



2018 Hospital Quality Institute C. Duane Dauner Quality Award

Zuckerberg San Francisco General Hospital (ZSFG)

[1001 Potrero Ave, San Francisco, CA 94110](#)

<https://zuckerbergsanfranciscogeneral.org/>

Contact Persons:

Ossie Gabriel, RN MSN CNS WOCN

Ossie.gabriel@sfdph.org

628-206-3942

Kiana Said, MPH

kiana.said@sfdph.org

415-206-2381

PDSA Team: Ossie Gabriel, RN, MSN, CNS, WOCN, Tom Holton RN, MS, Kiana Said, MPH, CPPS (Patient Safety Officer), RN Briana Gladstern, RN, MSN, CNL

Title: Reducing Hospital Acquired Pressure Injuries Through Focusing on the Braden Scale Sub Categories, in a Safety Net Hospital

Areas of Focus:

- Patient safety - Preventing Hospital acquired pressure injuries
- Quality Improvement - A3 Thinking, PDSA Cycle
- Patient Experience - Reducing patient harm



Department of Public Health

June 18, 2018

To: C. Duane Dauner Quality Award Selection Committee

As the Chief Quality Officer for Zuckerberg San Francisco General and Trauma Center (ZSFG), supporting the prevention efforts and continuous improvement of the Hospital Acquired Pressure Injury (HAPI) team has been a priority of mine and the Executive Leadership Team since HAPI was identified as one of our hospital's strategic priorities to reduce patient harm. Over the past four years, I have witnessed this team's progression and success in enhancing the HAPI prevention infrastructure, and feel confident in expressing my full support for their submission for this very prestigious award. Through the use of Lean and A3 thinking as the framework for improvement, this team's commitment to eliminate HAPI at ZSFG has led to sustainable improvements that are changing how we prevent and treat pressure injuries at ZSFG. I couldn't be prouder of their work. Please do strongly consider this fantastic team for the C. Duane Dauner Quality Award.

Sincerely,

A handwritten signature in black ink, appearing to read "Troy Williams", written over a horizontal line.

Troy Williams, RN, MSN

Chief Quality Officer

Zuckerberg San Francisco General Hospital and Trauma Center

Executive Summary

Zuckerberg San Francisco General (ZSFG), a safety net hospital, continues to monitor all types of Hospital Acquired Pressure Injuries (HAPIs). In addition to influencing high cost for treatment and placing patients at a greater risk for increased morbidity and hospital length of stay, HAPIs have a large impact on clinician's ability to render best preventative care for patients. In 2007, Medicare estimated that each pressure injury added \$43,000 in costs to a hospital stay, which translates to over \$688,000 for ZSFG in FY 14/15. In FY 2014/2015 executive leadership at ZSFG selected HAPIs as one of the hospital priority metrics of causing no harm. With leadership's direction, we began utilizing the A3 problem solving tools, enabling us to understand current conditions, root causes, and performance gaps. This allowed us to implement multiple PDSAs in the ICU and Med Surg. Within this process, the HAPI prevention team has collaborated with leadership and other multidisciplinary teams. In FY 17/18 HAPI's in Medical Surgical units has reached the lowest reported number in the past 3 years, with a reduction to 1 reportable HAPI in FY 17/18 compared to 20 in FY 16/17, which was a direct result of nursing education, physician involvement, the Braden Scale PDSA, and multidisciplinary collaboration.

Background

A Hospital Acquired Pressure Injury is a localized injury to the skin and underlying tissue usually over a bony prominence, as a result of pressure, or in combination with shear. In FY 15/16 23 patients who were under our care developed a stage 3, 4 or an unstageable HAPI which met criteria to be reported to the California Department of Public Health (CDPH). In February 2015, ZSFG introduced a new strategic plan with the deployment of organization-wide goals and

