

Wound Team Clinical Skin Rounding in the Intensive Care Unit to Decrease Hospital Acquired Pressure Injury Rates

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Abstract

Hospital Acquired Pressure Injuries (HAPI) reflects upon nursing care effectiveness and is seen as a nursing quality outcome measure. HAPIs are a global concern due to many factors and contribute to an increase in treatment costs, increase length of stay, possible litigation, and reimbursement issues. HAPIs are seen as a preventable adverse event as identified by Centers for Medicare and Medicaid services (CMS). Data gathered before initiation of this project indicated that within a 12-month period both the MICU and SICU demonstrated a HAPI rate of 47% of the total HAPI occurrences in the hospital.

Goal Statement: *Among intensive care patients would daily clinical skin assessment rounding, done with a wound nurse expert and bedside nurse, versus current standard practice, decrease Hospital Acquired Pressure Injuries rates?*

Utilizing the Evidence-Based Practice Institute Conceptual Model, as well as the United States National Pressure Ulcer Advisory Panel Staging System as a guide for this project, the certified wound expert rounded on each patient with the assigned critical care nurse and made focused Head-to-Toe assessments. Informal teaching by the wound expert was provided at the bedside with instruction on pressure relieving interventions, HAPI risk factors, and proper identifiable staging. Assessment of 450 patients demonstrated no identified stage II or greater HAPIs and a clinically relevant reduction in the incidence of pressure injuries during the project period. Benefits to patients included improved skin surveillance and early HAPI detection. An educational focus on Medical-Device Related HAPIs should be considered in future projects.

Keywords: Pressure injury prevention, Wound nurse rounding, Peer-to-peer skin assessments, Hospital-acquired pressure ulcers, Pressure ulcer/injury risk factors.

Introduction

In 1859, Florence Nightingale wrote, "... If he has a bedsore, it is generally not the fault of the disease, but of the nursing" [1]. Modern nursing care continues to focus on pressure injury prevention and Nightingale's words remain influential today. Hospital Acquired Pressure Ulcer (HAPI) prevalence is a nursing-sensitive quality care indicator set forth by the American Nurses Association, which demonstrates the impact of nursing care (www.qualitymeasures.ahrq.gov). The centers for Medicare and Medicaid Systems (CMS), as well as many private insurers, have included HAPIs on a list of preventable hospital acquired conditions or "never events".

As a result, CMS has halted reimbursement to healthcare facilities for costs associated with hospital-acquired conditions after the admission period. Additionally, the potential for litigation related

to a HAPI injury and the associated costs of these legal settlements have created a costly problem for healthcare [2]. Nursing scope of practice includes the responsibility to establish a plan of care in collaboration with the patient to provide for the patient's safety and disease prevention (www.rn.ca.gov). Standard pressure relieving interventions, as well as an awareness of potential contributing risk factors are keen nursing care priorities [3].

A "present on admission" pressure injury differs from a HAPI, in that the injury was present prior to the admission process. Pressure injury can contribute to a prolonged length of stay, increased pain, loss of function, and infection [2]. The average cost for a hospital acquired Stage IV pressure injury for a first admission was \$129,248 in a cost analysis study [4]. The most recent available data does not reflect current inflated medical costs; hence one can accept that the financial impact is much greater for a HAPI injury.

Evidence Review

A review of the literature utilizing the following PubMed and

CINAHL databases were searched with the following keywords; “pressure injury prevention”, “wound nurse rounding”, “peer-to-peer skin assessments”, “hospital-acquired pressure ulcers”, and “pressure ulcer/injury risk factors” to identify English language research journal articles. To determine the available research evidence on this topic, a literature synthesis was conducted to answer the following question. Among Intensive Care Unit patients would daily clinical skin assessment rounding, done by a wound team nurse versus current practice, reduce Hospital Acquired Pressure Injury rates? The purpose of this evidence-based project (EBP) was to propose a nursing practice change by utilizing a peer-to-peer clinical skin assessment rounding intervention, to decrease HAPI rates in the Intensive Care Units. Research evidence was chosen on similarities to those aspects being addressed in the prevention of HAPIs in an intensive care environment.

