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Reducing Hospital Acquired Pressure Injuries Through a Standardized Prevention Bundle

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Abstract

PROBLEM: Currently healthcare acquired pressure injuries (HAPIs) in the United States result in significant and unnecessary costs along with lost revenue for healthcare facilities. These costs are estimated to be between 9.1 and 11.6 billion dollars annually. Pressure Injuries (PIs) are directly associated with decreases in patient outcomes and are deemed preventable incidents.

HAPI prevention can mitigate this clinical and financial problem for patients and organizations.

CONTEXT: Unnecessary patient harm related to four HAPI occurrences in the last quarter on the 2B Medical Surgical Telemetry Unit in an integrated managed care delivery system continue to be of concern. Adherence to current PI prevention methods is not adequate, and is demonstrated in electronic health record (EHR) audits. The improvement project described in this paper will address knowledge gaps regarding PI interventions, and establish a standardized HAPI prevention bundle.

INTERVENTIONS: The project intervention involves implementation of a standardized skin safety bundle on an attachable laminated checklist to increase adherence to best practice guidelines associated with HAPI reduction and documentation.

MEASURES: An outcome measure, three process measures, and one balancing measure were addressed in this project. The integrated managed care delivery system regional benchmark for HAPI's is zero. The aim of this project is to reduce HAPIs down to one occurrence within a quarter and optimistically maintain the metric of zero in the future.

RESULTS: Unfortunately, due to competing priorities related to the Coronavirus Pandemic this improvement project was only allocated time for a two week pilot study. During the pilot of the standardized skin safety bundle zero HAPIs were reported.

CONCLUSION: A standardized HAPI prevention bundle checklist reduces HAPI incidents and preventable patient harm. Additional tests of change and improvement research for large

scale implementation and spread of the recommended skin safety bundle along with related documentation is encouraged.

Keywords: HAPI, prevention, bundle, harm, cost, documentation

Reducing Hospital Acquired Pressure Injuries Through a Standardized Prevention Bundle.

Introduction

Currently healthcare acquired pressure injuries (HAPIs) in the United States cost between 9.1 and 11.6 billion dollars annually (Cyriacks, 2019). A vast majority of these HAPI associated costs are presumably absorbed by the healthcare facilities where the injuries occurred. In 2008, the Centers for Medicare & Medicaid Services (CMS) began to deny reimbursements to medical facilities where a stage 3 (full-thickness skin loss) or stage 4 (full-thickness skin loss and tissue loss) HAPI was discovered during a hospital admission (Black, 2019). These preventable injuries reflect a staggering amount of unnecessary costs and lost revenue for any healthcare facility. Currently 1 out of 30 patients develop a pressure injury annually, and roughly 60,000 deaths are directly related to a HAPI in the United States each year (Black, 2019). Considering the mortality and health issues associated with a HAPI, it's imperative a prevention method be established. Patient harm and suffering would also be reduced as acquiring a Pressure Injury (PI) could negatively impact a patient's life, interfere with recovery, and cause additional pain or infections (Cyriacks, 2019). A reduction in patient harm and suffering would also presumably lead to increased satisfaction with the care provided as measured and monitored in the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey scores regarding hospital recommendation. Prevention is the key to support both clinical and fiscal organizational outcomes.

The integrated managed care delivery system regional benchmark for HAPI's is zero, and is the established goal for the 2B Medical Surgical Telemetry Unit. Achievements as well as failures to adhere to target goals are initially addressed at the regional level where improvement priorities, plans, and positive recognition are initiated. Due to the importance of

this preventive care management, financial incentives and other benefits are directed to medical facilities which meet or exceed expected benchmarks. A recent microsystem assessment indicated patterns of data that were unacceptable and reflected a major opportunity for improvement in one busy unit. There have been efforts to prevent HAPIs on the 2B Medical Surgical Telemetry Unit at an integrated care delivery system in Vacaville California but recent results were disappointing and unacceptable as reported in the most current quarterly report. The standardized pressure injury prevention protocol (SPIPP) checklist shows immediate impact on HAPI prevention when it is implemented effectively (Padula & Black, 2019). This checklist outlines the elements of the standardized skin safety bundle and incorporates the latest evidence based practices.

Problem Description

Setting

An integrated managed care delivery system in Vacaville California operates as an acute care facility offering level two trauma services for the community. The purpose of the medical units throughout the acute care facility is to partner with patients as well as the surrounding communities to promote health and wellbeing in the region (Kaiser Permanente, 2019). The 2B Medical Surgical Telemetry Unit also identified as the 2B unit currently offers 24 single bed rooms for patients with various acute illnesses or trauma. The 2B unit in the last three month quarter documented the discovery of four inpatient HAPIs. Unfortunately, these findings resulted in longer patient admissions and additional costs associated with treatment. The patients also endured additional distress from the PIs which are preventable through implementation of best practice interventions and nursing staff education. The current method for reducing HAPIs is not effectively reaching the regional goal of zero PIs.

Quality Gap

After viewing electronic medical record (EMR) audits by an assistant nursing manager (ANM), nursing staff are often not utilizing the current skin protection bundle. During questioning of certain nursing staff members on the 2B unit it was evident there was a gap in knowledge regarding the skin protection bundle existence, what items are involved, and the evidence based practices supporting the intervention. A review of current best practice guidelines for reducing PIs also found a gap in current interventions on the 2B unit. Turning a patient 30 degrees or greater is recommended when repositioning a patient every two hours (Padula & Black, 2019). According to EMR audits of patient repositioning, pillows were often used instead of the provided 45 degree angled foam wedges. Pillows for patient turns, every two hours, are not best practice for preventing HAPIs as they often do not provide a 30 degree or greater turn. A proposed solution to the current HAPI occurrences and underutilization of prevention interventions, on the 2B unit, is a standardized skin safety bundle checklist. The skin safety bundle shows promise to decrease HAPIs through applying current evidence based practices.

Available Knowledge

PICOT Question

In order to begin the process of researching available knowledge regarding PI interventions and HAPI standardized prevention bundles a population, intervention, comparison, outcome, and timeframe (PICOT) question was established. On the 2B Medical Surgical Telemetry Unit how does implementation of standardized HAPI prevention bundle compared to the current prevention bundle decrease PIs over a three month period.