A3 problem-solving plans owned by operational owners. An A3 is a structured template for the development of improvement plans. Quality Management leadership at ZSFG developed a tactical A3, which included a goal to reduce instances of avoidable harm. Included in the avoidable harm section was reducing reportable HAPIs; this led to the development of a HAPI operational team, consisting of a CNS, patient safety officer, Chief Quality Officer and quality improvement analyst. Aligned with the hospital strategic goals of quality, safety and patient experience, the HAPI team developed an operational A3 to learn and identify the top contributors of HAPIs, current conditions, analyzed root causes, and considered Plan Do Study Act (PDSA) cycles and to ultimately eliminate preventable HAPIs. Traditionally, departmental leaders would direct CNS' to immediately take action to improve their harm events, and teams often rushed to solutions that failed to address root causes. This led to unsustainable improvement. We have been sharing progress, inviting humble inquiry questions and discussing PDSA cycles for over 3 years in a variety of bi-weekly and monthly sessions in the Improving Value and Patient Outcomes Through Safer Care Team which includes clinical, operational, and quality improvement leadership. After 34 iterations of the A3 document, multiple catchall sessions, a participative approach to decision-making in which information and ideas are thrown and caught back and forth, up and down throughout the organization (1), utilizing our countermeasure summary in leadership meetings, there have been significant learnings across the organization regarding HAPI prevention. Pivotal to our understanding of current conditions was consistent data collection including patient location, service, DOB, stage and location of HAPI, device related, primary diagnosis, and Braden Score at admission. Analyzing the data increased our understanding of the root causes and associated countermeasures needed to further advance HAPI prevention success. While several PDSAs have been implemented, one has fostered and

led to a significant improvement in nurse involvement with HAPI prevention while utilizing the Braden Scale as a driver, and prompted collaboration with interdisciplinary teams. The Braden Scale for Predicting Pressure Ulcer Risk (2) was developed by Barbara Braden and Nancy Bergstrom to help health professionals, assess a patient's risk for developing a HAPI. The Braden scale assesses a patient's risk of developing a HAPI by examining six categories: sensory, moisture, activity, mobility, nutrition, and friction/shear. Each category is rated on a scale of 1 to 4, with the exception of friction rated from 1 to 3, which combines for a possible total of 23 points, with a higher score meaning a lower risk of developing a HAPI (2). At ZSFG, this is the primary tool used to assess HAPI risk. The team decided to retrospectively look at the Braden score on admission of patients who acquired a reportable HAPI in FY 16-17. We found that many of these patients were assessed as having mild or no risk of acquiring a pressure injury, leading to our PDSA which established and improved the HAPI prevention infrastructure.

Effort

The A3 process defined above led to a PDSA in FY 17/18 which targeted the Braden Categories. While this PDSA was focused on one specific tool, we were able to complete various needs assessments, which gave us greater insight to the barriers that hindered clinician's ability to properly assess wounds and initiate prevention strategies. This PDSA began on the 5th floor (54/56) of M/S from July- October of 2017.

Scope

We completed retrospective data collection on the Total Braden Score patients received upon admission of those who acquired a reportable HAPI in FY 16-17. Further analysis revealed that 35% of these patients who acquired a reportable HAPI were assessed as having a mild or no risk

(>14) in predicting a pressure injury on the Braden Scale at admission. Furthermore, nursing staff were copying and pasting the previous Braden shift assessment, decreasing the reliability of the Total Braden Score. At this time, nurses were considering patients at risk if the Total Braden Score was ≤ 14 , meaning that if the sum of the individual Braden categories, totaled to be less than 14, they were considered at risk. Even though this was the threshold for being at risk, there was no consistent assessment or aggressive interventions that were taking place in order to prevent HAPI's from developing, using the total score criteria. Given this information, we assessed unit knowledge based on the Braden categories, and implemented countermeasures that would enable nurses in providing preventative care. There were 2 graduate nursing students and one nurse collecting audit data on day and night shifts over this 13 week period. This group conducted audits from a minimum of 4 to 12 different shifts per week. They utilized the Electronic Health Record (EHR) system to generate a list of patients who had a Braden sub-category of ≤ 2 on that unit. Once this list was generated, the nurses would review the patient's documentation to identify if any preventions were taken place that were aligned with at risk Braden categories. Please refer to figure 7 for a sample of a daily audit form.

Process

Various improvement initiatives were established to support nursing staff in enhancing clinical decision making of wound assessment and HAPI prevention over the course of the Braden Scale PDSA. Figure 1 outlines each introduction throughout the PDSA.

