Hospital Acquired Pressure Ulcer Prevention Using Mentoring Program

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Hospital Acquired Pressure Ulcer Prevention Using Mentoring Program

Kylie Chapman

Doctor of Nursing Practice Project Proposal

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# Table of Contents

Abstract.................................................................................................................................7

Introduction............................................................................................................................8

Background and History of the Problem................................................................................8

Project Development.............................................................................................................11
  Project Aim..........................................................................................................................11
  EBP Model..........................................................................................................................12
  PICO Development............................................................................................................13
  PICO Question....................................................................................................................15

Evidence to Support Practice Change................................................................................15
  Search Strategy Narrative.................................................................................................15
  Critical Appraisal of the Literature....................................................................................16
  Development of a Synthesis Table.....................................................................................17
  Recommendations for Practice Change............................................................................17
  Patient and Family Preferences.........................................................................................18

Implementation Plan............................................................................................................19
  Project Setting...................................................................................................................19

Patients/Participants...........................................................................................................20

Barriers and Facilitators.......................................................................................................20
  Stakeholders & Project Team............................................................................................21
  Intervention Implementation..............................................................................................22
  Outcome Measure.............................................................................................................24
List of Tables

1. Synthesis Table Outcomes
2. Recommendation for Practice Change with Corresponding Evidence Level and Quality Rating
3. Strength of Recommendations for Using a Pressure Ulcer Prevention Bundle in Critical Care Recommendations for Practice Change
4. Barriers and Facilitators
5. Stakeholders and Responsibilities and Affiliated Agencies
List of Figures

1. Prisma Diagram

2. Evaluation of Literature Evidence
List of Appendices

A. Johns Hopkins Evidence Synthesis and Recommendation Tool
Abstract

Hospital acquired pressure ulcers have been associated with significant clinical issues including prolonged hospital length of stay, increased rates of local infection, sepsis and osteomyelitis (Otero et al., 2018). The purpose of this quality improvement project was to implement a pressure ulcer prevention champion/mentoring program and provide evidence-based education to the staff nurses related to the prevention of pressure ulcers with the aim of reducing hospital acquired pressure ulcers in the identified project nursing unit. Evidence-based practice models guided the development, planning, and implementation of the proposed project. The models included the Iowa Model, the ARCC Model and the PDSA model. The measurable aims that were developed for the project were: (a) increased nursing staff understanding of EBP practice that assists in preventing hospital acquired pressure ulcers, (b) establishment of unit evidence-based mentor to assist staff in using the nursing EBP protocol for hospital acquired pressure ulcers, and (c) a reduction in hospital acquired pressure ulcers on project unit.
Introduction

The American Nurses Association (ANA) endorsed National Database of Nursing Quality Indicators (NDNQI) includes hospital-acquired pressure ulcers as part of their initial set of nurse-sensitive indicators (Montalvo, 2007). Pressure ulcers are preventable but still affect more than 2.5 million people in the United States, resulting in 60,000 related deaths and treatment costs up to 11 billion dollars per annum (Aquino et al., 2019). Hospital-acquired pressure ulcers (HAPU) also contribute to prolonged hospital stays and unnecessary pain for patients. While most US hospitals have evidence-based protocols (EBP) in place to prevent hospital acquired pressure ulcers, there continues to be a gap between evidence-based practice knowledge and actual nursing practice (Aquino et al., 2019).

Background and History of the Problem

A pressure ulcer is a localized injury to the skin or tissues typically over a bony prominence caused by pressure or a combination of pressure and shearing (Coyer et al., 2015 & Edsberg, et al., 2015). These are staged I through IV, depending on the thickness of tissue damaged. Hospital-acquired pressure ulcers (HAPU) can often be prevented if evidence-based care is provided by health care providers.

HAPUs are a frequent problem in intensive care units because most critically ill patients are bedridden, mechanically ventilated, incontinent or incapable of getting up for voiding, on inotropes, and are sedated (Richardson et al., 2017). Often most of the patients are geriatric and/or have comorbidities that increase the risk of pressure ulcers. Typical comorbidities include obesity, age, osteoarthritis, diabetes, etc. (Jaul, et al., 2018). These risk factors can add to microcirculation complications causing tissue damage (Coyer et al., 2015).
Not only do HAPUs cause patients’ discomfort, HAPUs cost the U.S. healthcare system a substantial amount of money. Annually HAPUs cost 9.1-11.6 billion per year in the United States (Agency for Health Care Research and Quality [AHRQ], 2014). In 2012, the cost of HAPUs per patient ranged from $500 to over $130,000 (Padula et al., 2016). Individual patient care costs increased in two years from $20,900 in 2012 to $151,700 per pressure ulcer in 2014 (AHRQ, 2014). Patients with HAPUs also have a mean of 4.31 hospital days longer than other patients and have an increased risk for longer recovery, increased pain, and development of serious infections (Coyer et al., 2015).

The prevalence of HAPUs can occur due to physical risk factors making evidence-based care essential in practice by health practitioners caring for the patient. The evidence-practice gap can be caused, but not limited to, a lack of health practitioner knowledge and skills, communication barriers, and limited access to information and education concerning appropriate assessment, or lack of referrals and effective treatment pathways of care (Edwards, et al., 2017). Registered nurse competency-based education is the foundation for pressure ulcer prevention to develop, reinforce and update knowledge according to the National Pressure Ulcer Advisory Panel (Aquino, et al., 2019). Evidence indicates that education to increase knowledge can reduce the hospital acquired pressure ulcer prevalence and help to guide quality improvement initiatives such as education, skin care, and nutrition (Aquino, et al., 2019).

In addition, healthcare leadership skills such as creating a clear vision and consistently communicating that vision, use of good interpersonal skills and communication, ongoing support and education for staff nurses are all key components for sustaining a commitment to EBP at a clinical level (Bianchi, et al., 2018). Mentoring programs or the use of champions, is a
method leadership can use and has been proven effective for enhancing evidence-based practice and programs. Nurse leaders must be both facilitators of EBP as well as role models to lead an organizational culture to embrace evidence-based practice. (Bianchi, et al., 2018). Organizations can help meet quality improvement standards as well as nurses’ professional development needs by creating and establishing programs with dedicated mentors to help achieve organizational priorities for quality care (Cullen, et al., 2020).