A level VII quality improvement project used clinical rounding with the use of the Braden scale tool as the main interventions and utilized a certified wound nurse to train two skin champions in performing weekly peer-to-peer nurse rounding assessments in a surgical intensive care unit. The project began with a HAPI prevalence rate of 27% prior to implementation of this project and lead to a 0% prevalence rate for three consecutive quarters [5]. This quality improvement project highlighted the potential benefit a peer-to-peer rounding method can have on decreasing HAPIs in an intensive care setting.

A two phase multi center level II randomized clinical trial to demonstrate the healing time of a stage II pressure injury, indicated an average healing time of 22.9 days with a median of 18 days [6]. Various pressure injury assessment tools were utilized for this study, including the use of a Pressure Ulcer Scale for Healing (PUSH) tool to assess the healing status of the pressure injury over time. Understanding the healing time of a less severe stage II pressure injury will guide the clinician towards a focused plan of care and underscore the need for prevention. This study demonstrated clinical applicability on the impact pressure injuries have on increasing length of stay and treatment costs.

A level III quasi-experimental pre-and post-interventional design study looked at universal pressure injury prevention bundle with the use of the certified wound nurse rounding support. The bundle consisted of the following; skin emollients, head to toe assessments, floating heels of bed, early identifiable sources of pressure, repositioning to prevent pressure [7]. The study indicated that solely educating staff was not as beneficial as having a wound expert at the bedside, demonstrating a clinically significant reduction of 2.1% in the incidence of pressure injuries. Although the study focused on early pressure injury prevention, its applicability to the peer-to-peer rounding was invaluable as a confirmation to the interventions that were communicated to the staff during project period.

A retrospective, level IV correlational design study in a Medical-Surgical Intensive Care unit investigated the risk factors associated with pressure injury development. A direct logic

regression analysis data indicated that age, mobility, friction/shear, cardiovascular disease, length of stay and norepinephrine infusion therapy were contributing factors to pressure injury development. Cox found that of the patients that developed pressure injuries, 57% had a cardiovascular diagnosis [8]. This study highlighted the importance of accurately identifying the patient’s risk factors relating to the development and progression of HAPIs.

Having this nursing practice awareness, as to the potential risk the patient carries will decrease the likelihood this injury will occur. The complexity of pressure injury development in the ICU setting may not be conducive to the common use of the Braden Scale as a pressure injury predicting tool. A risk assessment tool specifically for the ICU patient should be implemented and validated, to include categories not included in the Braden Scale as mentioned above [8].

A Chi-square level IV clinical analysis was utilized to determine independent pressure injury contributing factors, showed that a low Braden score, diabetes diagnosis, and an age of over 70 years were relevant to the development of pressure injury [9]. This study took place in a surgical-intensive care unit setting and the principal investigator was a certified wound nurse who assessed every patient. Limited pressure injury risk assessment tools for the intensive care population have been identified in this study and suggests that further validation is needed for the use of the SICU Pressure Ulcer Risk Assessment (SPURA) scale [9]. Similarities seen in this study applicable to this project was the use of a certified wound expert nurse and validation as to the limited use of the standardized Braden Score Scale in an ICU setting.

The studies reviewed all had applicable elements on which to gain insight into the development of an EBP project, with the aim to reduce HAPIs in the ICU setting with a certified wound nurse and conducting peer-to-peer skin assessments. Conceptualizing key ideas on risk factors, predictive pressure injury scales and peer-to-peer skin rounding, favors positive outcomes that played a role in the evolution of this EBP project.

Theoretical framework

After review of the literature the Evidence-based Practice Institute (EBPI) Model was chosen to guide this EBP project [10]. The EBPI Model encompasses 8 stages of evidence-based practice guidance, and interconnected well with the project topic. The EBPI Model was identified as an excellent organizing and critical analysis tool to recognize the clinical practice problem of elevated HAPI rates in an Intensive Care Unit (ICU) setting and whether placing a wound nurse expert for the purpose of clinical rounding, had an effect on decreasing HAPI rates. Assessment of the situation included reviewing Quality Variance Reports and assessing quality regulatory standards pertaining to HAPIs.

Applying the evidence to an ICU setting with development of project parameters, through input from all stakeholders involved formulated the peer-to-peer rounding process. Analyzing the outcomes of the project along with the intervention effects on

reducing HAPI rates. Advancing project outcomes for the purpose of disseminating data through oral presentations and adopting new nursing practice recommendations in the ICU to insure favorable patient-centered outcomes.