Literature Search

A multiple database search was conducted in May 2020 to review potential evidence supporting a reduction in HAPIs through multiple interventions rather than a single one. The

following databases were used in the search: Cochrane, CINAHL, and PubMed. The search terms utilized during the database searches included HAPI interventions, PI interventions, PI prevention, HAPI bundle interventions, PI bundle interventions, HAPI reduction with standardized bundle, standardized HAPI prevention bundles, and multiple interventions reducing PIs. Limitations included: English language only, publication date no earlier than 2015, systematic review or meta-analysis, critically appraised research studies, individual research studies, random controlled trials (RTC's), cross-sectional studies, and editorials with references to current evidence-based practices. To be included, articles needed to provide evidence of interventions to reduce HAPIs and PIs through multiple methods in a change package or "bundle". Articles that did not utilize evidence-based interventions to reduce HAPIs and PI rates were excluded.

Synthesis of Literature

The five articles reviewed were essential to the formation of this improvement project, and annotated bibliographies are presented in appendix A. Black (2019) described a change project to attain zero HAPIs by utilizing a HAPI cart with best practice tools, and ongoing educational resources for staff members, involved with direct patient care, to reduce HAPIs. Cyriacks (2019) conducted an improvement project which demonstrated the importance of identifying quality gaps through EHR audits, and the need for time management when multiple HAPI interventions are implemented. Unfortunately, according to Da Costa Souza and colleagues (2020) when PI protocols or prevention bundles are in place to reduce HAPIs, frontline team members are often not aware of their existence. This demonstrates a gap in knowledge and awareness as well as education for prevention targeted to unit based staff in the microsystem. Padula & Black, (2019) recently published evidence-based practice guidelines for

introducing a standardized prevention protocol or “bundle” which reinforced that multiple effective interventions show promise in reducing HAPIs. Implementation of such a standardized PI prevention protocol utilizing a four-phase plan resulted in a reduction of HAPI incidence rates by nearly 7% at a nursing home with numerous at-risk patients (Yilmazer et al., 2019). Considering all the evidence, the best practice for prevention of HAPIs and ultimately achieving zero occurrences of HAPIs or PIs is to implement a standardized skin safety bundle.

Rationale

The Clinical Nurse Leader (CNL) is a multifaceted role that supports unit-based teams in the microsystem to improve quality, outcomes and the work environment (King et al., 2019). In this practice change project, the CNL will be vital throughout the process of planning and implementing a standardized skin safety bundle. The CNL adds value to the organization by building effective teams, identifying effective interventions, and designing and implementing evidence-based practices (American Association of Colleges of Nursing [AACN], 2019). This foundational CNL role will be introduced, and utilized to provide continuous system support and informal leadership to organizational stakeholders in support of a standardized skin safety bundle. A CNL should maintain this role as a leader in the clinical setting to promote best care practices involving delivery, coordination, design, and evaluation of care for all populations (AACN, 2019). The CNL will practice this role designation throughout each step in the process of implementing the standardized skin safety bundle.

Change Theory

The Change Theory of Nursing, developed by Kurt Lewin, will be the guiding framework for this quality improvement initiative. This theory involves three essential stages to initiate change. The first stage of the Change Theory involves unfreezing which allows

individuals to depart from and old process (Petiprin, 2016). This is important as it provides a stage for new thoughts and suggestions. One method of unfreezing utilizes driving forces to move individuals away from the original approach (Petiprin, 2016). Evidence-based practice guidelines allowing for safer patient care through reducing PIs shows promise to be the driving force on the 2B Unit to transition to the standardized skin safety bundle. The second stage of the Change Theory, the change stage, utilizes changes in thoughts and behaviors towards a new process which may seem more productive (Petiprin, 2016). This stage will be founded on the evidence supporting an enhanced HAPI prevention process which utilizes the standardized skin safety bundle. The last stage of the Change Theory is refreezing, and essentially involves establishing a new process or habit as the standard procedure (Petiprin, 2016).

Model for Improvement

Model for Improvement (MFI). Another conceptual framework for promoting change is the Model for Improvement promoted by the Institute for Healthcare Improvement (IHI). This model involves three key questions and incorporates many small cycles to test changes or hunches that may stimulate new behaviors or practice patterns in the microsystem (<http://www.ihl.org/resources/Pages/HowtoImprove/default.aspx>). One key component of this MFI is to introduce and test practical ideas that might work and that lead to improvement and better outcomes. The process of rapid cycle testing in the MFI is referred to as PDSA – the cycle of plan-do-study-act. Usually, several cycles are necessary to establish what works and what doesn't for the care team members who are implementing the tests of change. In this project, after positive findings from the initial plan do study act (PDSA), the standardized skin safety bundle method of PI prevention is anticipated to become the standard procedure or habit to consistently prevent or reduce HAPI rates on the 2B Unit. The staff nurses

employed at the 2B Unit have continually expressed a willingness and readiness to provide patient care which is safe. This motivation indicates the nursing staff on the 2B unit will work as a team to implement a HAPI prevention protocol or “bundle” which decreases patient harm and increases safety. The CNL also reinforces this culture of safety and continuous improvement through periodic check-ins as well as weekly team meetings.

Specific Project Aim

Introduction and utilization of an established skin safety bundle shows promise to decrease preventable harm for patients in this microsystem. The specific aim of this evidence-informed quality improvement project is to reduce the current quarterly HAPI rate on the 2B Medical Surgical Telemetry Unit from 4 to 2 by 7/10/2020 through testing the utilization of a new standardized skin safety bundle.

Methods

Context

Improving a process within a microsystem often requires hard work and dedication. The CNL provides direct care to patients within a microsystem in order to lead, guide, and educate nursing staff in best practice guidelines which allows for positive measurable outcomes to consistently be attained (Harris et al., 2018). Working directly with patients in the microsystem gives the CNL the opportunity to assess issues related to various outcomes. The microsystem assessment is a comprehensive needs assessment that includes providing details on processes and patterns (Harris et al., 2018). Through a microsystem assessment, the CNL can identify areas where guidance towards more established best practice guidelines is potentially needed. A microsystem assessment utilizing the Dartmouth Inpatient Workbook was conducted on the 2B Medical Surgical Telemetry Unit in November 2019.

This assessment revealed that certain ages and diagnoses were more prevalent in the patient population admitted to the 2B unit. Those who are between the ages of 66 and 75 make up 50 percent of admissions to the 2B unit. Only 10 percent of patients admitted to the same unit were between the ages of 19 and 50. The most common diagnosis on the 2B unit is Congestive Heart Failure (CHF). The second through the fifth most common diagnoses to the same unit include: Pneumonia (PNA), Stroke or Cerebrovascular Accident (CVA), Acute Coronary Syndrome (ACS), and Chronic Obstructive Pulmonary Disease (COPD). The length of stay on the 2B unit is on average 4 days. The types of diagnoses patients are commonly admitted with contributes to a lack of mobility which has the potential to increase the probability of PIs if evidenced-based practice interventions are not implemented. In the 2B unit microsystem nurses are responsible for implementing best practices and recognizing the need for HAPI interventions. On the 2B unit, nine nurses work during the two day shifts and eight during the nights. Patient Care Technicians (PCTs) support the nurses in the same manner a nursing assistant would with three being available during day shifts and two at night.