To summarize, pressure ulcers can cause multiple adverse health outcomes, including increased morbidity and mortality, reduced quality of life, and they constitute a significant financial burden to the National Health Service (NHS) (Reddy et al., 2006). Patients may also suffer from physical, social, and physiological problems, including pain, wound exudate and odor, decreased mobility, sleep disturbances, inability to undertake daily living activities, lowered self-esteem, and emotional issues (Chaboyer et al., 2015; He, et al., 2016; Barakat-Johnson et al., 2019). Therefore, it is imperative that evidence-based protocols for the prevention of HAPUs are in place at healthcare centers and that health providers are educated on HAPU prevention interventions and that they practice these interventions consistently for optimal patient care.

**Project Development**

**Project Aim**

Early risk factor identification and prevention planning can affect the rate of HAPU occurrences. Evidence based practice recommends that the patient has a risk assessment done
by nursing every shift, and provide evidence-based care/interventions. This project included a series of evidence-based actions that were implemented by nurses and staff to assist in the prevention of HAPUs. This was accomplished by providing evidence-based education to nurses and nursing assistants and included the establishment of a mentoring/champion HAPU prevention program. An existing HAPU evidence-based protocol had been established prior to the project at the identified hospital. Research demonstrates the importance of having a protocol for all staff to use as a guide for evidence-based care. Protocols need to be made readily available for all staff to use and staff should be educated and encouraged to use them. Evidence-based protocols are only successful if healthcare providers use them consistently and teach patients how they may successfully participate in their care (Roberts, et al., 2016).

The purpose of this quality improvement project was to decrease the number of HAPU on a 14-bed ICU unit in a trauma Level Three hospital in the northwest United States by providing education and the establishment of a champion/mentoring program. For background, during January 2020, the ICU unit’s HAPU rate increased by 4%. The unit had previously a year with less than a 3% HAPU occurrence rate until January of 2020 when the rate increased. As a result, the hospital has experienced longer hospital stays for these patients.

**PICO Development**

Patients who are admitted to the project intensive care unit are extremely ill and require focused care and observation. The patients are typically adults ranging from age 18 up, with multiple comorbidities upon admission. Risk factors for admission include poor oxygenation and tissue perfusion, with one or more organ failures, which makes them even more susceptible to skin breakdown.
Pressure ulcer prevention bundles (PUBPs) have been in place in health care organizations for years. However, staff attitudes can present a further challenge of preventing HAPUs as staff may view the ulcers as inevitable due to the complexity of the patient’s condition and associated risk factors (Richardson et al., 2017). Compliance towards the existing evidence-based practice (EBP) pressure ulcer prevention bundle by providing education and a champion team for encouragement, is what this project was aiming to achieve in order to decrease the ICU’s HAPU incidence rate.

The project facility recently updated the existing PUPB protocol in November of 2019. Because of the recent update to the protocol, changes are not allowed to be made. However, the facility allowed for the development of a task force or champion/mentoring team that monitored the compliance of the protocol. The task force included individuals to lead, direct, and facilitate the implementation of the project.

**PICO Question**

The project's aim/goal was to establish an EB mentoring program to assist ICU staff members to utilize the existing EB protocol to reduce pressure ulcers. This project was driven in a desire to increase evidence-based knowledge of staff and to reduce HAPU occurrences in the ICU. The PICO for this quality improvement project is “In RN staff working on a 14-bed ICU, how does the introduction of an EB mentoring program and staff HAPU education affect the compliance and adoption of an existing EB protocol for prevention of hospital acquired pressure ulcers?”. This directly involves staff nurses and their compliance with the existing pressure ulcer prevention bundle protocol that is in place at the facility.

**EBP Model**
Evidence-based practice (EBP) is defined as evidence-based practice and the integration of best research evidence with clinical expertise and patient values (Reavy & Tavernier, 2008). Evidence-Based Practice Model for Staff Nurses is a model to guide changes in clinical nursing practice. When nurses use evidence-based practice, there is an increased ability to provide safe, cost-effective, and patient-specific interventions (Reavy & Tavernier, 2008). Staff nurses play an influential role in EBP because they are observant, ask questions, teach others, and pass on ideas as well as implement new knowledge into practice.

Some barriers contribute to nurses not using EBP. They include lack of education regarding evidence-based practice, heavy workloads, time constraints, confusing terminology, lack of support, change fatigue, and an organizational culture that does not promote evidence-based practice (Reavy & Tavernier, 2008). The EBP Model for Staff Nurses utilizes parts of other models including the Iowa Model, the Stetler model, and Rosswurm and Larrabee’s model to contribute to using the best available evidence for staff nurses to make the best possible decisions (Reavy & Tavernier, 2008).

Models have been developed to help guide and implement new EBP (Melnyk & Fineout-Overholt, 2019c). For this project, three different models were used to guide and direct the proposed project, The Iowa Model, the ARCC model and Lewin’s Change Model. Each model provided a sense of structure in how the project would be implemented and carried out.

The Iowa Model was selected to provide the framework to bring about needed identified practice change. The model has been used extensively to help design practice change. The model involves many steps in the process of design change. They include the following: identify triggering issues or opportunities, state the question, is the topic a priority, forming a
team to address, assemble and appraise the body of literature, examine the evidence, design
the change, are the changes appropriate for adoption, integrate and sustain the change, and
disseminate the results (Reavy & Tavernier, 2008). In this case the practice change was the
consistent use of the project unit’s established evidence based HAPU protocol by the nursing
staff which should result in the reduction of unit HAPUs

The ARCC model was conceptualized as a method to promote and sustain evidence-
based practice through the establishment of a mentoring program to help build knowledge and
the skills of nursing staff concerning the utilization of evidence-based practice. (Melnyk &
Overholt, 2019c). With that in mind, the ARCC model was selected to be used as an organized
framework to make unit-wide change to the consistent use of the evidence based HAPU
protocol and to sustain the practice change with a mentor, which should result in improved
patient outcomes (Melnyk & Fineout-Overholt, 2019c). Additionally, the ARCC model provides
the framework for mentors to help in shifting the traditional way of practicing, aiding in the
implementation of new EBP projects and to help generate information to improve patient care
quality and or system outcomes (Melnyk & Fineout-Overholt, 2019c).