Practice Setting

The purpose of this paper is to propose to implement peer-to-peer skin rounding in the ICU with a wound expert nurse to decrease HAPI incidence rates by pressure injury prevention surveillance and insure favorable patient-centered outcomes. The project took place at Sharp Grossmont Hospital (SGH), a 540 bed, acute-care facility located in San Diego, California. SGH intensive care units provide care to high acuity patients, requiring invasive monitoring and supportive care with a patient and family-centered care focus. The Medical Intensive Care Unit (MICU) has an average daily census of 18.3, a mean length of stay of 3.6 days, and a HAPI rate of 4.91 per 1000 patient days. The Surgical Intensive Care Unit (SICU) has an average daily census of 17.8, a mean length of stay of 3.5 days, and a HAPI rate of 4.89 per 1000 patient days. SGH endorses critical care nursing certification through the American Association of Critical-Care Nurses, 85% of the registered nurses in ICU carry an Acute/Critical Care Nurse Certificate (www.aacn.org).

Together the MICU and SICU nurses have an average of 12.5 years of experience. This evidence-based practice (EBP) project took place over a 3-month period from August to October 2014. The most common medical conditions associated with wound care needs in the ICU population were: hemodynamic instability, congestive heart failure, chronic pressure injuries, pharmacodynamics therapy, and septic shock patients. Of the population of patients assessed during the project period, 76% were over the age of 65. The Wound and Ostomy Team consisted of four registered wound expert nurses, bachelor prepared and national board-certified with the credentials of Certified Wound Ostomy Nurse (CWON). The wound expert nurse follows a framework of professional clinical practice standards based on research, clinical experience and are stewards of life-long learning to improve patient outcomes (www.wocn.org) [11].

The Inpatient Wound and Ostomy Team nurses are employed by the hospital as consultants, make assessment treatment recommendations utilizing a Standardized Orders protocol signed by the physician. The wound expert nurse obtained a daily consult census task list generated by the electronic medical record system. The National Prevention Ulcer Advisory Panel (NPUAP) defines a pressure ulcer/injury as a localized injury to the skin and or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shearing [3]. The staging system consists of a pressure injury rating scale from stage I to stage IV, or as an on stage of all injury and or deep tissue injury (DTI) [3]. The Wound Team gathered data on HAPI occurrences over the previous 12-month period and findings indicated that 47% of the total HAPIs within the facility occurred in ICU, this was the principle catalyst to this project.

A HAPI RCA (Root Cause Analysis) investigation conducted by SGH, uncovered the following barriers: staff beliefs that their patients are higher acuity and thus naturally prone to HAPIs, lack of awareness for risk factors involved in pressure injury, lack of commitment by staff to focus on pressure injury prevention, and inconsistent pressure injury documentation. A brainstorming session was then conducted with a wound expert nurse, the ICU managers, and the ICU Educator to strategize implementation of a possible EBP project. Senior management approval was given to proceed with the EBP project and a timeline was formulated by the primary investigator.

Implementation Process

The focal intervention in this EBP project was to place a wound expert nurse, in the ICU to guide skin assessments and implement pressure injury prevention surveillance. During the project period the wound expert rounded for an average of four hours, four days a week in the ICU. A process timeline was formulated and support from all of the wound team members was required in order to successfully implement this project. Additionally, the Advancing Research and Clinical Practice through Close Collaboration (ARCC) Model was used to provide a guide in the preparation and organizational assessment for the implementation of this project [12].

Announcement of project expectations, which included daily clinical skin assessment rounding by the wound nurse, were discussed at staff meetings and introduced at the Unit Practice Council Meeting. ICU nursing staff were informed of the HAPI incidence rates and implications of pressure injury development in the ICU patient population. Patients who were admitted to MICU and SICU were included in the daily clinical skin assessment rounding by the wound nurse. All current ICU patients received peer-to-peer rounding with the exclusion of those seen by the wound team a day prior, patients with comfort care status, and any patients with skin treatment orders already in place.

An interdisciplinary team approach was used during the project to foster communication and integrate assessments to insure optimal patient outcomes. Additionally, the patients were evaluated for all stages of pressure injuries and treatment recommendations were discussed with the bedside nurse and entered into the electronic record. The bedside nurse would continue to have the responsibility to document skincare assessments, tabulate the skin risk predicting scale score and perform recommended wound treatments every shift. During peer-to-peer rounding the wound expert nurse provided informal education to the bedside nurse and the patient or family when appropriate.

