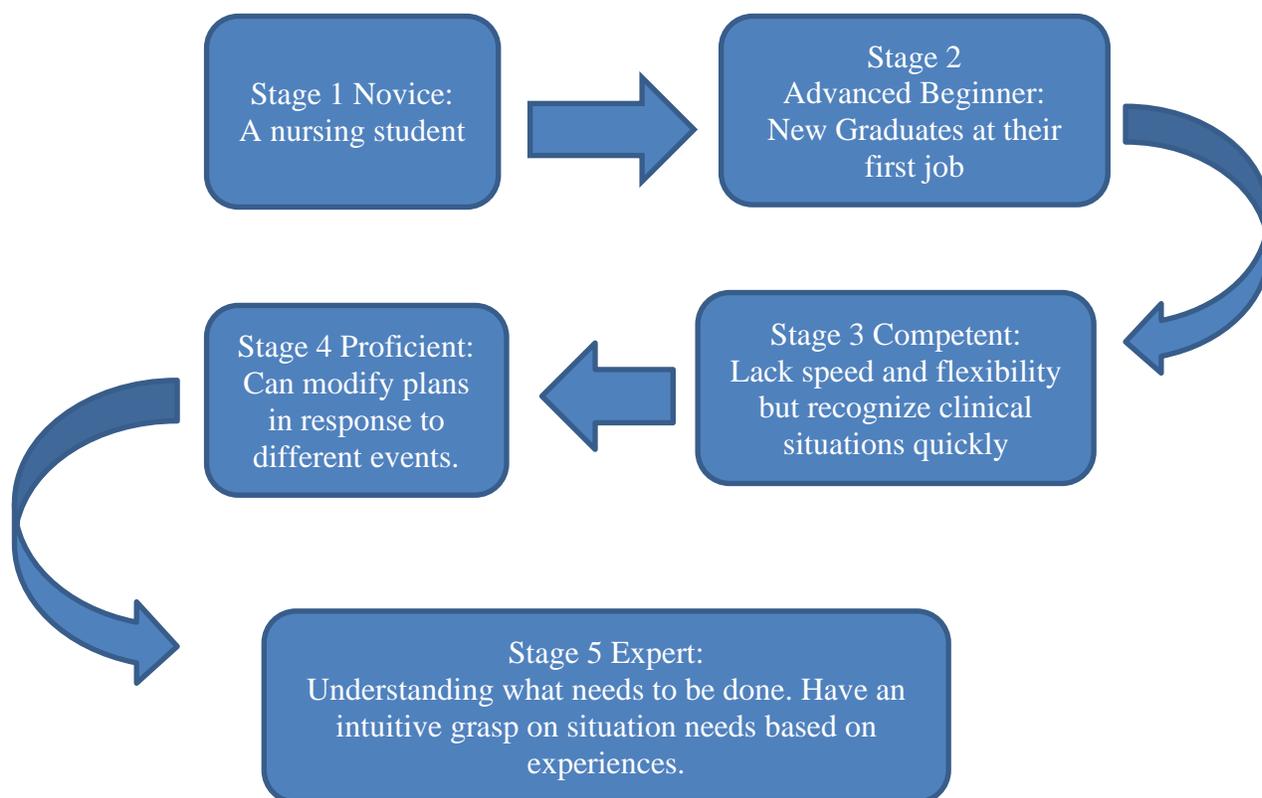


Figure 1. Benner's Novice to Expert model.

According to Petiprin (2016), the importance of this theory is that each level represents movement from experience. Each stage builds on experiences from the previous one as the nurse gains clinical experience. The expert nurse is no longer based on salary yet reflects upon the nurse who provides the highest quality and competent patient care (Petiprin, 2016).

Relevance to Nursing Practice

Developing a clinical practice guideline based on evidence that addresses the specific needs of the perioperative patient has been identified as a proactive need in the prevention of deep-tissue injury and skin breakdown during the perioperative phase of a patient's hospital stay. Deep-tissue injuries and skin breakdown is a hospital-acquired condition as defined by CMS. The lack of evidence-based knowledge and training for the perioperative nurse can greatly impact patient outcomes as well as hospital finances.