Figure 1.

| Introductions during PDSA on 54/56: | |
|-------------------------------------|--|
| Week 3 | Presenting and disseminating 5th floor audit data in staff meetings, huddles, and HAPI taskforce |
| Week 4 | Presentation of case studies - reportable HAPI |
| Week 5 | Introduction and dissemination of wound lexicon |
| Week 7 | Peer to peer nurse rounding |
| Week 14 | Electronic Health Record Revision - Braden Scoring screen specific for Braden Sub Components |

Initially, the data revealed that it was a challenge for the RNs to introduce interventions based on the Braden sub-Category level, since historically nurses assessment was based on using the Total Braden Score (1-24). However, presenting the baseline data enabled RNs to understand their compliance with introducing interventions with at risk Braden Categories. Throughout discussions in week 4, we learned that the nursing staff were not aware of the past 3 HAPI cases that met reporting criteria to CDPH, which led us to present these case studies in the staff huddles. Once nurses became more aware of previous cases, they began requesting resources and initiating improvement ideas to advance their own practices in wound assessment and HAPI prevention. Interventions initiated in week 5 and 7 were nurse driven ideas. For example, the wound lexicon was requested to create consistency throughout documentation and refine their own critical thinking with wound classification. The peer to peer nurse rounding in week 7 was a strategy to drive awareness and stimulate critical thinking around utilizing the Braden Score accurately as a prevention tool. The rounding conversations consisted of reason for score, and discussing appropriate interventions to be initiated. On week 7, the RNs on the PDSA team and the 5th floor identified the need to revisit the current charting system and redefine it to be a more intuitive system when patients present with a low Braden sub-category of a 1 or 2. The original charting system was one screen on the EHR where RNs entered the Total Braden Score without any breakdown of the category meanings. We created and implemented standard work of

initiating a skin bundle, which outlined both required and optional interventions, when a patient is scored with a Braden Sub-category of 1 or 2. This skin bundle (Figure 2) was a 6 section grid that outlined required and optional interventions to implement for low Braden scores and what to document in the EHR end of shift report. We continued to collect audit data for 13 weeks, which included needs assessment from nurses to address gaps between current conditions and the desired outcome of sustained nursing education. One major gap that was reiterated by nursing staff, was the need to redesign how the Braden Score is presented in the EHR. There was also no space in the current EHR system to document Braden interventions, and it was not clear how the Total Braden Score aligned with the sub-categories. In response, we began to work on modeling the standard work sheet for the skin bundle that was being utilized on the floor (Table 3), to be integrated into the EHR screen where nurses document the Braden Score. After working closely with Information Technology and establishing the new charting system, we deployed the EHR update in week 14 of the PDSA throughout all four M/S floors, to standardize the process beyond the 5th floor. The ability to continuously adjust the process allowed us to use the Braden Scale as a catalyst for improving clinical processes, and advancing the technical infrastructure at ZSFG to drive clinical effectiveness.

Results

In order to measure improvement, we defined the compliance rate as the percentage of interventions documented (planned or initiated) when the Braden sub-category was scored as ≤ 2 . Our baseline data shown in the figure below shows that nurses documented interventions 41% of the time when the Braden Sub-category was ≤ 2 (n=201 categories scored as ≤ 2 in week 2).

The weekly compliance rates, aggregated Braden sub-category data, increased from 41% (n=201) in week 2 to 74% (n=84) in week 11, and 64% (n=63) in week 13.

Figure 3.