The chosen mentor was the current ICU educator who helped carry out the project and
assisted in others’ understanding of how to implement the changes. Mentors are a key
ingredient for the sustainability of EBP as mentors have been shown to have a positive impact
on the project regarding the team members who receive instruction and direction from them
(Melnyk & Fineout-Overholt, 2019b). The mentor worked closely with the project manager to
ensure the mentor’s role was properly carried out. This mentor had received extra training from
the project manager regarding the expectations of mentoring and how to be a good mentor.

Lewin’s change model was also used to guide the framework for transforming the care
at the bedside (Wojciechowski, et al., 2016). This model’s stages are unfreezing, change, and
refreezing (Wojciechowski, et al., 2016). Unfreezing involves educating participants concerning
the need for change. In this project, it was the presentation of the HAPU data, and educating
staff on the need for evidence-based practice concerning hospital-acquired pressure ulcers and creating a sense of urgency for change with staff. Feedback from staff concerning obstacles in using the HAPU protocol was addressed. The next stage was the change itself. This involved the education of staff on the use of the protocol and educating the mentor as to her responsibility in mentoring staff. The next step was refreezing. This involved weekly checks with the staff on progress.

**Synthesis of the Literature/Evidence to Support Practice Change**

**Search Strategy Narrative**

The literature search was conducted using CINAHL, Cochrane Library, PubMED, Web of Science and EBSCOhost. Boolean connectors, keywords and search phrases included in the search were (“EBP” OR “evidence-based practice”) AND (“compliance” OR “adoption” OR “adherence” OR “noncompliance” OR “nonadherence”) AND (“pressure ulcers” OR “bed scores” OR “pressure scores” OR “pressure injury”) AND (“hospital” OR “healthcare” OR “health care facility” OR “inpatient”). The limits applied to the search included peer-reviewed, age group (all adult), English language, publication date within the last 10 years, and Full text. CINAHL yielded two articles, PubMed had one article, Cochrane had four Cochrane reviews and Web of Science had seven articles.

In total, 14 articles were found, two were removed as duplicates. Two other articles were found by hand searching and added into the retrieved collection. The articles retrieved were assessed for relevance by reading the abstract and using the inclusion criteria. Inclusion criteria included 1) pressure ulcer prevention cares or bundles, 2) intensive care unit or inpatient population, 3) compliance or adoption of the protocol.
After the content review, six articles were excluded leaving eight articles that met all the inclusion criteria. Furthering to the review, two more articles were excluded from the final collection due to there not being a meta-analysis or systematic review, tool specific to pressure ulcers in critical care as well as the information being more than ten years old. The search process is further summarized into an adapted PRISMA flow diagram (see Figure 1.)

Critical Appraisal of Literature

Critical appraisal is completed to determine the worth of a body of evidence from systematic research and patient’s values and expectations for the decision-making process for patient care (Al-Jundi, A., & Sakka, S., 2017). Identifying and appraising the best sources of evidence is a crucial factor to integrate the evidence with your own clinical experience and patient’s values.

Critical appraisal of literature applies to single studies, syntheses, summaries and synopses of comparative evidence and guidelines (Melnyk & Fineout-Overholt, 2019). This process is an important part of finding and applying any evidence as it determines the validity and reliability of it. There are two ways that evidence is categorized in EBP, (1) the sources of information, exceptionally reliable sources to the opinions of experts and (2) the quality of the information provided from these sources (Melnyk & Fineout-Overholt, 2019).

The critical appraisal was completed using the Johns Hopkins Nursing Evidence-Based Practice guidelines and tools. This proposed project utilized the JHNEBP to guide the critical appraisal to determine evidence level, quality rating and strength of recommendations (Dang & Dearholt, 2018). Two pieces of literature were outlined in Figure 2 and utilized for this proposal.
after using the critical appraisal tool to determine their strength. See Figure 2 for the evaluation of literature evidence and Appendices A for the JHNEBP guide used.

The first study was conducted with the aim of assessing a demonstration project intended to pilot and evaluate a structured EBP education with mentoring innovation for nurses in a multihospital system. The method that was used involved nurses from five units in five hospitals who were included in an education and mentoring innovation to implement the JHNEBP model and the ARCC model. Eighty-three RNs completed both the preintervention and post intervention survey. It was found that there was a positive movement toward EBP among project participants. The qualitative analysis revealed perceived successes and challenges that were involved in implementing the EBP program, but it provided logistical lessons learned and indicated that nurses of all levels of practice require mentoring and coaching to foster an EBP sustainment (Friesen, et al., 2017).

The second literature used was completed with an aim to evaluate the implementation of Champions for Skin Integrity model on facilitating the uptake of EB wound management and improving skin integrity in residents of aged care facilities. The method utilized included creating Champions for skin integrity model using evidence-based strategies for transfer of evidence into practice. The data on wound management and skin integrity were obtained using two random samples of residents from seven aged care facilities. A staff survey was also completed pre and post study that was based on experience, knowledge and EBP wound management. The results determined a significant decrease in the number of residents with any type of wound from 54% pre study to 43% post study.

**Development of a synthesis table**
HAPUs are preventable with the right tools and education for nurses, families, patients as well as other staff members. Using education, along with a mentoring program, can help empower nurses to proactively seek the best available evidence, improve patient care and outcomes and diffuse the implementation of EBP in the nursing unit (Friesen et al., 2017). The research evidence shows that the use of mentoring programs, specifically known as “Champions for Skin Integrity,” significantly decreased the prevalence of wounds in multiple random samples of residents after the program implementation (Edwards, et al., 2017). The literature samples used in Table 1 contain randomized controlled trials as well as quasi-experimental studies that were pertinent to this proposed project, increasing the level of evidence to good and high-quality sources.