Historical Perspective

The Centers for Medicare and Medicaid Services (CMS) issued payment provisions for hospital-acquired conditions as a part of their pay for performance initiative. One of the recommendations from CMS (2014) was to ensure that pressure redistribution devices be used in the OR on patients identified as high risk. One example of a pressure redistribution device is a gel overlay. The intent of the overlay is to reduce capillary pressure (Schouchoff, 2002). Special consideration should be given to patient positioning when in extreme positions such as prone and lateral positions. Negative outcomes to the patient who develops a deep-tissue injury includes additional pain, disfigurement, additional surgery, increased length of stay, increased morbidity and mortality rate, along with loss of income. Negative outcomes to a facility would include decreased reimbursement, increased treatment cost, and possible litigation. Patients in the perioperative setting are by the nature of the situation considered high risk for skin breakdown. Specific variations including positioning in the OR and time of operation can greatly impact the patients' risk. Different positioning aids are available in the OR, but

many nurses lack the understanding of what makes the products different and what products are superior to others depending on the specific circumstance of the procedure (AORN, 2018). Table 1 outlines two of the most widely accepted screening tools, however neither of them can be of use for the perioperative patients. Creating a clinical practice guideline specific to perioperative patients will provide the nurse an evidence-based guideline to improve outcomes.

Table 1

Screening Tools

Name of Tool	Description	Pros	Cons
Braden scale	A tool that predicts the risk for developing a hospital acquired deep-tissue injuries	Evidence-based Widely used and accepted	Tool does not specifically include considerations for the perioperative patient.
Norton scale	A tool that can be used to identify patients at risk for deep-tissue injuries	Similar to the more often used Braden scale	No specifics for a specialty such as the OR

Local Background and Context

The location for my DNP project will be a for profit ambulatory surgery center serving patients over 18 years old and hosting over 300 cases each month. This location asked for my project to look at this gap in practice in hopes of improving patient outcomes. Implementing a clinical practice guideline specific to the perioperative setting will increase awareness and standardize patient care related to the prevention of deep-tissue injury and skin breakdown. Not only will the guideline improve patient outcomes,

it will help a facility financially by decreasing events that impact the pay for performance programs from CMS.

Role of the DNP Student

Doctor of Nursing Practice (DNP) nursing professionals are routinely called upon, within their specialty area, when clinical practice guidelines are developed. They are considered not only experts, but also looked up to as a mentor and leader. According to Terry (2015), the American Association of Colleges of Nursing (AACN) consider it to be essential that the DNP nurse be an agent for quality improvement. The DNP nurse is looked upon as the expert as well as the leader. I have been a Registered Nurse for 21 years and have a specialty certification for the OR (). My bedside experience was specifically in the cardiac surgery OR where many of my patients acquired postoperative pressure injuries. As a leader since 2005 for perioperative services, I have had to be a part of many patient negative outcomes as a result of nurses using makeshift positioning aids and not taking more of an active role in patient positioning. Some of those patients have had to have additional surgeries leaving them scarred, disfigured, and having loss of function at times. My current role as a nursing administrator at the practicum site will allow me to see the big picture on impact to patient care and the facilities finances. As a DNP student and the leader of this project, I was able to be hands-on with the end users to gain an understanding of potential barriers and gauge the buy in of the surgical team. I have not identified any potential biases I may have. By addressing this gap in practice, I hope to be able to positively impact complications related to deep-tissue injury and skin breakdown.

Summary

In Section 2, I illustrated how Benner's novice to expert theory will guide this project. My illustration shows the progression of a nurse's knowledge base as well as how the knowledge is applied to practice. I outlined the current screening tools used by comparing the most used Braden scale to the lesser used Norton scale. I discussed the relevance of my project to nursing practice as well as the role of the DNP student. Section three will include a description of the sources of evidence and the analysis and synthesis of the evidence.