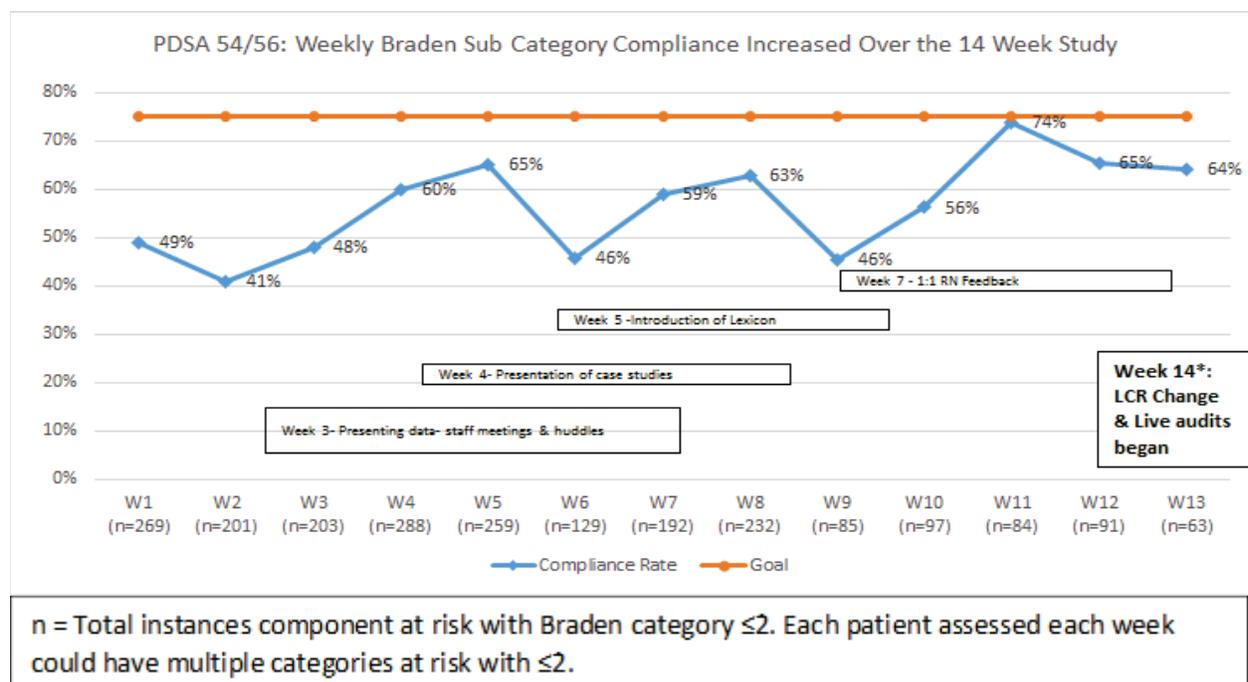
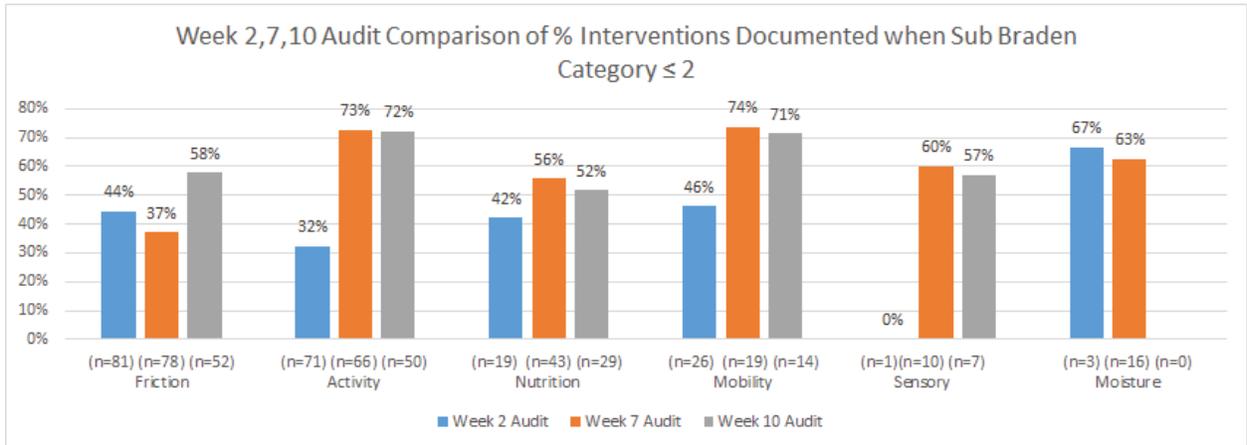


Figure 4 shows stratification by Braden categories in week 2, 7, and 10. The stratified results for week 2 showed compliance was 44% (n=81) for friction, 32% for activity (n=71), 42% (n=19) for nutrition, 46% (n=26) for mobility, 0% (n=1) for sensory, and 67% (n=3) for moisture. Sensory and moisture had small N values in week 2, which was a result of a knowledge gap from nursing staff on how to assess and address these risk factors. There was an increase in compliance in all Braden categories. While sensory was a challenge for nurses initially, nurses on the 5th floor improved their risk identification from 0% (n=1, week 2) to 57% (n=7, week 10).

Figure 4.