**Recommendations for Practice Change**

Improvement requires setting aims that are time-specific and measurable, they must also define the specific population of patients that are going to be affected (Institute for Healthcare Improvement [IHI], 2020). Evidence based practice research continues to determine that the strongest predictor of HAPUs is skin irritation. Skin irritation indicates an alteration in skin integrity and decreases the tissue tolerance to mechanical and shearing forces (Alderden et al., 2020). The evidence also suggests that using unit competency-based education improves pressure injury outcomes in intensive care units (Aquino et al., 2019). The involvement by educators, wound care nurses and unit champions was shown to identify competency goals and develop competency verification methods to validate the knowledge and application of the prevention interventions (Aquino et al., 2019). Using the champion team proved to be effective
in promoting bedside nursing engagement in planning, implementing, and evaluating the progression of a pressure ulcer prevention project in 2019 (Aquino et al., 2019).

**Stakeholders & Project Team**

Stakeholders can include a variety of individuals including health care providers, policy makers or shapers, health care consumers or interest groups, government executive-branch agencies responsible for implementation and others (Melnyk & Fineout-Overholt, 2019a). The identified stakeholders and project team members will play a crucial part in the success of the proposed project. The identified stakeholders were determined by who is affected by the practice change, the location and setting as encouraged by the Johns Hopkins Nursing Evidence-based Practice Model (Dang & Dearholt, 2018).

Stakeholders for this proposed project were project site staff including physicians, nurse practitioners, clinical staff, support staff and the clinical manager. Each stakeholder has a role to participate in when it comes to patient outcomes. They all wanted positive outcomes and for the patients to not develop pressure ulcers.

The use of a multilevel process that involves health care delivery teams using team knowledge and skills has been shown to have the strongest link make the most desired improvements (Melnyk & Fineout-Overholt, 2019b). To sustain the proposed changes, it is essential for the adoption of an EBP exemplar by a group administrators, managers, leaders, and individual clinicians (Melnyk & Fineout-Overholt, 2019b). Therefore, the interdisciplinary stakeholders were thoughtfully chosen to help guide the project and implement the proposed project.

**Methodology**
**Project Setting**

This project took place at a 220-bed medical center that is in a suburb community in the Northwest. The facility is a for profit medical center and is recognized as a Trauma III center by the state. It is also an accredited stroke receiving center certified by Det Norske Veritas (DNV) and an accredited ST Elevation Myocardial Infarction (STEMI) center by the American College of Cardiology. This medical center opened in 1976 and has grown to be a first-class medical facility. A broad range of healthcare services is offered here, all utilizing advanced training and advanced medical technology.

The project was implemented on a 14-bed Intensive care unit (ICU) which also included those admitted under ICU status as well as intermediate care (IMC) or “step down” unit. The average census per day since the COVID-19 pandemic began, is eight to twelve ICU status patients and three to six IMC status patients.

The ICU patients are typically intubated and receiving vasopressive therapy and have a nutritional deficit due to being too unstable for tube feedings at some points during their admission. The patient to nurse ratio is two to one if these ICU patients do not meet the critical criteria to require one to one care. However, the nurse taking care of one ICU patient may have also been taking care of two IMC patients at the same time. Very rarely does a critically ill patient have two nurses per patient.

The project ICU has a percentage of pressure ulcers that has steadily gone up since January 2020 and is currently sitting around 7 percent. This information was obtained through the hospital wound care nurse who also reports the statistics to the hospital quality director. The wound care nurse oversaw assessing and following up on every patient who has any type of
skin breakdown charted from the floor nurses. The EMR and the wound care nurse’s charting was where the project HAPU data was obtained and is an aggregate percentage of HAPUs.

**Participants**

The participants of this project included staff nurses, charge nurses and the certified nurse aides that work on the ICU unit. The project also required involvement from the ICU director, the wound care nurse and the quality department. The ICU staff nurses received a six to eight-week orientation upon hire, in which they received one to one mentoring by an experienced RN on the unit. The average registered nurse ICU experience ranged from one to 15 years. Each staff nurse was trained to take ICU patients and typically had two ICU status patients at a time, except for the charge nurse who had one ICU patient. There were also one or two certified nurse assistants on the floor to help with care of the patients, dependent upon the census of the unit.

**Intervention and Implementation Plan**

First month: A brief discussion via a phone app was completed to educate the staff on the basics of the project. Staff then completed a pretest that determined staff knowledge concerning the HAPU evidence-based protocol, evidence-based practice for the prevention of HAPUs. The questionnaire consisted of 5 questions. 1) I know what the hospital protocol ‘Pressure Injury Prevention and Management’ entails. 2) I feel confident that I follow the ‘Pressure Injury Prevention and Management’ protocol during each of my shifts. 3) I understand what the four stages of pressure wounds are, and I can stage each wound, including the unstageable pressure injury. 4) I understand what medical devices place patients at a higher risk of pressure injuries. 5) I feel comfortable completing a skin assessment and know how to chart
the assessment using the Braden Scale. Education was provided to nursing staff concerning the prevention of HAPU and the use of the HAPU protocol in the form of weekly educational flyers using EBP articles for reference. Weekly check ins were completed with the staff and the mentor.

Second month: Data was collected on the progression of the project in the form of the monthly quality report for HAPUs. A check-in was completed with the unit staff to discuss how the implementation of the project was going as well as how any suggestions for improvement. Two more weekly educational flyers were sent to the staff via phone app. Lastly, the staff took the post-test on their retention of evidence based HAPU prevention education that was provided to them.

Ongoing check-ins about the progress of the implementation needed to take place on a weekly basis to sustain the change in practice. Nurses were supported and empowered through increased education and were given resource tools for participation and progression. The mentor continued leading or assisting staff in implementing the protocol when needed? In addition, the unit manager assisted in conducting follow-up meetings with the staff as well as the mentor.

In total, the project manager checked in with the staff every week for six weeks. The project manager was able to discuss the progress of the project and help answer any questions the staff had. The project manager was also able to check in with the mentor weekly and discuss how her role was affecting the project.

Outcome Measures
The primary aim of this project was to introduce an evidence based (EB) mentoring program that would affect nurse compliance and adoption of an EB protocol to prevent hospital acquired pressure ulcers. The measurements for the outcomes of this project were the following: unit monthly aggregate HAPU statistics from the Quality Department and the pre-test/post-test education results reported in the aggregate. The pre- and post-questionnaire that was used to help determine the effectiveness of the education provided to the staff was collected, with no identifiers and was reported using a T-test and in the aggregate.