Section 3: Collection and Analysis of Evidence

Introduction

Strasser (2012) identified the perioperative area as an at-risk area for patients; it is related to the lack of fully implementable protocols due to the unique variables that are presented in that environment. Strasser (2012) concluded that because of this, perioperative nurses are left with limited resources and knowledge. Therefore, nurses are doing their best, but they are not always using evidence-based practices. Developing clinical practice guidelines specific to the intraoperative patient would take into consideration several elements of nursing practice. The guidelines could improve patient outcomes by standardizing practice based on evidence. They should be reviewed periodically to ensure that they remain up to date with the most recently published evidence.

Practice-Focused Question

The project questions were as follows:

Based on the evidence, what recommendations for clinical practice guidelines should be made available to the perioperative nurses?

Based on the evidence, what positioning devices are recommended?

Sources of Evidence

A literature review was conducted for this project as a portion of the work needed before developing a clinical practice guideline to present to the project site. I used the following keywords: *skin breakdown, deep-tissue injury, pressure ulcer, Braden scale, positioning devices, intra-operative positioning, and pressure points*. I used the following

databases: Medline, Google Scholar, PubMed, and CINAHL. I also used position statements and articles from AORN. Due to my project being started in 2014, my articles have been published in the past 10 years between 2010 and 2020. By utilizing scholarly articles and information published by AORN, I will be able to take the evidence forward into my project.

Analysis and Synthesis

The analysis and synthesis of the evidence required several steps. The first step was conducted to evaluate the evidence. The second step focused on grading the evidence. The third step was to develop a clinical practice guideline based on the evidence. The fourth step was to identify an expert panel. The fifth step required the approval of the institutional review board (IRB). After approval was obtained, the sixth step required the expert panelists to sign off on the questionnaire. In the seventh step, the panelists reviewed the guideline and provided feedback. In the eighth step, the end users and other stakeholders were identified. During the ninth step, a final report was developed. In the tenth step, the final report was disseminated to the key stakeholders.

Step 1: Critically Appraise the Evidence

Critical appraisal, according to Al-Jundi and Sakka (2017), is the action for watchfully examining the research assessing for not only its reliability and value, but also, its relevance. Critical appraisal can assist in avoiding information overload as well. For this project, I reviewed eight peer-reviewed articles and one clinical practice guideline. Many articles identified the need for improvement surrounding education and evidence-based protocols for nurses in the perioperative area focused in on prevention of skin

breakdown and the prevention of deep-tissue injuries. The clinical practice guideline is a recent publication this year.

Step 2: Synthesize the Evidence from the Literature

It was transparent from my literature search that there is a significant number of studies and articles available about skin integrity, prevention of skin breakdown, and risk assessment tools. There are not, however, numerous studies focused in on the unique situations of the perioperative environment. There had been several articles that published during my break from school which were significant and helpful to my project. The evidence was synthesized based on the hierarchy of evidence table (see Table 2)

Table 2

Hierarchy of Evidence Table

Type of Evidence	Level of Evidence	Description
Systemic Review or Meta-Analysis	I	The highest level of evidence. This type of evidence is from a systemic review or meta-analysis. Randomized Controlled Trials (RCTs) or evidence-based clinical practice guidelines based on systemic reviews of RCTs
Randomized Controlled Trials	II	Evidence from at least one well-designed RCT
Non-randomized RCTs	III	Evidence from a well-designed controlled trials without randomization
Case-control or Cohort study	IV	Evidence from well-designed case-control and cohort studies
Systemic Review Descriptive or Qualitative	V	Evidence from systemic reviews of descriptive and qualitative studies
Descriptive or Qualitative Study	VI	Evidence from a single descriptive or qualitative study
Expert Opinion	VII	Evidence from the opinion of authorities and/or reports or expert committees

Hierarchy of evidence (Melnyk, 2011)

Level I. Peixoto et al. (2019) published a systemic review that concluded a risk assessment scale for perioperative injuries can provide early identification of patients that are at a higher risk. This subsequently allows perioperative nurses the ability to employ preventative measures to improve patient outcomes.

Level II. McInnes et al. (2011) looked at five trials using pressure reducing overlays on the OR table. The trials suggest that the overlays are beneficial and can reduce deep-tissue injuries.