Strengths, Weaknesses, Opportunities, Threats (SWOT) Analysis

Strengths and Weaknesses

To acknowledge the multitude of factors that affect the implementation of a standardized skin safety bundle, a SWOT analysis was conducted (see Appendix B for SWOT analysis). Strengths of work environment that impact the standardized skin safety bundle project involve assurance regarding the adequate number of nurses and assistant personnel available each shift for ongoing implementation. Additionally, the items for the skin safety bundle are in place, and being ordered routinely with costs figured into the current 2B unit budget. With personnel needs already accounted for, utilizing the skin safety bundle will not increase overall costs due to

additional staffing. Weaknesses identified within the framework of implementation for the standardized skin safety bundle stem from the nursing staff not adhering to the current hospital policy HAPI prevention program and lack of education regarding necessary interventions. According to electronic health record (EHR) audits, nursing staff on the 2B unit were not consistently administering the current PI prevention interventions. When interviewed, staff demonstrated a lack of knowledge regarding best practices in established skin protection policies. Educating staff routinely prior to beginning their shifts will be vital in overcoming weaknesses during implementation of the recommended standardized skin safety bundle checklist. Nurses who interact closely with patients have a major role in HAPI prevention (Cyriacks, 2019). This is important when considering a HAPI prevention program because RNs can provide important observations, monitoring and insights regarding a patient's potential PI risk factors.

Opportunities and Threats

The opportunities created through utilization of the standardized skin safety bundle are the progressive increase in HCAHPS survey scores in addition to organizational recognition from the regional quality and safety personnel. Achievements as well as failures to achieve expected goals are initially dealt with at the regional level. In addition, meeting and exceeding target goals defined by the regional office often provide not only team recognition, but also added financial benefits for an acute care medical facility. Patient satisfaction with their care experience is also likely to be affected by eliminating preventable harm. Therefore, reducing the suffering patients might experience, if a HAPI develops, shows promise in increasing overall HCAHPS. Threats involving the standardized skin safety bundle include potential patient refusal of interventions and the supply process for the skin safety bundle items. For example, in

the case of a patient refusing an intervention, nurses and staff, prior to implementation, are educated to encourage utilization of all elements of the skin safety bundle or offer a substitute intervention in a kind and empathetic manner. The supply process for items of the standardized skin safety bundle on the 2B unit has proven to be problematic. For example, nursing staff, in targeted interviews, reported items for the skin safety bundle are often unavailable when needed. The ANM should be notified by staff when any one item of the skin safety bundle has only 6 remaining. After receiving this information from staff, the ANM will notify the materials department to increase the supply. Employing the above strategies should aid staff in overcoming these potential threats.

Cost-Benefit Analysis

An analysis of implementation and material costs of a complete standardized pressure injury prevention protocol program (SPIPP) per day for a patient has been calculated to range between \$50-100 (Padula & Black, 2019) The total cost of the standardized skin safety bundle would be nearly identical to the SPIPP program. The necessary items for the HAPI intervention and the Standardized skin safety bundle are currently being purchased by the 2B unit. The total cost of the skin safety bundle averages \$75 per patient daily with the average length of stay for the 2B unit at four days. This brings the total average cost of the standardized skin safety bundle to \$300 per admission. Patients meeting the criteria for utilization of the skin safety bundle interventions, on average, is 6 during a four day period as demonstrated by Braden Scores during EHR audits. This leads to an average 4 day cost of \$1800 for the 2B unit while the skin safety bundle is being implemented The total cost of the standardized skin safety bundle annually is \$164,250 as expressed in Appendix C. Reducing the four current HAPIs quarterly or 16 annually would result in a total initial savings of 1,213,600. After the budget costs of the

skin safety bundle annually are subtracted, an overall annual savings of \$1,049,350 would result for the 2B unit. The additional annual savings of more than 1 million could be allocated to numerous hospital or regional projects to improve patient care, and continue to increase the integrated managed care delivery system credibility and reputation as a premier healthcare organization nationwide.

Intervention

Through targeted interviews of senior nursing staff members and EHR audits on the 2B unit it became evident that a gap in knowledge regarding best practice interventions for reducing HAPIs existed. Education will be an essential component to successful implementation. An educational brief at the beginning of a nursing shift during routine huddles will serve to educate staff before initiation of the skin safety bundle and include assigned roles, responsibilities, establish expectations, anticipate outcomes, and leave time for questions (Agency for Healthcare Research and Quality [AHRQ], 2020). The staff breakroom will be utilized for communicating this educational and clinical process change. The brief will be no more than eight minutes, and include the areas of successful nursing education recommended by Ayello et al. (2017) which involve evidenced based practice, expert knowledge, and patient preference.

The skin safety bundle checklist will include the five portions of the skin bundle, charting requirements, documentation for patients refusing an intervention, and when to order a wound care consult (see Appendix D for standardized skin safety bundle checklist). Checklists represent a preferred mechanism to standardize guidelines, and assists individuals with adherence to best practices and safety guidelines while working in stressful time-dependent situations (Padula & Black, 2019). Items to be utilized for the standardized skin safety bundle

include the following five items: 1. Mepilex; 2. Turning wedges; 3. Pair of soft foot boots; 4. Skin sealant barrier cream; and 5. An envision bed for pressure point weight redistribution.

These five items in addition to turning a patient every two hours make up the proven elements of the standardized skin safety bundle intervention. The application of the skin safety bundle is initiated when a patient presents with a Braden score of 18 or below at any time during an admission. A patient's Braden score should be assessed every shift, and after a change of condition or surgical procedure is completed.

Study of the Intervention

Rapid cycle testing using PDSA cycles will provide integral information regarding the introduction and implementation of this skin safety bundle as an intervention to reduce or prevent HAPIs on the 2B Unit. As data is gathered, the CNL will identify trends and barriers during the small tests of change. Positive trends such as full utilization of the skin safety bundle will provide useful feedback regarding the educational process prior to implementation.