For tracking purposes, all patients that were assessed by the wound expert nurse for this project, were given a sequential number when entered onto the log at the end of the shift. To protect the patient's confidentiality further the printed patient census list was disposed of in a confidential waste receptacle at the end of the day. The four ICU Skin Wound Assessment Nurse (SWAT) committee members were utilized to distribute information about the project, as well

as provide EBP project updates to staff. The wound expert nurse had bi-monthly discussions with the ICU Managers, ICU Educator and CNS on the progress of the project. Following step six of the EBPI Model, an Institutional Review Board (IRB) application was submitted for the purpose of anticipating future dissemination of findings and approval was granted prior to the goal start date.

There was minimal risk to the participants of this project. All aspects of this project were related to current standards of practice and did not require additional tasks outside of basic nursing care.

Data analysis regarding HAPI rates were collected utilizing electronic Quality Variance Reports (QVR) tabulated by the Quality and Utilization Department at SGH. The wound expert nurse acquired monthly QVR Excel spreadsheets and used them as guides to ensure accuracy of data. A secondary investigation was needed to verify if the stage of pressure injury indicated on the QVR was correct. An Inter-rater reliability method utilizing two wound team nurses to make a physical assessment of the actual pressure injury in question was introduced to ensure accuracy and arrive at a consensus. Skin rounding took place from 0800 to 1200 Monday through Friday. The bedside nurses were expected to assess their two patients from head-to-toe with the assistance of the wound expert nurse.

Informal education on proper pressure relieving interventions, intrinsic/extrinsic risk factors, pressure injury treatments, and pressure injury pathophysiology was conveyed to each nurse. An emphasis was made during bedside assessment to have the nurse identify risk factors as an important first step, as the contributing factor in the development of pressure injury as recognized by Cox [8]. If a pressure injury then develops and all interventions have been documented accurately to reflect optimal care, the hospital can then ensure that the pressure injury was unavoidable [2]. An unavoidable pressure injury occurs under conditions where a pressure injury forms and deteriorates, even with excellent nursing care and is deemed not preventable (www.npuap.org). A student-centered, facilitative teaching educational pedagogy approach, was used by the wound expert nurse to engage the bedside nurse in the subject of pressure injury preventive care and management [12].

Teaching methods used included asking open-ended questions to stimulate thought, promoting hands-on facilitative learning at the bedside, fostering contextual learning, learner autonomy, and viewing the nurse as a whole person. Kurt Lewin's Change Theory was incorporated into this project as an applied psychosocial guideline to assist with potential staff resistance. The mechanics of this theory comprised of three stages which include unfreezing, moving towards a new level of conversion, the second stage is change, which can involve thought processes and emotion states and refreezing in which a change becomes part of standard everyday practice (www.nursing-theory.org/nursing-theorists/Kurt-Lewin.php).

During the unfreezing stage the ICU managers disseminated

information to all staff members regarding the units HAPI rate trend being far above benchmark, as compared with rates from the previous year. Nursing staff then became aware of the acute need to decrease pressure injuries on their units and the potential harm to patients. By placing a wound expert nurse in the ICU for the purpose of pressure injury surveillance and educating staff regarding preventive interventions, it was theorized that nurses would readapt their practice and convert the unit's culture in favor of a proactive mindset.

Prior to the start of this project, a list of all stakeholders involved was reviewed for accuracy in order to gain substantial insight from all participant viewpoints, as the team may not see challenges that other stakeholders' distinctive perspective of the situation can see [14]. During the first week of the project there was some degree of resistance by nursing staff, as adjustments in workflow were necessary to accommodate the project parameters. SICU Interdisciplinary Rounds could not coincide with the peer-to-peer skin rounding due to scheduling conflicts and required assessment time without interruption.

It was agreed upon by the wound expert nurse and the ICU managers to have rounding begin in the MICU and continued on to the SICU. Leadership principles utilized during the project emphasized consistent communication, balanced guidance without forcefulness, team engagement, awareness of project boundaries, provide flexibility, give recognition to staff and remain courteous.