Level III. Smith et al. (2013) published reports from a non-randomized controlled trial that suggest the choice of bedlinens, under pads, and patient gowns can affect the incidence of deep-tissue injuries.

Level IV. Primiano et al. (2011) reports that gel overlay pads can decrease deep-tissue injury risk, particularly in longer surgical procedures. The article goes on to express how important it is for perioperative nurses to be able to identify factors that place patients at a higher risk of skin breakdown. The article concludes that patient position and table surfaces are two major contributors that could impact skin breakdown on patients during their intraoperative period.

Level V. Roberts et al. (2016) reported that OR nurses are open to a care bundle to prevent deep-tissue injuries in the surgical patient. This would improve communication, education and awareness around preventing deep-tissue injuries in the surgical environment.

Level VI. Aronovitch (2007) included the need for a specific perioperative risk assessment tool. The study identified that the use of warming devices and the standard OR table increased the risk of deep-tissue injury development.

Level VII. The expert panel agrees that there is a gap in practice on perioperative prevention of deep-tissue injuries. The expert panel showed their support of the project. Their experience on prevention of deep-tissue injuries is in line with the proposed guidelines. Information will be obtained from data reported to the quality committee and is reported in the monthly quality meeting. Physicians report monthly on each patient to include infection, deep pressure injuries or pressure ulcers, and any other complication from their procedural stay.

Step 3: Develop Clinical Practice Guideline

1. Identify any pre-existing co-morbidities that would increase the risk of skin breakdown for the patient.
 - a. Peripheral vascular disease (or risk factors including but not limited to smoking, anemia)
 - b. Diabetes
 - c. Under or over normal BMI
 - d. Patient age >65 years old
2. Identify the planned duration of the surgery. The risk is greater if the procedure is longer than 3 hours in duration (Primiano et al., 2011).
3. High risk for deep-tissue injuries and skin breakdown should be considered if any of the previous risk factors were identified.

4. Identify and gather proper positioning equipment per planned position (see table 3).

Table 3

Proposed Guideline's Positioning Equipment

	Supine	Prone	Lateral	Lithotomy
High Risk Considerations per position.	Gel overlay for the OR Table, Gel head rest, Ulnar Nerve Gel Pads Pillow under knees and head	Gel chest rolls or Wilson frame. Gel head rest. Pillows under legs ensuring toes are free of pressure. Breasts and genitalia free of pressure. Gel Ulnar nerve pads. Gel padding under knees. Eye protection.	Gel overlay for the OR table. Gel head rest. Gel Axillary roll. Gel Ulnar nerve pad for dependent arm. Pillows between arms and legs. Place pulse oximeter on dependent arm to aid in assessing for adequate blood flow.	Gel head rest, Gel overlay for the OR Table. Gel inserts in the stirrups. Ulnar nerve Gel pads.

Step 4: Identify an Expert Panel

The identified expert panel included one OR registered nurse, one certified registered nurse anesthetist, and one anesthesiologist. All three of the participants have more than 12 years of experience and are currently working in the OR setting.

Step 5: Obtain Institutional Review Board Approval

The clinical site signed the form to approve my clinical practice guideline project.

Step 6: Obtain Expert Panelists' Signatures

With the Walden IRB approval (No. 08-12-20-0143041), the panelists were asked to sign off on their questionnaire.

Step 7: The Expert Panelists Will Review the Guideline

The panelists reviewed the proposed clinical practice guideline and provide feedback. They will each be asked to use the AGREE II tool (2013) and address each of the following:

Domain 1. Scope and Purpose

Domain 2. Stakeholder Involvement

Domain 3. Rigour of Development

Domain 4. Clarity of Presentation

Domain 5. Applicability

Domain 6. Editorial Independence

Step 8: Identify Key Stakeholders and/or End Users

After the feedback from the expert panelists is obtained, and edits completed, the updated clinical practice guidelines are presented to the OR Registered Nurses, Anesthesia, and Owners to obtain additional feedback and assess engagement.

Step 9: Develop a Final Report**Step 10: Disseminate Final Report to Key Stakeholders****Summary**

This project of developing a clinical practice guideline addressing skin integrity in the OR will help improve a current gap in knowledge and practice resulting in improved

patient outcomes. This project has included a literature search, and feedback from an expert panel. The guideline will be presented to end users and stakeholders.