Negative trends such as the utilization of pillows for patient turns, instead of wedges, might indicate a barrier to implementing best practice guidelines for PI preventions. Trends or barriers will be identified through frequent EHR audits, informal observations, and discussions with staff during the PDSA.

An educational brief will take place with four night shift RNs and two PCTs. The four RNs and two PCTs will make up the team of staff members utilized for a 30 day PDSA (see Appendix E for PDSA cycles 1 and 2). During PDSA cycles the CNL will conduct continuous educational sessions and be available for questions. After the PDSA cycle is completed, an informal interview will take place. During the interview the CNL will inquire about barriers to implementation of the standardized skin safety bundle, overall usefulness of checklist, and ask

for feedback from the 6 staff members. The CNL will need to address staff concerns appropriately, and allow for open dialogue to discover solutions to ongoing barriers that prevent full utilization of the skin safety bundle. Recognizing and overcoming barriers will be a key factor to successfully reducing HAPIs and changing current practice. This information will be used when implementing the standardized skin safety bundle on the entire 2B Unit.

Measures

The EHR audits will offer a consistent mechanism for measuring implementation of the standardized skin safety bundle when indicated. The specific five measures for this HAPI reduction improvement project reflect one outcome measure, three process measures, and one balancing measure. The outcome measure is the number of HAPIs reported during the three month quarter. The target goal is only one HAPI during implementation of the skin safety bundle in a three month period. Achieving zero PIs would reach the Napa/Solano Kaiser regional goal of zero HAPIs.

The first process measure will identify the number of patients the standardized skin safety bundle is initiated on when a Braden score of 18 or less has been assessed. A patient who currently presents with a Braden score of 18 or below requires best practice interventions to prevent a PI. The second process measure will score the number of patients who receive the entire standardized skin safety bundle when indicated. All aspects of the skin safety bundle are necessary to test and provide the most current evidence based practice intervention for protecting patients from a HAPI. The last process measure involves the necessary documentation for a patient's refusal of all or a portion of the skin safety bundle. The nurse needs to document in a patient's EHR refusal of any HAPI intervention and resistance to education provided. This documentation will be measured, and indicate the reason a PI intervention was not implemented when indicated. The balancing measure for this

improvement project is the increase in work place injuries while repositioning or turning patients. These injuries have most commonly been observed to be associated with the back and shoulders. Utilizing two nurses for repositioning and the provided lift equipment reduces preventable injuries. The EHR program currently in place on the 2B unit requires a nurse to document the number of nurses needed to reposition a patient, and the equipment necessary to accomplish the task under mobility per shift. The mobility assessment will provide documentation to prevent unnecessary injuries related to turning a patient to avoid a HAPI.

Ethical Considerations

According to the completed Statement of Non-Research Determination Form, this project was undertaken as an Evidence-based change of practice project at Kaiser Permanente Vacaville Medical Center, and as such was not formally supervised by the Institutional Review Board (see Appendix F for IRB Exemption for Non-Research Statement of Determination Form). Ethical considerations have been considered in this improvement project, and provide guidance when implementing evidence based practice. The two ethical principles addressed are autonomy and beneficence. Autonomy refers to the right of self-determination, and allows for patients to make informed decisions regarding their care (King et al., 2019). The standardized skin safety bundle offers the patient the right to determine and participate in interventions for PI prevention, and education is provided so an informed decision can be made. The nursing goal is to partner with the patient through establishing a plan of care which reinforces PI prevention needs. Beneficence is simply to “do good”, and often motivates most healthcare professionals (King et al., 2019). This ethical principle is utilized when a nurse adheres to best practice guidelines and implements the skin safety bundle when indicated. The nurse may have to consider beneficence when a patient doesn’t want a PI prevention intervention. This process might not be engaging for an ill patient, but it’s essential to promote and improve optimal outcomes. Nurses should emphasize

the best practice, and continue to encourage patients to utilize evidence based interventions in their plan of care.

Results

Unfortunately, due to the ongoing pandemic only two PDSA cycles and on pilot study were conducted with approval for further implementation when competing priorities associated with Covid-19 are decreased. During this unprecedented time, the 2B Unit was utilized as the sole hospital wide Covid-19 inpatient floor. This provided a designated patient care area for Coronavirus patients to be treated while not increasing the risk for transmission to other individuals within the hospital. To maintain a safe environment for both staff and patients the pilot study was conducted on the 4B Medical Surgical Telemetry Unit also known as the 4B Unit. The 4B Unit is identical to the 2B Unit in staffing, number of patient beds, acuity levels, and EHR auditing. Through targeted interviews of nursing staff on the 4B Unit it was apparent knowledge gaps existed in best practice HAPI interventions similar to the 2B Unit. The two medical surgical telemetry units are sister units, and provide equivalent level of care under the same manager. The 2B and 4B Units also share ANMs and nursing staff.

Implementation of the pilot for the skins safety bundle has yielded promising results. Currently, both the outcome and process measures are trending in a manner which will ultimately provide safer patient care on the 4B Unit. The most important finding is no HAPIs have occurred since implementation of the pilot (see Appendix G pilot project – EHR audit – daily outcomes). The current data stems from the standardized skin safety bundle pilot implementation from June 23, 2020 to July 7, 2020. Staff members utilized for the pilot were those routinely scheduled to work on Tuesday every week. After evaluation of the pilot, implementation would ultimately takes place when the Coronavirus pandemic begins to resolve

and more organizational priorities are considered (see Appendix H implementation plan Gantt chart).

The nursing and PCT staff members were essential to the success of the skin safety bundle pilot. The nursing staff members continued to demonstrate a willingness to provide a safe patient care experience founded on evidence-based practice interventions which reduce HAPIs. Continued staff education sessions, during the pilot study, maintained the focus of nurses on the goal of HAPI prevention, and allowed for questions or clarification regarding the skin safety bundle interventions. The ANMs on the 4B Unit were also crucial to the pilot study process through conducting EHR audits routinely on implementation of the skin safety bundle when necessary. ANMs also consistently reinforced the need to provide best practice interventions for HAPI prevention when indicated.

Discussion

Summary

The purpose of implementing the standardized skin safety bundle was to reduce or prevent HAPIs on the 4B Unit. This improvement project pilot utilized multiple evidence-based practice interventions and education of patient care staff to ultimately reduce PIs. The increase in adherence to the standardized skin safety bundle was expected as staff continues to verbalize a willingness to participate in decreasing preventable patient harm. The results of the pilot study continue to support evidence-based practice recommendations to utilize multiple PI interventions in one bundle or protocol to reduce HAPI occurrences. Education on HAPI prevention to ANMs and staff members reinforces best practices, and should continue throughout the process of implementation to maintain positive outcomes.