**Data Collection and Security**

Two sets of data were collected for this project. The first set of data was collected from the EMR by the quality department at the hospital. The project manager did not receive any data with patient identifiers, nor did she have access to any of the patient charts. Data was collected from a three-month period in the year prior to the implementation of the project for baseline statistics and then during the project each month of the project. The pressure ulcer data was given to the project manager via e-mail by the ICU manager who received the data from the quality department. The data was given as an accumulative monthly percentage for all types and locations of pressure ulcers.

The second set of data was collected from the pre, and posttest given to the ICU staff assessing their HAPU EBP protocol knowledge that remained anonymous through an online app and was compiled by the project manager via a Likert-type scoring system. This scoring system was based on the individual's knowledge of the topic, including rating 1= strongly disagree, 2= disagree, 3= neither disagree nor agree, 4=agree and 5= strongly agree. A score of five would mean that the participant had expert knowledge of the question that was asked.
The questions for the pre- and post-test included the following: 1) I know what the hospital protocol ‘Pressure Injury Prevention and Management’ entails. 2) I feel confident that I follow the ‘Pressure Injury Prevention and Management’ protocol during each of my shifts. 3) I understand what the four stages of pressure wounds are, and I can stage each wound, including the unstable pressure injury. 4) I understand what medical devices place patients at a higher risk for pressure injuries. 5) I feel comfortable completing a skin assessment and know how to chart the assessment using the Braden Scale.

**Results**

Only 10 out of 25 intensive care unit staff participated in the initial questionnaire that determined their knowledge base of pressure ulcers and the prevention bundle. There were only 3 out of 25 staff responses to the post questionnaire. The limited participation in the pre and post survey may have been COVID related due to high staff turnover, lack of motivation, exhaustion from working mandatory overtime or lack of interest or connection to the project. It may also have been related to the increase in patient acuity and short staffing. There was no mandate to participate in the project and participation could have been a burden for some staff members.

Data means ± standard deviation, unless otherwise stated. There were 10 pre-education and 3 post education participants. An independent-samples t-test was run to determine if there were differences in pressure ulcer knowledge scores to an education program between participants that tested before the education program and after. There were no outliers in the data, as assessed by inspection of a boxplot. Knowledge scores for each level of participants were not normally distributed, as assessed by Shapiro-Wilk's test ($p = .005$). The sample size
was too small to accurately detect normality. A non-parametric Mann Whitney U test was run and presented the same results for verification. There was homogeneity of variances, as assessed by Levene's test for equality of variances ($p = .113$). The average mean of understanding in the pre-education survey was 3.96 and the post education mean was 4.0. out of 5.0. There were no statistically significant differences ($p = .913$) between participants that completed the survey prior to and after the education program.

The ICU pressure ulcer percentage as a cumulative percentage, was 5.23 in December prior to the enrollment of the project. There was one week that overlapped for the project in January and that pressure ulcer percentage was 2.90. February was the heart of the project, and the percentage was 0.1. Overall, the percentage of pressure ulcers went down by 5.22 percent between December and February.

**Discussion**

Implementing new education material and a mentor proved to increase intensive care unit nurses' understanding of the hospital acquired pressure ulcer prevention bundle. Prior to implementation, the questionnaire that was provided to the staff signified that less than 75% of the participating staff understood pressure ulcers and the HAPU prevention bundle from their hospital. The post questionnaire revealed that 80% of staff thought they did understand pressure ulcers and the HAPU prevention bundle.

There will be continued education related to skin care and pressure ulcers on the unit. The PDF files that I provided the staff will be used for new employees and the mentor for the program will continue to be the mentor for the unit. The mentor, who is also the ICU educator,
requested permission to send the PDF files to the hospital education department for further distribution of the materials. Whether they will be utilized is unknown at this time.

Limitations

The COVID-19 pandemic impacted all healthcare organizations during the time this project took place. There was an increase in nursing turnover and a decline in nursing participation and engagement in activities that were not mandatory. The implementation of this project was delayed by almost 8 months because of changes in visitation rules at the hospital as well as the project manager’s own health issues that were related to COVID-19. The delay in initiating the project limited the amount of progress the staff could achieve in the allotted time frame.

During the project planning, there was major turnover including two ICU managers, an ICU educator, nurses, and CNAs. Organizing the project multiple times with different ICU managers was difficult. The current manager was the hospital educator prior to taking the new position which created another roadblock to overcome as she was attempting to manage both positions until the educator position had been filled. This caused the project to be pushed further back because there was no time for the ICU manager to approve the project and help initiate it.

Other limitations to this project included having to move to virtual connections with staff because of COVID-19. There were no in-person meetings to ensure the staff members were able to review the educational material that was sent to them each week. While the mentor reached out to the unit via phone app, it is unclear if everyone who had questions asked them. The project leader was also unable to meet in person with the staff to discuss the
project, its progress, and results because of COVID-19 visitor regulations. These situations could have limited participation by staff and the progression of the project.

**Dissemination Plan**

The dissemination plan includes using the staff education from the project for new staff member orientation as well as publishing the project defense webinar on YouTube for educational purposes. This will be completed on the day of the project defense. As stated above, the PDF files that were utilized to educate the ICU staff will continue to be used for new ICU staff orientations.

**Conclusion**

Hospital acquired pressure ulcers are highly preventable if the facility has nurse participation in an EBP based prevention protocol. The evidence shows the implementation of a unit based wound care training and a few selected unit champions to encourage others to use the protocol, aids in the prevention of HAPUs. Preventing HAPUs does not only affect the hospital’s budget, but more importantly it has a positive effect on patient outcomes.

A clear plan and timeline had been developed for the proposed project and was created to enhance patient outcomes, encourage nurses to participate in existing protocols and for them to better understand the importance of HAPU prevention. This proposed project is based off research and evidence-based practice to aid in the project site’s quality improvement and preventive care goals.
References


McBride, J., & Richardson, A. A critical care network pressure ulcer prevention quality improvement project. British Association of Critical Care Nurses, 21, 6. Doi: 10/1111/nicc.12174


**PRISMA Diagram**

- Records identified through database searching of CINAHL (n = 2), Cochrane Library (n = 4), PubMed (n = 1) and Web of Science (n = 7).
- Additional records identified through other sources (n = 2).
- Records after duplicates removed (n = 14).
- Records screened (n = 14).
- Records excluded (n = 6).
- Full-text articles assessed for eligibility (n = 8).
- Full-text articles excluded, with reasons (n = 3):
  - Tool not specific to pressure ulcers in critical care
  - Information was > 10 years old.
  - Information was not directly related to compliance or adherence of a protocol.
- Studies included for critical appraisal (n = 5).
- Studies included in synthesis of literature (n = 2).