Section 4: Findings and Recommendations

Introduction

The clinical site for this DNP project was a busy, freestanding, ambulatory surgery center in a large metropolitan area, which handles over 300 surgical cases each month. The center provides care to adults age 18 and over. The clinical site requested my help with deep-tissue injuries and maintaining skin integrity in the surgical patients.

The goal of this project was to develop a clinical practice guideline that would help the OR nurse with an evidence-based protocol when positioning surgical patients. The guideline would help OR nurses improve patient outcomes by better understanding how to select positioning devices based on the complexity of the procedure, exposure required, and the patient's position. In this section, I outlined the feedback from the expert panel. The project questions were as follows:

Based on the evidence, what recommendations for clinical practice guidelines should be made available to the perioperative nurses?

Based on the evidence, what positioning devices are recommended?

Findings and Implications

The expert panel used the Agree II tool to evaluate the proposed clinical practice guideline. The panel included one anesthesiologist, one nurse anesthetists, and one OR nurse. Each panelist was working in the OR and each had at least 12 years of experience.

The Agree II tool uses six different domains with each section rated on a scale of 1-7 with a grade of 1 being strongly disagree and a 7 being strongly agree (Agreetrust, 2013). Table 4 provides the feedback from each of the expert panelists.

Table 4

Expert Panel Agree II Tool Results

Criteria	Panelist 1	Panelist 2	Panelist 3	Comments
1. The overall objectives of the guidelines were specifically described.	5	7	7	Some duplication
2. Health question covered by the guideline is specifically described.	7	7	7	Very professionally written
3. The population to whom the guideline is meant to apply is specifically described.	6	7	7	
4. The guideline development group includes individuals from all relevant professional groups.	7	7	7	All persons mentioned
5. The views and preferences of the target population have been sought.	7	7	7	
6. The target users of the guideline are clearly defined.	7	7	7	
7. Systematic methods were used to search for evidence.	7	7	6	
8. The criteria for selecting the evidence are clearly described.	6	7	6	
9. The strengths and limitations of the body of evidence are clearly described.	7	7	6	
10. The methods for formulating the recommendations are clearly described.	6	5	5	
11. The health benefits, side effects, and risks have been considered in formulating the recommendations.	7	7	7	
12. There is an explicit link between the recommendations and the supporting evidence.	6	6	6	

13. The guideline has been externally reviewed by experts prior to its publication.	7	7	7	
14. A procedure for updating the guideline is provided.	2	4	4	Implied but not spelled out
15. The recommendations are specific and unambiguous.	7	7	7	
16. The different options for management of the health condition or health issue are clearly presented.	7	7	6	
17. Key recommendations are easily identifiable.	7	7	7	
18. The guideline describes facilitators and barriers to its application.	6	7	6	
19. The guideline provides advice and/or tools on how the recommendations can be put into practice.	6	7	6	
20. The potential resource implications of applying the recommendations have been considered.	6	7	5	
21. The guideline presents monitoring and auditing criteria.	6	7	5	Need to be more clearly stated
22. The views of the funding body have not influenced the content of the guideline.	7	7	7	
23. Competing interests of guideline development group members have been recorded and addressed.	7	7	7	
Rate the overall quality of this guideline	6	7	6	Much needed in the OR
I would recommend this guideline for use.	6	7	6	

Domain 1

Domain 1 covered the scope and purpose. The questions that are included in this domain were inclusive of the first three questions and looks at the health impact that the guideline will make on patients. The targeted population should be concise. The score for domain 1 is 94%. This illustrates that the guidelines were met. A comment from reviewer one indicated there was some duplication when describing the overall objectives. This has been reviewed and addressed.

Domain 2

Domain 2 looked at stakeholder involvement. The next three questions are included with this domain and is looking to ensure that professionals relevant to the project are included. This domain also looks to confirm that the target users of the guideline have been identified. Domain 2 scored a perfect 100%. No edits were needed.