Key Findings and Factors of Success

The targeting and informal interviews with nursing staff, ANMs, and PCTs were a contributing factor in assessing the overall willingness to change the current HAPI prevention practices on the 4B Unit. Acknowledging the beliefs and ideas of those interviewed regarding PI prevention allowed for an educational assessment to be completed. The assessment was essential to creating the standardized skin safety bundle educational approach which directly addressed knowledge gaps. Addressing staff knowledge gaps both educationally and within the skin safety bundle checklist was key in providing positive results.

The CNL rounding on the 4B Unit throughout the pilot implementation provided staff an additional resource for information and clarification on best practice guidelines for PI interventions. During rounds, the CNL also helped to reinforce a change in nursing priorities towards implementing the skin safety bundle when indicated at the beginning of a shift. The skin safety bundle checklist allowed nursing staff to continually have a reference when implementing and charting placement of HAPI interventions. This was key in increasing proper implementation of the skin safety bundle in a fast paced working environment as demonstrated in EHR audits. The CNL initiating collaboration with the materials department to improve the supply of the skin safety bundle items was a factor of successful implementation of the pilot. Collaboration is an important tool often utilized by the CNL to improve lateral integration and organizational outcomes.

Lessons Learned

The valuable lessons learned during this process will provide important insight to increase the probability of success during full implementation of the skin safety bundle. The CNL must approach nurses in a kind, empathetic, and timely manner while rounding. Understanding the need for tactful and non-judgmental communication during educational

sessions with nursing staff members allows for a constructive information exchange. Another lesson learned was regarding a section of the skin safety bundle. The number one item in the skin safety bundle not charted or implemented was the barrier cream portion. When certain staff were questioned, in targeted interviews, to explore these findings, nurses believed skin sealant barrier cream was not always indicated. If the skin sealant barrier cream was not implemented or charted during EHR audits, credit for utilizing the entire skin safety bundle was not given. This had an effect on daily implementation numbers of the entire bundle. Education was provided regarding the necessity of skin care to staff nurses, and when a portion of the skin safety bundle is not implemented to document their rationale for the variance. Further education regarding the use of barrier cream should be considered in future implementations and tests of change.

Implication for Practice

The findings in the standardized skin safety bundle pilot are encouraging, and provide support for implementation to the entire patient care staff on the 4B Unit. Education should be expanded and continue on best practice guideline for HAPI prevention. Targeted informal interviews were especially beneficial during the pilot as information was quickly gathered to provide for optimal outcomes. The CNL student's continued collaboration with all departments associated with the skin safety bundle was essential to achieve positive results, and demonstrate the value of communication within the acute care setting. If positive findings continue with the standardized skin safety bundle when fully implemented, managers and stakeholders are encouraged to consider adapting the suggested revisions to the existing bundle into the hospital policy guidelines for HAPI prevention.

Sustainability

The sustainability of the skin safety bundle's positive results will rely on continued education to ANMs, nurses, and PCTs regarding the value of utilizing evidence-based practice interventions to reduce or eliminate HAPIs. The CNL will be vital in encouraging patient care staff to implement the standardized skin safety bundle. Bi-annual training for nurses should increase knowledge on proper implementation of the bundle, and allow for questions or clarification on PI prevention interventions. Continued auditing by ANMs of the skin safety bundle application when indicated will also provide information on adherence. This will allow the CNL and manager to adjust methods of education in order to maintain high numbers of implementation of the standardized skin safety bundle.

Conclusion

The prevention of HAPIs is directly related to patient outcomes. Hospital stakeholders should continually provide methods to reduce unnecessary patient harm related to PIs and increase positive outcomes. Establishing a microsystem culture of patient safety and providing evidence-based practice interventions to prevent HAPIs empowers nurses to protect clients from developing a PI. The ability of a standardized HAPI prevention bundle to reduce PIs was validated through this short pilot study. Checklist usage to increase adherence to procedures was also demonstrated during this pilot. Implementation of the standardized skin safety bundle to the entire patient care staff on the 4B Unit is recommended based on current findings. Patient centered care, harm reduction, and safety should encourage additional improvement initiatives regarding large scale implementation of the skin safety bundle. Clearly, reducing hospital acquired pressure injuries through a standardized prevention bundle will benefit many stakeholders including patients, providers, and the sponsoring organization.

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

Appendix A
Annotated Bibliography

Black, J. (2019). Help-U to Prevent HAPI: A change project to attain zero HAPIs. *MEDSURG Nursing*, 28(1), 31–47.

This peer reviewed journal article and change project provides interventions to reduce PIs which include continued education by certified wound ostomy nurses (CWONs) as well as skin care resource nurses (SCRNs). Direct interventions for reducing HAPIs is centered on a cart with commonly used PI prevention items, turning patients when applicable, and a two nurse skin assessment of all patients within 24 hours of admission. As a result of this program, both 23 bed medical surgical units in over two years have zero HAPI occurrences. The article noted success was also related to leaders who continually supported the program's financial and educational needs.

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

The evidence based quality improvement project and peer reviewed article established the benefits of identifying quality gaps in PI interventions through an EHR audit. After acknowledging patients were not being turned in accordance with evidence based practice, a turn team program was utilized as an intervention to successfully reduce HAPIs. The turn team utilized nurses, charge nurses, and nursing leaders to appropriately turn patients. Proper turning items and time management were additional interventions utilized within the turn team program. The 36 bed medical surgical pulmonary unit reduced HAPIs by 75% after implementation of the program.

Da Costa Souza, M., Rolan Loureiro, M. D., & Pires Batiston, A. (2020). Organizational culture:

Prevention, treatment, and risk management of pressure injury. *Revista Brasileira de Enfermagem*, 73(3), 1–7. <https://doi.org/10.1590/0034-7167-2018-0510>

A cross sectional study utilized a semi-structured interview process with open and closed ended questions. The total number of participants was 197 with only 31 individuals representing nursing personnel. The study concluded 59% of patient care staff, nursing assistants and registered nurses, were unaware of the current facility HAPI prevention protocol. Specifically 51.6% of registered nurses reported non-existence of a HAPI prevention protocol. The percent of nurses who indicated no formal PI prevention or treatment training is rendered at the facility was 54.8. The study notes how permanent or continuing education of patient care staff would decrease these numbers, and the use of a skin prevention protocol reinforces best care practices.