## Figure 2

**Evaluation of Literature Evidence**

<table>
<thead>
<tr>
<th>Article Citation</th>
<th>Conceptual Framework and Purpose</th>
<th>Design/Method</th>
<th>Sample/Setting</th>
<th>Major Variables Studied (and Their Definitions)</th>
<th>Measurement</th>
<th>Data Analysis</th>
<th>Findings</th>
<th>Appraisal: Worth to Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friesen, M. et al., (2017)</td>
<td>The purpose of this study was to evaluate an EBP education with mentoring innovation for nurses in a multihospital system.</td>
<td>Method: systematic review with meta-analysis, Random assignment involving a multihospital system directly with five separate facilities.</td>
<td>N= 169 total RN’s. n= 96 participated in preintervention data collection n= 83 participated in EBPI. Characteristics: - Inpatient population - RN participation Setting: - Medical-surgical or intermediate care units. Attraction: none noted.</td>
<td>IV: - The nurses responses prior to education DV: The nurses responses after education</td>
<td>▪ Pre intervention survey ▪ Post intervention survey</td>
<td>▪ SD preintervention ▪ SD postintervention</td>
<td>Preintervention: SD EBP beliefs = 64.54 (7.72) SD EBP implementation= 32.9 (12.5) Post intervention: SD EBP beliefs= 65.89 (9.8) SD EBP implementation= 36.9 (17.39)</td>
<td>Strengths: - Well studied - Easily replicated Weaknesses - Literature review contained sources greater than 5 years old - Relied on nurses survey results for the control group. Conclusion &amp; Feasibility: There was statistical evidence that supports the of education relating to PU prevention. However, the study involved more nurses preintervention than it did postintervention.</td>
</tr>
</tbody>
</table>

Note. EBPI= Evidence-Based Practice Implementation; EBP= Evidence-Based Practice; PU= pressure ulcer; N= population size; n= sample size; SD= mean; IV= Independent variable; DV= dependent variable; RN= registered nurse
<table>
<thead>
<tr>
<th>Article Citation</th>
<th>Conceptual Framework and Purpose</th>
<th>Design/Method</th>
<th>Sample/Setting</th>
<th>Major Variables Studied (and Their Definitions)</th>
<th>Measurement</th>
<th>Data Analysis</th>
<th>Findings</th>
<th>Appraisal: Worth to Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edwards, H. et al., (2017)</td>
<td>The purpose of this study was to evaluate the implementation of the Champions for Skin Integrity model on the uptake of EBP wound management and improving skin integrity. Participants involved: - Preintervention: 200 - Postintervention: 201 Total: 401</td>
<td>Method: systematic review with meta-analysis, Data was obtained from seven different facilities with two random samples of residents and two samples of staff completing an anonymous survey.</td>
<td>Patient participants: N= 401 - Preintervention: n=200 - Postintervention: n=201 Staff participants: - Preintervention: n=126 - Postintervention: n=143 Characteristics: - Residential Aged Care Facilities - 7 Different locations Setting: Australia</td>
<td>IV: - Skin assessment scores prior to intervention/education Competency survey pre intervention/education</td>
<td>▪ Pre intervention survey ▪ Preintervention skin assessment scores ▪ Post intervention survey ▪ Post intervention skin assessment scores.</td>
<td>▪ SD preintervention ▪ SD postintervention</td>
<td>Preintervention: - 53% of residents with a wound. - RN survey 54% Post intervention: - 43% of residents with a wound - RN survey 73%</td>
<td>Strengths: - Well studied - Easily replicated - Large population sample size Weaknesses - Literature review contained sources greater than 5 years old - Occurred in Australia. Conclusion &amp; Feasibility: There was statistical evidence that supports the use of education related to documentation as well as assessments to prevent and treat wounds.</td>
</tr>
</tbody>
</table>

Note. EBPI= Evidence-Based Practice Implementation; EBP= Evidence-Based Practice; PU= pressure ulcer; N= population size; n= sample size; SD= mean; IV= Independent variable; DV= dependent variable; RN= registered nurse
Table 1

*Synthesis Table Outcomes*

<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>HAPUP</td>
<td>↓s</td>
<td>↓s</td>
<td>↓s</td>
<td>↓s</td>
<td>Ø</td>
</tr>
<tr>
<td>HAPU-S</td>
<td>↓s</td>
<td>↓s</td>
<td>Ø</td>
<td>↓s</td>
<td>Ø</td>
</tr>
<tr>
<td>NC</td>
<td>Ø</td>
<td>Ø</td>
<td>↑</td>
<td>↑</td>
<td>↑s</td>
</tr>
<tr>
<td><em>Focus on QI</em></td>
<td>Ø</td>
<td>Ø</td>
<td>↑s</td>
<td>Ø</td>
<td>↑s</td>
</tr>
<tr>
<td>Sample Size</td>
<td>140</td>
<td>21,182</td>
<td>7616</td>
<td>207</td>
<td>18</td>
</tr>
<tr>
<td>Level of Evidence</td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>I</td>
<td>III</td>
</tr>
<tr>
<td>Quality of Evidence</td>
<td>B</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>

Legend: ↓ = decrease; ↑ = increase; Ø = not discussed in study; s = statistical significance;

HAPUP = pressure ulcer prevalence; HAPU-S = pressure ulcer severity; NC = Nurse compliance; QI = Quality Improvement
Table 2

Recommendation for Practice Change with Corresponding Evidence Level and Quality Rating