Domain 3

Domain 3 included the rigour of development. Questions 7 to 14 were evaluated for this domain. This domain focuses in on strategies that were used to search for evidence. Strengths and limitations, as well as recommendations of the project will also be addressed within domain 3. Domain 3 scored 84%. Although this indicates the objectives were met, but scoring was the lowest when evaluating the question looking at the method in which the recommendations is clearly described. The other low scoring question was describing a procedure for updating the guideline. There have been additions to more clearly outline the need for on-going updates to the guideline as new evidence is published.

Domain 4

Domain 4 was the clarity of presentation. The next three questions are considered for this domain. This section is looking at the recommendations to ensure they are specific, easily identified, and clearly presented. Domain 4 was scored at 98%. Objectives were met for this domain.

Domain 5

Domain 5 assessed the applicability and includes the next four questions. This domain is looking at any barriers. Auditing / monitoring and needed resources are also evaluated within this domain. Domain 5 scored 89%. Reviewers commented that a process to audit and monitor compliance needed to be more clearly described. Additional wording has been added to address this.

Domain 6

Lastly, Domain 6 graded editorial independence. This domain is ensuring the no conflicts of interest or undue influence has been placed on the project. Domain 6 was scored with a perfect 100%.

Recommendations

The three expert panelists identified two areas that needed to be addressed. Additional information needed to be added to include the process for which the guideline should be re-evaluated to ensure the most up to date evidence is being considered. Also, additional specifics about ensuring and measuring compliance was added that spoke to auditing. All three expert panelists had no reservations and recommended the guideline. My final clinical practice guideline I am recommending is as follows:

1. Identify any pre-existing co-morbidities that would increase the risk of skin breakdown for the patient.
 - a. Peripheral vascular disease (or risk factors including but not limited to smoking, anemia)
 - b. Diabetes
 - c. Under or over normal BMI
 - d. Patient age >65 years old
2. Identify the planned duration of the surgery.
3. High risk for deep-tissue injuries and skin breakdown should be considered if any of the previous risk factors were identified.
4. Identify and gather proper positioning equipment per planned position (see table 5)

Table 5

Guideline's Positioning Equipment

	Supine	Prone	Lateral	Lithotomy
High Risk Considerations per position.	Gel overlay for the OR Table, Gel head rest, Ulnar Nerve Gel Pads Pillow under knees and head	Gel chest rolls or Wilson frame. Gel head rest. Pillows under legs ensuring toes are free of pressure. Breasts and genitalia free of pressure. Gel Ulnar nerve pads. Gel padding under knees. Eye protection.	Gel overlay for the OR table. Gel head rest. Gel Axillary roll. Gel Ulnar nerve pad for dependent arm. Pillows between arms and legs. Place pulse oximeter on dependent arm to aid in assessing for adequate blood flow.	Gel head rest, Gel overlay for the OR Table. Gel inserts in the stirrups. Ulnar nerve Gel pads.

Strengths and Limitations of the Project

This clinical practice guideline helped to give structure around identifying surgical patients who are at an increased risk for skin breakdown and deep-tissue injury. The guideline will assist by outlining the recommended positioning devices per the planned surgical position. This guideline could be used at other surgical hospitals and / or ambulatory surgical centers. The guideline can be used for patients of all ages, but the positioning devices should be sized appropriate to the population served. A potential limitation of the project to be aware of is a potential for an initial increase in the number of reported patients with deep-tissue injuries or skin breakdown due to the increased awareness amongst providers therefore resulting in more accurate reporting.

Summary

Section 4 included results from the expert panelists using the Agree II tool and included feedback on edits that should be considered for the final project. Each of the 6 domains were specifically scored. My final recommendation for the clinical practice guideline was outlined. Strengths and limitations were also discussed in this section. Section 5 will explore the dissemination plan.