Padula, W. V., & Black, J. M. (2019). The standardized pressure injury prevention protocol for improving nursing compliance with best practice guidelines. *Journal of Clinical Nursing*, 28(3/4), 367–371. <https://doi.org/10.1111/jocn.14691>

An editorial by the peer reviewed *Journal of Clinical Nursing* outlines current evidence based practice guidelines for instilling a standardized prevention protocol. Multiple standardized interventions bundled and utilized show promise in reducing HAPIs. A recommended checklist for PI prevention methods is provided. Implementation in the microsystem is also addressed along with the need for continued nursing staff education. The editorial concludes with successful implementation of a standardized prevention bundle contingent on financial support, unit champions, and continued advocacy from system leadership.

Yilmazer, T., Inkaya, B., & Tuzer, H. (2019). Care under the guidance of pressure injury prevention protocol: A nursing home sample. *British Journal of Community*

Nursing, 24(Sup12), S26–S33. <https://doi.org/10.12968/bjcn.2019.24.Sup12.S26>

This clinical trial demonstrates the positive outcomes associated with a PI prevention protocol. The study was conducted at a nursing home with a total of 104 patient participants ages 65 or older and bed bound or wheel chair bound. The PI prevention protocol was introduced in four phases. Phase one included gathering data related to current HAPI occurrences amongst residents prior to protocol implementation, and phase two involved training staff members on the PI prevention protocol. In phase three the prevention protocol was implemented, and concluded when phase four began. During phase four data demonstrating the success of the PI prevention protocol was gathered. The protocol reduced HAPI incidents by nearly 7% over a three month period. The study also provides an itemized list of areas to focus PI interventions on.

Appendix B

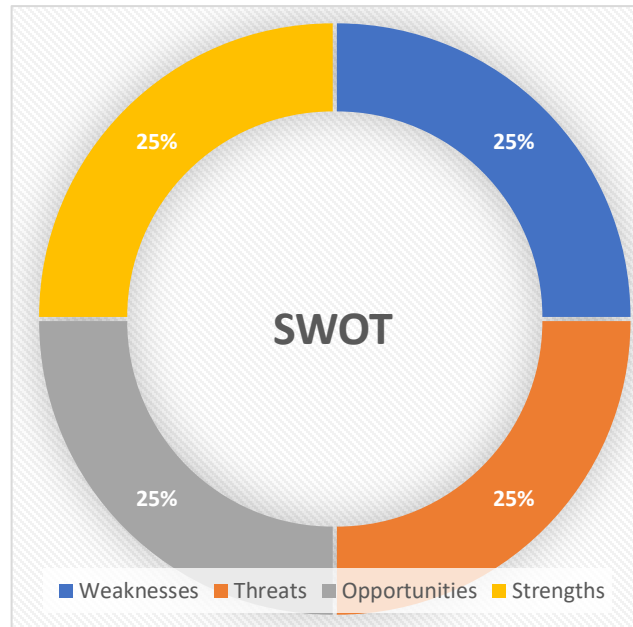
SWOT Analysis

STRENGTHS

1. Adequate staffing in place.
2. Skin bundle items already purchased.

OPPORTUNITIES

1. Positive regional recognition.
2. Increases in HCAHPS scores.



WEAKNESSES

1. Adherence to HAPI Bundle.
2. Lack of intervention education.

THREATS

1. Patient refusal of interventions.
2. Supply process for bundle.

Note: Chart created by author, June 2020

Appendix C

Cost-Benefit Analysis/Budget

Year	2020	2021
Current and Projected Annual Costs (Skin Safety Bundle)	\$164,250	\$164,250
Savings at Zero HAPIs 2B Unit	\$1,213,600	\$1,213,600
Annual Savings Projection	\$1,049,350	\$1,049,350

Budget

Cost Description	Details	Year 1 (2020)
Personnel Costs		
No Additional Staffing Costs	Adequate Staff Exists	\$0
Non-Personnel Costs		
Skin Safety Bundle	Average Daily Bundle Price	\$75
Average Daily Bundle Price	Average Length of Stay (4 Days) and Average Bundle Price	\$300
Average Length of Stay (4 Days)	Average Daily Patient Number Utilizing Bundle (6 Patients) and Average Length of Stay (4 Days)	\$1800
Average Daily Patient Number Utilizing Bundle (6 Patients) and Average Length of Stay (4 Days)	Overall Annual Cost of Average Daily Patient Number Utilizing Bundle (6 Patients) and Average Length of Stay (4 Days)	\$164,250

Note: Charts created by author, April 2020

Appendix D**Standardized Skin Safety Bundle Checklist****Skin Safety Bundle (Braden Score 18 or less)**

- 1. Mepilex On Sacrum/Coccyx.**
- 2. Soft Foot Boot On Both Feet.**
- 3. Apply Skin Sealant Barrier Cream (Purple Top)
To At Risk Areas Such As Sacrum/Coccyx.**
- 4. Turn Every Two Hours With Wedges Only.**
- 5. Order Envision Bed For Pressure Redistribution
Through Secretary.**