Some nursing staff members exhibited cautious behavior which brought forth an opportunity for the wound expert nurse to acknowledge their feelings of discomfort with change. A benefit to the peer-to-peer skin rounding procedure brought about individual attention and customization of the recommended skin prevention interventions. This opened an opportunity to inform staff of the benefits of an EBP project and it was emphasized to staff that the project would improve the effectiveness and efficiency of their own nursing practice [15].

A reminder was also communicated to each nurse regarding the principle of, Do No Harm, as stated in the nursing code of conduct [16]. A 4-week interim period, from the start of the project, brought on a noticeable change in staff attitude towards the rounding process and was sustained through the following 2-months. Several nurses expressed positive opinions regarding bedside rounding and felt that strong collaborative support was given to them by the wound expert nurse. In 2012, Kelleher, et al. also found that peer-to-peer dialogue at the bedside appeared more beneficial to critical care nurses than traditional education methods.

As a result of the positive feedback conveyed by the ICU SWAT members and ICU Managers, it was decided to begin skin rounding towards the latter half of the project, with the second shift and work schedules altered to accommodate this additional feature. Expert knowledge and leadership implementation were the driving forces to successfully bring about a change equilibrium, as identified by the Lewin's Change Theory. During the refreezing step certain

elements were retained in the months that followed the end of the project such as accuracy of documentation.

Due to competing priorities the peer-to-peer skin rounding process was not able to be fully developed. In retrospect, it was found that the refreezing step had not been fully embraced by all its stakeholders or formulated into a common practice standard.

Evaluation

Concerning step 7 of the EBPI Model, to Analyze, the goal of the project was to decrease all stages of HAPI occurrences in the hospital and to improve patient outcomes. This was accomplished by optimizing the use of pressure injury prevention strategies used by the nursing staff. During the project 150 patients per month were assessed for a total of 450 patients during the 3-month period. The most significant conclusion drawn from this EBP project was that no stage II or greater severity pressure injuries occurred during the project period. The incidence of HAPIs slowly decreased over the 3-month project period in both MICU and SICU.

The benefit to the patient was improved skin surveillance, early detection of pressure injuries, and immediate implementation of preventive interventions. Positive comments were made by family and patients about the individualized attention given to each patient to prevent pressure injuries, capturing the essence of patient-centered care. Given the positive findings of the project, there is value in placing a wound expert nurse in the ICU for peer-to-peer skin rounding, as it had a significant effect on decreasing HAPI rates.

An emphasis on integrating EBP and clinical expertise with patient-centered care was utilized to reduce variation in pressure injury prevention nursing practice [12]. A factor that may have accounted for favorable results during the project period could have been the presence of a wound expert nurse on the unit daily. The wound team presence may have been a mental trigger to the ICU nurse to focus on skin and pressure relieving interventions for their patients. A similar phenomenon was cited by Anderson et al. that the presence of a wound nurse on the unit had a significant influence on their study.

Improved consistency in nursing documentation was evident by random chart auditing completed by the SWAT (Skin Wound Assessment Team) nurses and reports sent to the ICU Managers. Chart audits focused on whether there was a correct pressure injury stage, photograph of wound(s), and compliance with implementation of pressure relieving interventions by the nurse.

During the unfreezing stage of the project a similar correlation was found, as mentioned by Melnyk et al. with the association between years of practice the nurse had and the indifference in seeing the value of EBP in daily practice. Recommendations for this project include implementation of a mandatory Pressure Injury Prevention education series, taught by the ICU Nurse Educator annually. Additionally, future data collection should include trend tracking

each individual pressure injury stage, an educational focus on the significance of Medical-Device Related Pressure Injuries, and the development of an ICU Skin Rounding Team. In keeping with the EBPI Model in the Advancing and Adopting step, the results of this EBP project were disseminated to numerous health care associations. Under the final step of the EBPI Model, EBP findings promote professional growth and expansion of available knowledge sources to assist in future inquiries [14].

Conclusion

A recommendation was made to implement a skin rounding innovation project with the wound expert nurse in other units due to the positive results achieved. The ICU Educator developed a pressure injury module that ICU nurses are required to complete annually. It appears that peer-to-peer skin rounds in the ICU, utilizing a wound expert was an effective strategy in reducing the HAPI incidence rate at SGH. It is the author's view that future research be done to identify nursing practice barriers to pressure injury prevention, analyze the complexity of both Medical Device Related and Unavoidable pressure injuries.

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