Section 5: Dissemination Plan

My project is the development of a clinical practice guideline that addresses the prevention of deep-tissue injuries and skin breakdown in the perioperative area. I assembled an expert panel who evaluated my guideline using the Agree II tool. All three panelists recommended my guideline for clinical use. I presented my project to the leadership at the practicum site and received positive feedback from them. Upon implementation of the guideline, nursing staff, anesthesia, and surgeons would be involved to ensure all participants have been educated on the guideline. As with any new process, on-going monitoring and audits would be done to ensure the hardwiring of the implementation, as well as allowing an opportunity for real time education for those who would need it. I would be able to further disseminate the information outside of the clinical site by sharing with my professional organization, Association of OR Nurses (AORN). Finally, I would submit my project for publication to help the information improve outcomes for more patients.

Scholar

This project has provided me with numerous growth opportunities. As a scholar, I learned what it meant to truly research literature to identify support for an evidenced-based practice project. I have a better understanding of what a clinical practice guideline is and how it can impact change and foster better patient outcomes based on evidence.

Practitioner

As a practitioner, I grew professionally and gained a better understanding of the importance of using an evidenced-based practice model. I feel I am now better equipped

to provide patients with better patient care and lead my nursing teams in the same manner. I gained a better appreciation for quality of patient care based on the latest data and how crucial it is to not lose sight of that.

Project Manager

As a project manager, I have gained experience by working with not only nurses and advanced nurses but including physicians in my project as well. I feel I have a better understanding of what it truly means to be a change agent. Completing a project of this caliber has opened doors to future projects like this, and I am grateful for that.

Summary

My project goal was to develop a clinical practice guideline that helped to improve an identified current gap in practice utilizing an evidence-based approach. My project will help to improve patient outcomes, educate nurses, and help the facility's financial bottom line by decreasing skin breakdown and deep-tissue injuries of patients receiving a surgical intervention during their stay. The experiences and growth I have obtained through my DNP journey will continue to help to improve patient outcomes and mentor nurses for years to come. Although this is the end of my formal education, I will never stop having a thirst for knowledge and taking advantage of professional growth opportunities as I am afforded them.

• References

- Agretrust.org (2013). Appraisal of Guidelines for Research and Evaluation II. Retrieved from https://www.agretrust.org/wp-content/uploads/2013/10/AGREE-II-Users-Manual-and-23-item-instrument_2009_UPDATE_2013.pdf
- Al-Jundi, A. & Sakka, S. (2017). Critical Appraisal of Clinical Research. Retrieved from www.ncbi.nlm.nih.gov/pmc/articles/PMC5483707/
- American Association of Colleges of Nurses (AACN). (2006). *The essentials of doctoral education for advanced nursing practice*. Washington DC: Author.
- AORN (2016). AORN Position Statement on Peri-operative Deep tissue injury Prevention in The Care of the Surgical Patient. Retrieved from <https://www.aorn.org/guidelines/clinical-resources/tool-kits/non-member-tool-kits/Prevention-of-Perioperative-Pressure-Injury-Tool-Kit-Nonmembers>
- AORN (2018). Positioning. Retrieved from <https://www.aorn.org/about-aorn/aorn-newsroom/periop-insider-newsletter/2018/2018-articles/positioning-pitfalls-to-avoid>
- Arnovitch, S.A. (2007). Intraoperatively Acquired Pressure Ulcers: Are There Common Risk Factors? Retrieved from <https://www.o-wm.com/Content/intraoperatively-acquired-pressure-ulcers-are-there-common-risk-factors>
- Benbow, M. (2009). Maintaining Skin Integrity and Preventing Pressure Damage. *Nursing and Residential Care*. 11(9). s443-s451.
- Dumchin, M. (2010). Redefining the Future of Perioperative Nursing Education: A Conceptual Framework. Retrieved from