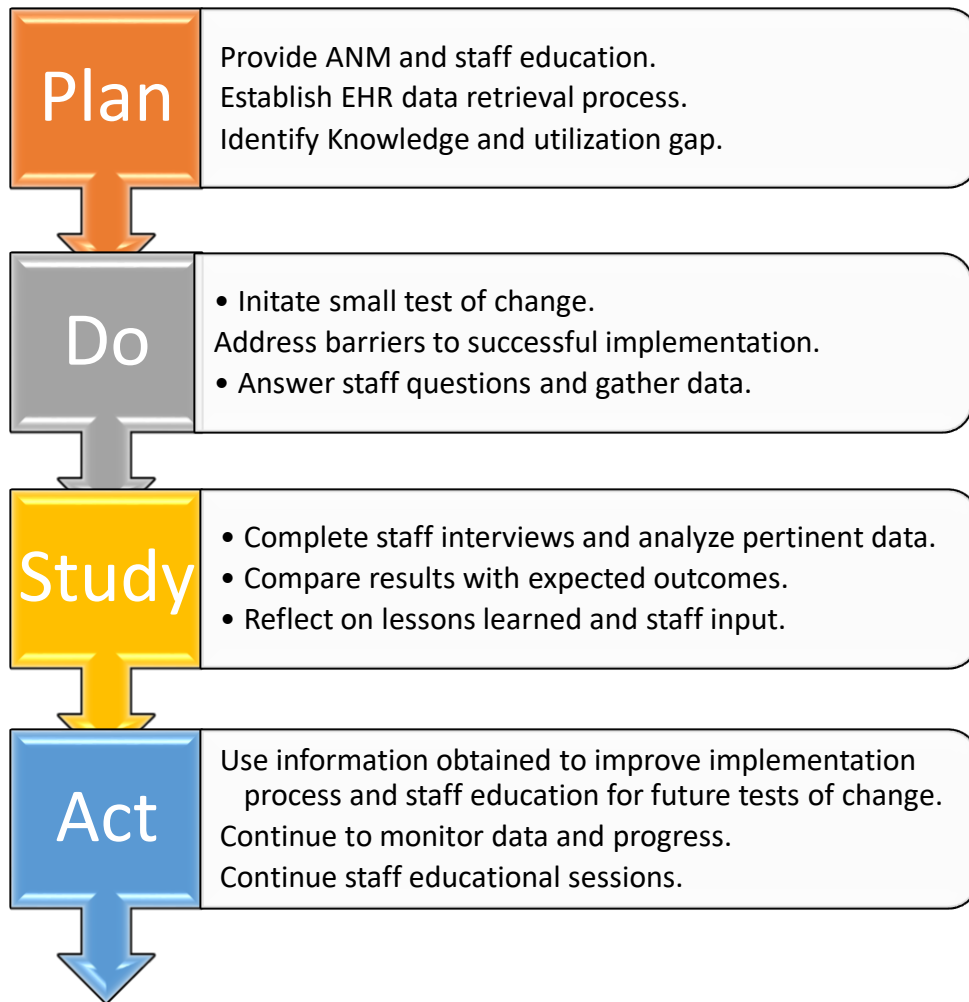
Please Chart

- **Application of Skin Safety Bundle and every two hour turn with wedges.**
- **If any portion of skin safety bundle refused, please chart “refused patient educated.”**
- **Pictures taken and wound care consult placed for any suspected wounds.**

Note: Laminated and attachable checklist created by author, May 2020

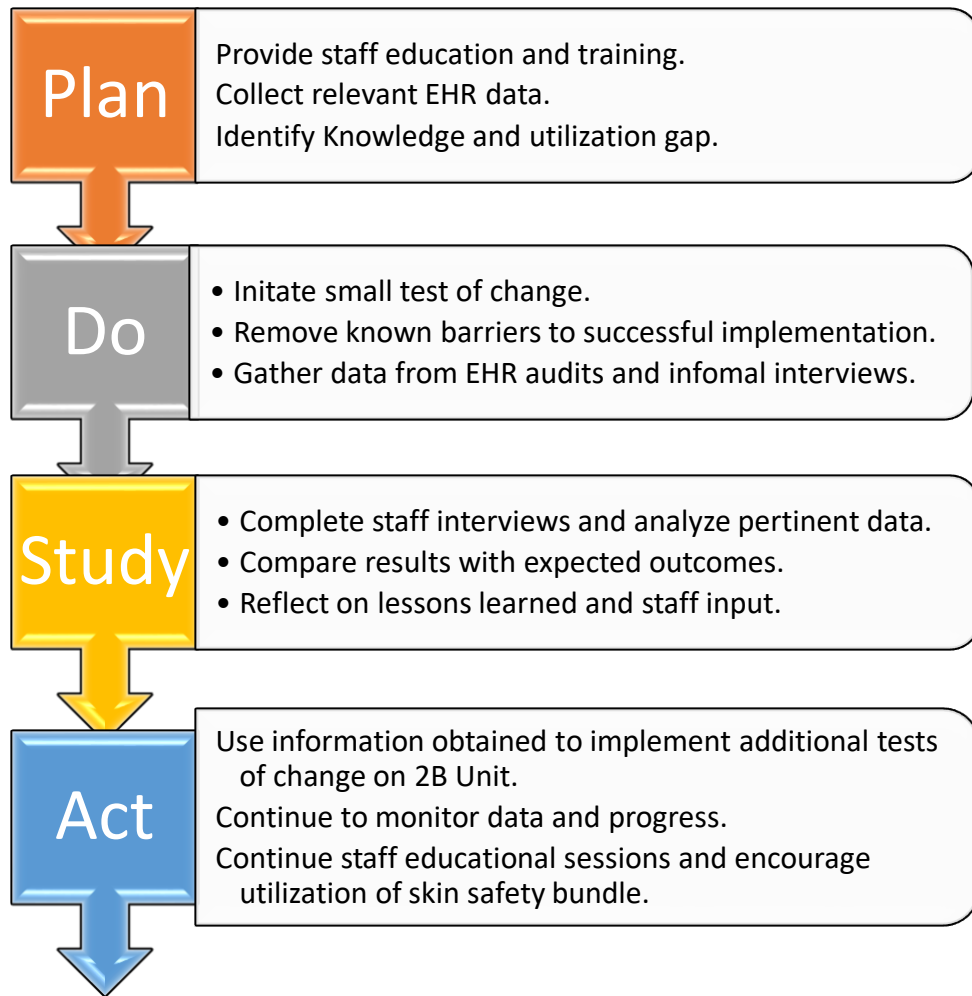
Appendix E

PDSA Cycle 1



Note: Pictorial created by author, June 2020

PDSA Cycle 2



Note: Pictorial created by author, June 2020

Appendix F

IRB Exemption for Non-Research Statement of Determination Form



CNL Project: Statement of Non-Research Determination Form

Student Name: Austin Stoker

Title of Project: Reducing Hospital Acquired Pressure Injuries Through Utilization of a Standardized Prevention Bundle.

Brief Description of Project:

Nature of the Project: To reduce the number of Hospital Acquired Pressure Injuries (HAPIs) through a standardized skin safety prevention bundle. The skin safety bundle will provide nurses and assisting personnel with best practice guidelines on HAPI interventions. Charting recommendations for documentation of applied interventions will be presented within the skin safety bundle checklist.

Data That Shows the Need for the Project: After viewing electronic medical record (EMR) audits by an assistant nursing manager (ANM), nursing staff are often not utilizing the current skin protection bundle. During questioning of certain nursing staff members on the 2B unit it was evident there was a gap in knowledge regarding the skin protection bundle existence, what items are involved, and the evidence based practices supporting the intervention. Four pressure injuries (PIs) occurred in the last three month quarter from October 1st, 2019 to December 31st, 2019 on the 2B unit.

Goal of the Project: To reduce HAPIs on the 2B acute care unit by 50% over a two month period by utilizing a standardized prevention bundle (This is based on 2B unit availability due to current Coronavirus pandemic).