We continued to track number of reportable HAPIs, and as of May 2018, we identified a 90% improvement in number of reportable HAPIs documented in M/S units from 20 in FY 16/17 to 1 in FY 17/18 (Figure 5). The 5th floor, where the PDSA was conducted, had a reduction in reportable HAPIs from 4 in FY 16/17 to 0 in FY 17/18. Figure 6 shows the reduction over time in HAPIs throughout the entire hospital, from 32 in FY 16/17 to 7 in FY 17/18.

Figure 5.

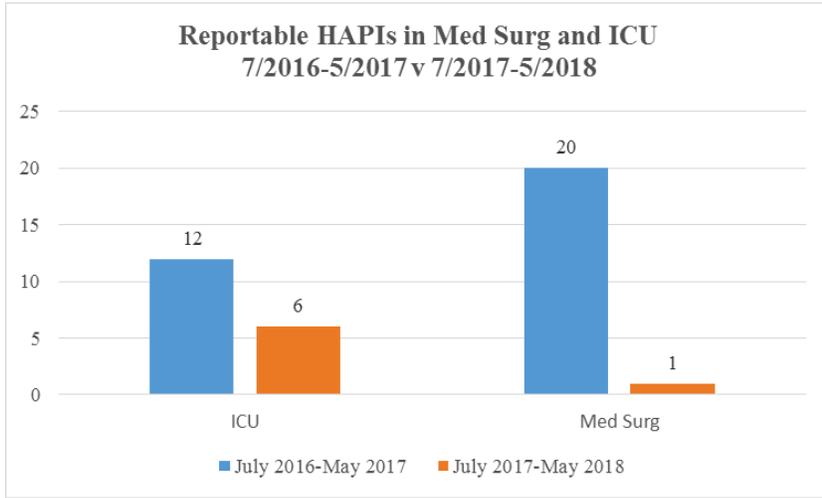
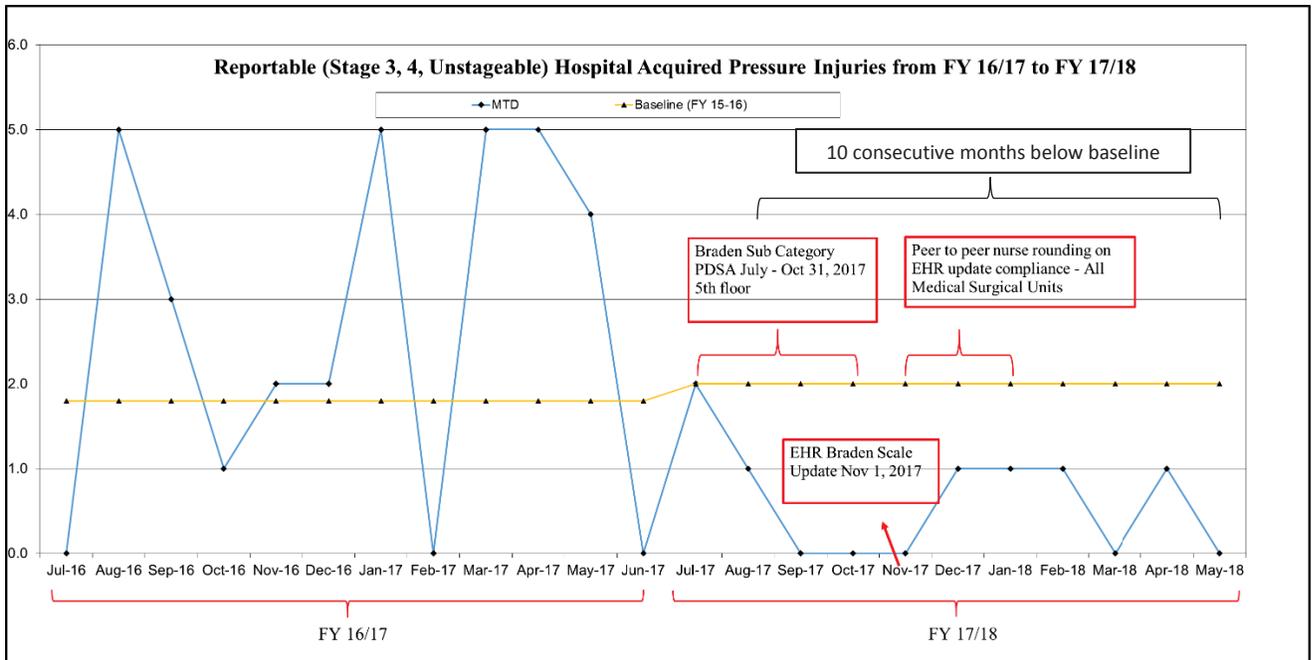


Figure 6.