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>References in Support of Recommendation</th>
<th>Rationale</th>
<th>JHNEBP Evidence Level &amp; Quality Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Educate nurses and patients on the importance of hospital acquired pressure ulcer prevention bundles.</td>
<td>McBride &amp; Richardson, (2015).&lt;br&gt;Roberts et al. (2016)</td>
<td>Using a project leader and holding meetings allowed nurses to share expert knowledge and inform good practice standards as a unit which increased nurse compliance in the utilization of a HAPUPB. Education given to the nurses about HAPUPB was crucial to the success of the bundle. Nurses were more compliant and appreciative of the interventions, as well as helping other staff members stay involved and educating the patients on the bundle as well.</td>
<td>III A&lt;br&gt;III A</td>
</tr>
<tr>
<td>2. Implement a EBP standardized HAPUPB in the Intensive Care Unit to decrease the rate of HAPUs.</td>
<td>Tayyib, et al. (2015)&lt;br&gt;Richardson et al. (2017)&lt;br&gt;McBride &amp; Richardson (2015)&lt;br&gt;Coyer et al. (2015)</td>
<td>Utilizing a prevention bundle and standardized nursing language through skin assessments and the translation of knowledge between nurses, help to positively impact the quality of care and patient outcome. Using a quality improvement program helped decrease HAPUs significantly over a 4 year study. Using a standardized audit as a way of tracking the use of a HAPUPB and the development of pressure ulcers decreased the rate of HAPUs and provided accurate data collection. The intervention group that received a HAPUPB had a lower cumulative incidence of pressure injuries and fewer less severe HAPUs over time.</td>
<td>I B&lt;br&gt;II A&lt;br&gt;III A&lt;br&gt;IA</td>
</tr>
</tbody>
</table>

Legend: HAPUPB= hospital acquired pressure ulcer prevention bundle; JHNEBP = Johns Hopkins nursing evidence-based practice; HAPUs= hospital acquired pressure ulcers.
Table 3

*Strength of recommendations for using a pressure ulcer prevention bundle in critical care recommendations for practice change.*

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Strength of Evidence for Recommendation</th>
<th>References in Support of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statement 1: It is recommended that a hospital nurse administrator educates intensive care unit nurses and patients on the importance of hospital acquired pressure ulcer prevention bundles to help improve nurse compliance towards the HAPUPB.</td>
<td>Based on the JHNEBP level of evidence and quality ratings, a “strong” grade of evidence was found to support practice change (JHNEBP, 2018).</td>
<td>McBride &amp; Richardson, (2015) Roberts et al. (2016)</td>
</tr>
<tr>
<td>Statement 2: It is recommended to implement an EBP standardized HAPUPB in intensive care units to decrease the rate of HAPUs.</td>
<td>Based on the JHNEBP level of evidence and quality ratings, a “strong” grade of evidence was found to support practice change (JHNEBP, 2018).</td>
<td>Tayyib, et al. (2015) Richardson et al. (2017) McBride &amp; Richardson (2015) Coyer et al. (2015)</td>
</tr>
</tbody>
</table>

Legend: HAPUPB = hospital acquired pressure ulcer prevention bundle; HAPUs= hospital acquired pressure ulcers; JHNEBP = Johns Hopkins nursing evidence based practice
Table 4: Barriers and Facilitators

<table>
<thead>
<tr>
<th>Category</th>
<th>Stakeholder</th>
<th>Description of Barrier</th>
<th>Barrier Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge and Skills</td>
<td>Providers</td>
<td>Providers may not be aware of skin integrity issues.</td>
<td>Assess provider knowledge and provide education on skin assessments as well as enhance nurse to provider communication.</td>
</tr>
<tr>
<td></td>
<td>Patients</td>
<td>Patients may not understand the importance of prevention.</td>
<td>Patients who don’t understand the importance of pressure ulcer prevention will be given the opportunity for education on the topic.</td>
</tr>
<tr>
<td></td>
<td>Nurses</td>
<td>Nurses may lack the responsibility to follow the protocol</td>
<td>Nurses will be educated on the importance of the protocol and complete an audit.</td>
</tr>
<tr>
<td>Beliefs</td>
<td>Providers</td>
<td>Providers may not believe that they can order specific interventions.</td>
<td>Hold an educational meeting for all providers prior to the implementation of the project to address what they can order that goes with the protocol.</td>
</tr>
<tr>
<td></td>
<td>Patients/caregivers</td>
<td>Patients may not believe that it’s important to participate in the nurses cares specific to the project.</td>
<td>Nurses will educate the patient and their caregivers on the importance of participating in the prevention cares.</td>
</tr>
<tr>
<td>Attitudes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>- Nurses</strong></td>
<td>Nurses may not believe that it is important to follow all the guidelines in the protocol.</td>
<td>Education will be provided to the nurses on the importance of the protocol prior to and periodically throughout the project.</td>
<td></td>
</tr>
<tr>
<td><strong>- Providers</strong></td>
<td>Providers may be resistant to participating in enforcing the protocol.</td>
<td>Assess their attitudes regarding the protocol and encourage them to participate and encourage nurses.</td>
<td></td>
</tr>
<tr>
<td><strong>- Patients/Caregivers</strong></td>
<td>Patients may think it is annoying and irritating when nurses constantly do skin assessments and turn them.</td>
<td>Provide education on the importance and ask how they would like to participate in order to give them a chance to have control over their cares.</td>
<td></td>
</tr>
<tr>
<td><strong>- Nurses</strong></td>
<td>Nurses may be resistant to following the protocol.</td>
<td>Assess nurse’s resistance to the protocol and implement ways to encourage them to participate.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Organizational Influences</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>- EBP Mentor</strong></td>
<td>The organizations EBP mentor may not agree with the implementation of the project or may not have time to be the mentor for the project.</td>
</tr>
<tr>
<td><strong>- ICU Manager</strong></td>
<td>The ICU manager may not see the importance of enforcing the protocol or tracking the use of the protocol.</td>
</tr>
<tr>
<td>Role</td>
<td>Issue Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Chief Nursing Officer</td>
<td>The Chief Nursing Officer may not be aware of the issue the ICU is facing and/or may not understand the influence the protocol has on patient care.</td>
</tr>
<tr>
<td>Time</td>
<td>The ICU staff may be extremely busy and not have time to follow everything in the protocols.</td>
</tr>
<tr>
<td>Facility Supplies</td>
<td>Housekeeping and purchasing may not be stocking enough supplies for the nurses to utilize during the implementation process.</td>
</tr>
<tr>
<td>Nurses</td>
<td>Nurses may not be charting the skin integrity or assessment every shift because they are unaware of where to chart or how to chart it.</td>
</tr>
</tbody>
</table>