Evidence to Support the Project: Numerous publications support prevention of HAPIs through skin protection interventions. Multiple prevention interventions combined has shown to reduce PIs. The Standardized Pressure Injury Prevention Protocol for improving nursing compliance with best practice guidelines, article, in the *Journal of Clinical Nursing* documented a standardized PI prevention protocol is an effective bundle for HAPI prevention.

A) Aim Statement: By 7/10/2020 a 50% reduction in HAPIs, from 4 to 2, will occur on the 2B medical surgical telemetry unit.

B) Description of Intervention: Prior to starting the shift an education session will be completed to inform staff of a new skin safety bundle and include assigned roles, responsibilities, establish expectations, anticipate outcomes, and leave time for questions. The standardized skin safety bundle will include best practice guidelines for HAPI prevention. After the initial education session, a teaching evaluation will take place through the teach back method which will involve naming the five parts of the



skin safety bundle, benefits of utilization, and each individual demonstrating application of one portion of the skin safety bundle. Weekly educational debriefing sessions will help staff and the Clinical Nurse Leader (CNL) collaborate on potential challenges of the new skin safety bundle as well as highlight benefits. Additional training or education will be provided bi-weekly and after the implementation period.

C) How will this intervention change practice? The skin prevention bundle will enhance current prevention methods for HAPIs through standardizing best practices. Providing a consistent approach to PI prevention shows promise to increase adherence to currently established skin safety protocols or bundles. Checklists also represent a preferred mechanism to standardize guidelines, and assists individuals in adherence while working in stressful time-dependent situations. This intervention shows potential to transform the current HAPI prevention culture on the 2B unit and reduce PIs.

D) Outcome measurements: Adherence to the skin safety bundle will be measured through monitoring appropriate EMR documentation during chart audits. The number of PIs in a two month period from June 1st, 2020 to July 10th, 2020 on the 2B unit will be evaluated as well for the desired decrease of HAPIs.

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used:
<http://answers.hhs.gov/ohrp/categories/1569>

- This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Student may proceed with implementation.
- This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments:

EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST *

Instructions: Answer YES or NO to each of the following statements:

Project Title: Reducing Hospital Acquired Pressure Injuries Through Utilization of a Standardized Prevention Bundle.	YES	NO
The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.	X	
The specific aim is to improve performance on a specific service or program and is a part of usual care. ALL participants will receive standard of care.	X	
The project is NOT designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison	X	




groups, cross-sectional, case control). The project does NOT follow a protocol that overrides clinical decision-making.		
The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does NOT develop paradigms or untested methods or new untested standards.	X	
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does NOT seek to test an intervention that is beyond current science and experience.	X	
The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.	X	
The project has NO funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	X	
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., not a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	X	
If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: <i>"This project was undertaken as an Evidence-based change of practice project at Kaiser Permanente Vacaville Medical Center and as such was not formally supervised by the Institutional Review Board."</i>	X	

ANSWER KEY: If the answer to **ALL** of these items is yes, the project can be considered an Evidence-based activity that does **NOT** meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to **ANY** of these questions is **NO**, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

STUDENT NAME (Please print): Austin Stoker

Signature of Student:



DATE 6/2/2020

SUPERVISING FACULTY MEMBER (CHAIR) NAME (Please print):



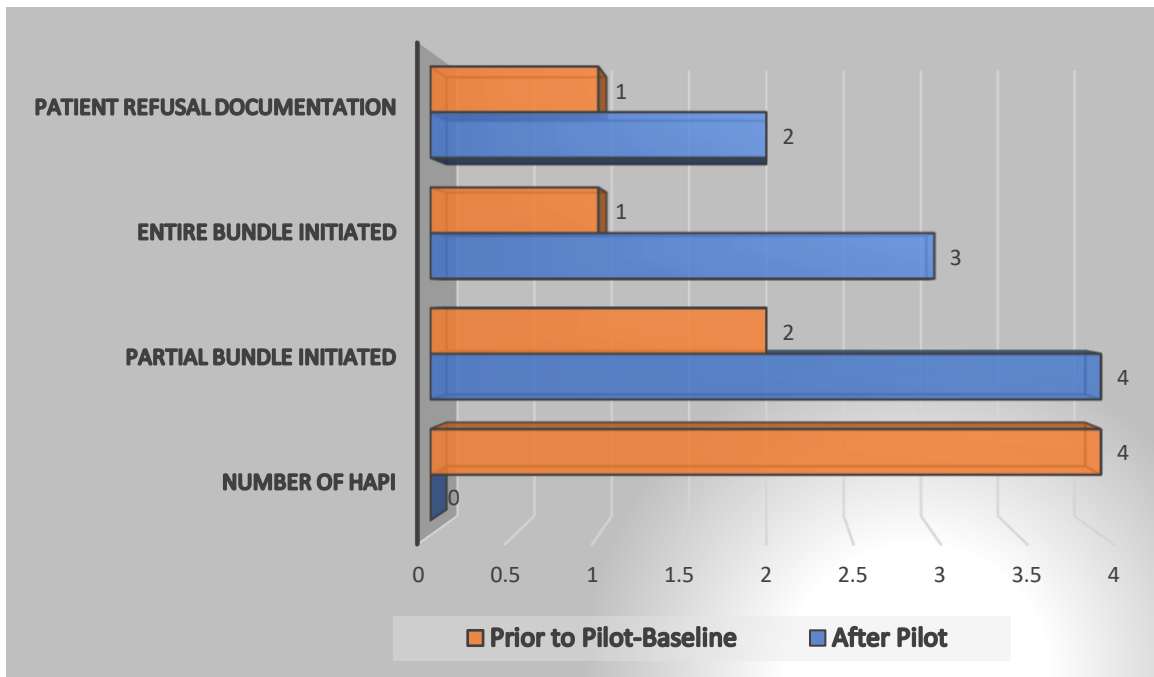
Signature of Supervising Faculty Member (Chair):

DATE

6/2/2020

Appendix G

Pilot Project – EHR Audit – Daily Outcomes



Note: Chart created by author, July 2020. N = 6 patients with Braden Score of 18 or lower. Hospital Acquired Pressure Injuries abbreviated to HAPI.

**Appendix H
Implementation Plan**

Task 2020	Phase I		Phase II		Phase III	
	6/9/2020	6/30/2020	7/28/20	11/28/2020		
Phase I: A. Education and Two PDSAs						
B. Evaluation and Interviews						
Phase II: A. Pilot Study						
B. Evaluation and Interviews						
Phase III: A. Implementation						
B. Targeted Interviews						
C. Final Evaluation						

Note: Chart created by author, June 2020