Strategies

- Understand the current state and gaps before setting targets for reducing reportable HAPIs.
- Strategize on countermeasures that aligned with the identified gaps -- such as nursing knowledge gap with HAPI assessment, documentation, and communication.
- Standardized templates, tools, PDSAs, rounding, and utilizing huddle time for data presentation. This process fostered the development of interdisciplinary teams where staff created and engaged on improvement practices and invited feedback.
- Focus on Braden Scale categories, in order to make it more tangible for nurses, and implement it into the daily charting system of the EHR.

Challenges

Our study demonstrated various challenges which included resource need (data collection), time, standardizing practice, and collaboration with the IT team to change EHR infrastructure. Despite these limitations, we were able to gain two graduate nursing students and one M/S floor nurse, change the charting system for the Braden Scale throughout M/S units, and disseminate standard work regarding Braden assessment and prevention practices in the ICU and M/S. One significant challenge that nurses faced was adopting the fragmented Braden Scale model. Nurses began assessing by each category and isolating issues at risk to apply interventions.

Sustainability

Although this change took some time and effort to evolve in their day to day practice, our data shows that we had a substantial increase in prevention compliance and significant reduction in reportable HAPIs in this past year. The Braden Sub-category scoring has been standardized and

integrated in the EHR to increase the likelihood that this change will be sustained over time. In addition, the wound lexicon and HAPI bundle were introduced on the 5th floor were also disseminated to the rest of M/S and ICU during the second PDSA. A second PDSA of live audits began after week 14 when the EHR went live, which involved peer to peer nurse rounding on all M/S floors, 1-2 times/week to assess alignment between new EHR documentation and prevention strategies initiated, and to ensure spread throughout the hospital. Conversations were with the patient's RN on what type of care they had integrated to address those documented risk scores.

Significance

Our study demonstrated significant value in predicting pressure injury development when focusing on the Braden categories, and further initiated interdisciplinary collaboration. Findings from this study demonstrate enhanced nursing critical thinking, and improved collaboration amongst teams (physical-therapy, nutrition, etc). Prior to this study, most teams worked in silos when it came to wound assessment and prevention. Focusing on the Braden sub-category enabled collaboration; for instance, if nutrition was scored as a 1 or 2, that would prompt a communication channel between the nutritionist and RN to improve nutritional status of the patient. The addition of a checklist of interventions in the EHR, has provided nurses with guidance on which next steps to consider when dealing with multiple care issues. Eight months post PDSA we have seen a sustainable reduction in reportable HAPIs at the hospital. In FY 16/17 M/S documented 20 HAPIs, where as in FY 17/18 there has only been one stage 3 HAPIs reported. The decrease in reportable HAPI's was aligned with our improvement work and focus on utilizing the Braden Sub-category.

Lessons learned:

- Executive leadership support is essential for driving and sustaining improvement initiatives and gaining engagement from staff.
- In order to truly rely on prevention, one must ensure that a multidisciplinary approach is applied, where each clinician that plays a role in the patients care is involved. This is aligned perfectly with focusing on the Braden Categories, because each category is an opportunity for collaboration with intervention practices (i.e. friction – lift team, CNA's).
- Stratification and analysis of data was crucial in deciding which countermeasure and PDSA's to implement.
- Sustainable compliance and utilization with the Braden category interventions was largely influenced by the peer to peer nurse rounding and resources introduced during the PDSA.