- <http://web.a.ebscohost.com.ezp.waldenulibrary.org/ehost/pdfviewer/pdfviewer?vid=5&sid=34eb1463-4d90-49a7-99d2-0d8ad2986f69%40sessionmgr4002&hid=4106>
- European Pressure Ulcer Advisory Panel. (1998). Pressure Ulcer Treatment Guidelines. Retrieved on July 11, 2015 from www.epuap.org/gltreatment.html
- Hampton, S. (2010). How to Preserve Skin Integrity and Prevent Skin Tears. *Nursing and Residential Care, 12*(6), s284-s287.
- Hollon, S.D., Arean, P.A., Craske, M.G., Crawford, K.A., Kivlahan, D.R., Magnavita, J.J., Ollendick, T.H., Sexton, T.L., Spring, B., Bufka, L.F., Galper, D.I., and Kurtzman, H. (2014). Development of Clinical Practice Guidelines. Retrieved on April 12, 2020 from <https://www.ncbi.nlm.nih.gov/pubmed/24679179>
- Hovan, H. (2017). Understanding the Braden Scale. Retrieved on April 18, 2020 from <https://www.woundsource.com/blog/understanding-braden-scale-focus-sensory-perception-part-1>
- Melnyk, B.M. (2011). Evidence-based practice in nursing & healthcare: a guide to best practice. (2nd ed.). Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins.
- McEwen, M., & Wills, E. (2011). Theoretical basis for nursing (3rd ed.). Philadelphia, PA: Lippincott, Williams & Wilkins.
- McInnes, E., Jammali-Blasi, A., Bell-Syer, S.E., Dumville, J.C., and Cullum, N. (2011). Support surfaces for pressure ulcer prevention. The Cochrane Library.
- Peixoto, C., Ferreira, M., Felix, M., Pires, P., Barichello, E., and Barbosa, M. (2019). Risk assessment for perioperative pressure injuries. Retrieved on June 1, 2020

from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6336361/>

- Petiprin, A. (2016). From Novice to Expert. Retrieved on April 18, 2020 from <https://nursing-theory.org/theories-and-models/from-novice-to-expert.php>
- Primiano, M., Friend, M., McClure, C., Nardi, S., Fix, L., Schafer, M., Savochka, K.,
And McNett, M. (2011). Pressure Ulcer Prevalence and Risk Factors among Prolonged Surgical Procedures in the OR. *AORN Journal*, 94(6), 555-566.
- Roberts, S., McInnes, E., Wallis, M., Bucknall, T., Banks, M., and Chaboyer, W. (2016). Nurses' perceptions of a pressure ulcer prevention care bundle: a qualitative descriptive study. Retrieved on June 22, 2020 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5117662/>
- Rush, A. and Muir, M. (2012). Maintaining Skin Integrity in Bariatric Patients. *British Journal of Clinical Nursing*. 17(4). s154-s159.
- Schouchoff, B. (2002). Pressure Ulcer Development in the Operating Room. *Crit Care Nurse Q* 25(1), s76-s82.
- Scott, E.M. and Buckland, R. (2005). Pressure Ulcer Risk in the Peri-Operative Environment. *Art and Science Tissue Viability Supplement*, 20(7), s74-s84.
- Smith, A., McNichol, L.L., Amos, M., Mueller, G., Griffin, T., McPhail, J., and Montgomery, T.G. (2013). A Retrospective, Nonrandomized, Before-and-After Study of the Effect of Linens Constructed of Synthetic Silk-like Fabric on Pressure Ulcer Incidence. Retrieved on June 15, 2020 from <https://www.o-wm.com/article/retrospective-nonrandomized-and-after-study-effect-linens-constructed-sythtic-silk-fabric->

- Strasser, L.A. (2012). Improving Skin Integrity in the Peri-operative Environment Using an Evidence-Based Protocol. Retrieved on March 29, 2020 from https://journals.lww.com/jdnaonline/Fulltext/2012/11000/Improving_Skin_Integrity_in_the_Periooperative.2.aspx
- Sullivan, N. and Schoelles, K.M. (2013). Preventing In-Facility Pressure Ulcers as a Patient Safety Strategy: A Systemic Review. Retrieved on July 12, 2020 from <https://pubmed.ncbi.nlm.nih.gov/23460098/>
- Terry, A.J. (2015). Clinical Research for the Doctor of Nursing Practice. (2nd ed.). Burlington, MA: Jones & Bartlett.
- The Centers for Medicare and Medicaid Services (2014). Evidence Based Guidelines for Selected, Candidate, and Previously Considered Hospital Acquired Conditions. Retrieved July 11, 2015 from <http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HospitalAcqCond/Downloads/Evidence-Based-Guidelines.pdf>