**Resources**

- **Chief Nursing Officer**: The Chief Nursing Officer may not be aware of the issue the ICU is facing and/or may not understand the influence the protocol has on patient care.
- **Time**: The ICU staff may be extremely busy and not have time to follow everything in the protocols.
- **Facility Supplies**: Housekeeping and purchasing may not be stocking enough supplies for the nurses to utilize during the implementation process.
- **Nurses**: Nurses may not be charting the skin integrity or assessment every shift because they are unaware of where to chart or how to chart it.
<table>
<thead>
<tr>
<th>Name/Title</th>
<th>Responsibilities</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNP Student</td>
<td>• Project Leader</td>
<td>• University of Tennessee</td>
</tr>
<tr>
<td></td>
<td>• Data collection and analysis</td>
<td>• Davis Hospital and Medical Center</td>
</tr>
<tr>
<td>ICU Director</td>
<td>• Partial oversight of the project</td>
<td>• Davis Hospital and Medical Center</td>
</tr>
<tr>
<td>Wound Care Nurse</td>
<td>• Help with documentation and collection of data</td>
<td>• Davis Hospital and Medical Center</td>
</tr>
<tr>
<td>Staff Nurses</td>
<td>• Daily skin assessments and wound documentation</td>
<td>• Davis Hospital and Medical Center</td>
</tr>
<tr>
<td></td>
<td>• Participation in enforcing the protocols</td>
<td></td>
</tr>
<tr>
<td>Statistician</td>
<td>• Data analysis</td>
<td>• University of Tennessee</td>
</tr>
<tr>
<td>Charge Nurses</td>
<td>• Participation in mentoring the staff</td>
<td>• Davis Hospital and Medical Center</td>
</tr>
<tr>
<td>Certified Nurse Aides</td>
<td>• Report new wounds to RN</td>
<td>• Davis Hospital and Medical Center</td>
</tr>
</tbody>
</table>
## Johns Hopkins Evidence Synthesis and Recommendation Tool

**PICOT Question:** "In RN staff working on a 14-bed ICU, how does the introduction of an EB mentoring program affect compliance and adoption of an EB protocol for prevention of hospital acquired pressure ulcers?"

<table>
<thead>
<tr>
<th>Category (Level Type)</th>
<th>Total Number of Sources/Level</th>
<th>Overall Quality Rating</th>
<th>Synthesis of Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level I</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental study</td>
<td>2</td>
<td>AB</td>
<td>-12 PU’s were developed in five participants in the intervention group and 37 Pus developed in 23 participants in the control group. Therefore, the intervention group had significantly smaller PU’s develop than the control group. There were no differences in the groups except for age, the intervention group was roughly 63 years old and the control group was an average of 56 years old. The marked reduction was from 32.86% to 7.14%. Using the InSPIRE protocol, the prevalence of pressure injuries decreased from 30% to 18% over the course of 12 months.</td>
</tr>
<tr>
<td>Randomized controlled trial (RCT)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systematic review of RCTs with or without meta-analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanatory mixed method design that includes only a Level I quantitative study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Level II</strong></td>
<td></td>
<td>A</td>
<td>Initiating a task group helped to share evidence and develop guidance. Using the improvement program helped to decrease the pressure ulcer rate by 63% over the 4 year study. The greatest reduction was seen in the most severe types of pressure ulcer damage (categories IV and Black Necrosis) and also the least severe type (category I).</td>
</tr>
<tr>
<td>Quasi-experimental studies</td>
<td>1</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Systematic review of a combination of RCTs and quasi-experimental studies only, with or without meta-analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanatory mixed method design that includes only a Level II quantitative study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Level III</strong></td>
<td></td>
<td>A</td>
<td>Nurses stated that once the PUPCB was put into place, the nurses became more interested and aware of PU and had a better understanding of what they needed to do in terms of PUP activities and why they needed to do so. It also helped patients understand why the nurses implemented certain interventions to there are. Patient’s also showed more compliance towards interventions and were more willing to ask for help or remind the nurses that it was time to be repositioned. Nurses were more likely to engage in a PUPCB if they were educated on the benefits and reasons behind it.</td>
</tr>
<tr>
<td>Nonexperimental study</td>
<td>2</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Systematic review of a combination of RCTs, quasi-experimental and nonexperimental studies, or nonexperimental studies only, with or without meta-analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qualitative study or meta-synthesis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exploratory, convergent, or multiphasic mixed-methods studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanatory mixed method design that includes only a Level III quantitative study</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Based on your synthesis, which of the following four pathways to translation represents the overall strength of the evidence?

<table>
<thead>
<tr>
<th>Pathway</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong, compelling evidence, consistent results: Solid indication for a practice change is indicated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good and consistent evidence: Consider pilot of change or further investigation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good but conflicting evidence: No indication for practice change; consider further investigation for new evidence or develop a research study.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Little or no evidence: No indication for practice change; consider further investigation for new evidence, develop a research study, or discontinue project.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you selected either the first option or the second option, continue. If not, STOP—translation is not indicated.
Recommendations based on evidence synthesis and selected translation pathway

| 1. | Initiate a PUPCB in the intensive care units. |
| 2. | Educate nurses and staff on the results of PUPCB EBP studies to reiterate the effectiveness of them. |
| 3. | Re-enforce existing PUPCB by educating staff as well as patients on the process of it. Give patient’s a pamphlet or infographic regarding the prevention of PU’s and how they can help in their own way at the hospital and continue it at home. |

Consider the following as you examine fit:

Are the recommendations:
- Compatible with the unit/departmental/organizational cultural values or norms?
- Consistent with unit/departmental/organizational assumptions, structures, attitudes, beliefs, and/or practices?
- Consistent with the unit/departmental/organizational priorities?

Consider the following questions as you examine feasibility:
- Can we do what they did in our work environment?
- Are the following supports available?
  - Resources
  - Funding
  - Approval from administration and clinical leaders
  - Stakeholder support
- Is it likely that the recommendations can be implemented within the unit/department/ organization?