References

- (1) Millard, Maggie. “An Introduction to the Lean Concept of Catchball.” *Common Questions about Continuous Quality Improvement (CQI)*, 20 June 2016, blog.kainexus.com/improvement-disciplines/lean/catchball/introduction.
- (2) “Section 7. Tools and Resources (Continued).” *AHRQ--Agency for Healthcare Research and Quality: Advancing Excellence in Health Care*, U.S. HHS: Agency for Healthcare Research and Quality, 2 Oct. 2014, www.ahrq.gov/professionals/systems/hospital/pressureulcertoolkit/putool7b.html

APPENDIX

Figure 2. HAPI Bundle

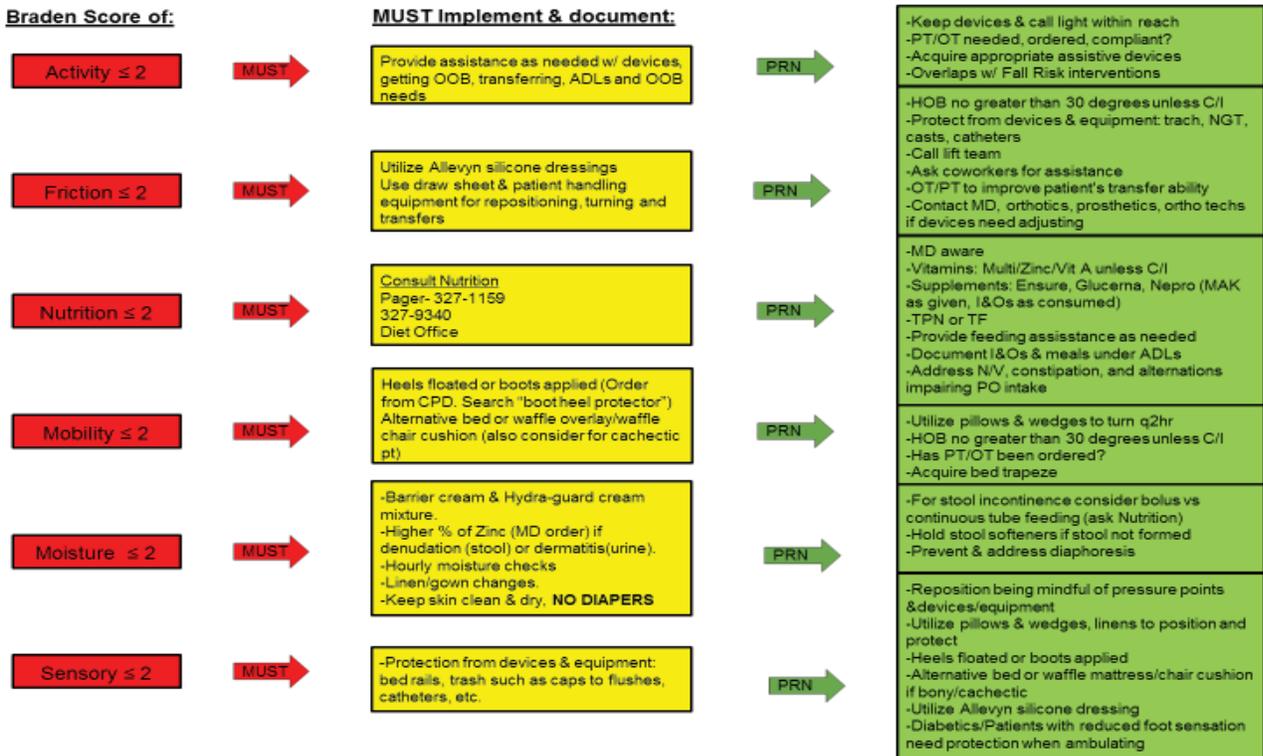


Figure 7.

| | | |
|--|---------------------------|----------------------------------|
| HAPI Med-Surg Prevention Project PDSA: Planning Data Collection/ Audits Pilot Unit: H54/56 Date: 8/29/17 Shift: Day Zone: H54/56 Total # of patients with components of Braden Scale less than 2: 16 | | |
| <u>Braden Scale Category</u> | <u># in each category</u> | <u># w/out doc interventions</u> |
| Friction | 6 | 5 |
| Activity | 7 | 3 |
| Nutrition | 5 | 2 |
| Mobility | 1 | 1 |
| Sensory | 0 | - |
| Moisture | 2 | 1 |
| <u>Total:</u> | 21 | 12 |
| Total # of components less than 2: 21 Total # of components w/out documented interventions: 12 Outcome: 57.14% components at risk w/ no documented interventions. % components at risk w/ no documented interventions by intervention: Friction = 83.33% Activity = 42.86% Nutrition = 40% Mobility = 100% Sensory = N/A Moisture = 50% | | |