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HOLY CROSS HOSPITAL

# A Successful Quality Improvement Initiative Results in Reduction of Hospital Acquired Heel and Sacral Pressure Ulcers

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## BACKGROUND

Critically ill patients are at increased risk for development of hospital-acquired pressure ulcers (HAPUs).[1] Development of HAPUs are associated with increased discomfort, likelihood of surgery, increased length of stay, and increased costs.[1] The prevalence of HAPUs in the critically ill patient population ranges from 8.8% to 10.4%.[2]

A systematic literature review conducted by Alderden and colleagues[3] documented critically ill patients have multiple characteristics that put them at increased risk for HAPU development, and a decreased likelihood of healing after HAPU development.

Evidence-based HAPU prevention in the critically ill patient population requires adherence to best practices for prevention, and a focus on decreasing risk factors associated with HAPU development, such as moisture, friction, sheer, and prolonged pressure. A Quality Improvement initiative (QI) was designed to decrease sacral and heel HAPUs in critically ill patients.

## METHODS

**OBJECTIVE:** To prevent development of heel and sacral HAPUs.

**CLINICAL SETTING:** 12-bed medical CCU.

**TIMELINE:**

***July 2012:*** Weekly skin assessment rounds initiated to evaluate presence of, and methods for, prevention of sacral and heel HAPU.

***August 2012-mid-September 2012:*** Staff trialed and selected devices* for QI initiative.

***September:*** Staff received flyers about QI initiative which included inclusion criteria and need for HAPU prevention.

***October-November 2012:*** Value Analysis Team evaluated and authorized devices for use in QI initiative.

***January 28, 2013-February 1, 2013:*** Weeklong training session for staff regarding QI initiative.

***February 3, 2013:*** QI initiative launched.

***November 2013:*** QI initiative re-education and competency checks as deemed appropriate.

*Prevalon® Turn and Position System (Sage Products LLC; Cary, IL)
Prevalon® Pressure-Relieving Heel Protector (Sage Products LLC; Cary, IL)

## METHODS *continued*

**INTERVENTIONS:**

- Development of inclusion criteria for heel offloading and patient repositioning devices.
- Education on enhancing patient risk assessment.
- Compliance monitoring through weekly rounds conducted by advanced practice nurse and unit skin care champions.

**INCLUSION/EXCLUSION CRITERIA:**

Inclusion/Exclusion Criteria QI initiative

**Consider the Repositioning Device if Patient Meets Below Criteria**

*Circle what applies to the patient*

1. Is the patient unable to shift position in bed, or is not able to be out of bed to the chair?
   Yes No
2. Does the patient have **ONE** of the following?
   *Circle which condition applies:*
   - Weeping skin & difficult to turn
   - History of sacral pressure ulcer
   - New stage 1 or 2 sacral pressure ulcer
   - Primary or secondary diagnosis of severe sepsis
   - Quadriplegia
3. Does the patient have any **TWO** of the following co-morbidities? *Circle those that apply:*
   - Mechanical ventilation for more than 48 hours
   - Maximum limit vasopressor use for more than 24 hours
   - Albumin <4mg/dL
   - Hemoglobin <8mg/dL
   - Creatinine increase of 50% above baseline
   - Creatinine increase 2 fold within 24 hours
   - Glucose >200mg/dL requiring continuous IV insulin infusion
   - Age 70 or older
   - Lactate levels >4

**Are those Heels at Risk? Is Foot Drop a Concern?**

*Consider the heel offloading device if the patient meets the criteria below. No physician order required.*

1. The patient is non-ambulatory
2. You already tried using pillows and heel protectors
3. The patient has **TWO** of the following co-morbidities:
   - Diabetes mellitus
   - Stroke
   - PVD/PAD
   - Hemiparesis/quadriplegia
   - Malnutrition
   - Unconscious/comatose
   - CHF
   - Peroneal nerve injury
   - Leg or other trauma
   - Age 65 or older
   - Impaired perfusion/decreased sensation
   - Leg compartment syndrome
   - Multi-system organ failure
   - On paralytic or high dose vasopressor medications
   - Mechanical ventilation longer than 48 hrs

**EXCLUSION CRITERIA**

**REPOSITIONING DEVICE**

Patient with Stage IV sacral decubitus who has not yet had surgical intervention.
Agitated, combative patient.
Self- turning, self- positioning patient.
Patient who is OOB daily and/or ambulating with PT.
Patient who weighs more than 350lbs.

**EXCLUSION CRITERIA**

**HEEL OFFLOADING DEVICE**

Patient with pre-existing foot drop.
Patient who already has multi-podus boots as part of pre-existing therapy.
Self-positioning, self- turning patients.
Patient who is OOB daily and/or ambulating with PT.

**METRICS:**

- Baseline HAPU rates from January 2012 through December 2012 were utilized as the baseline comparison to assess the effectiveness of the QI intervention.
- The HAPU rates during the QI intervention from January 2013 through December 2013.

## RESULTS

The QI intervention was considered to be a success when comparing the before and after periods.

**RETURN ON INVESTMENT:** Over the course of approximately one year, the cumulative return on investment was calculated to be **$61,770**.

Figure 1 – Difference Between the Before HAPUs and After HAPUs (Total HAPUs):

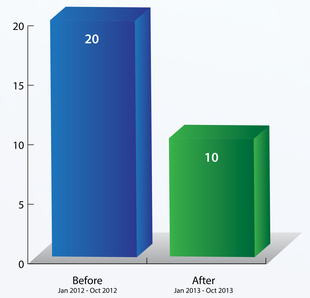
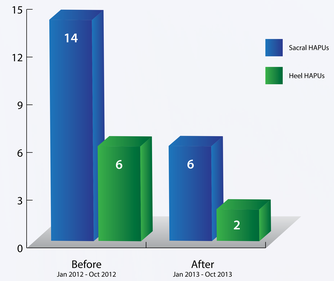



Figure 2 – Sacral and Heel HAPU Decrease Between Before and After Periods:




## CLINICAL IMPLICATIONS

Ongoing compliance monitoring is essential to ensure staff are adhering to QI interventions; re-education is important to emphasize evidence-based best practices in HAPU prevention.

1. One of the major reasons for the success of the initiative was the physical presence of leadership on the unit and daily review of patients on the unit to continually assess for which patients would benefit from the initiation of devices.
2. Evaluating the correct placement and usage of the devices for the patients that were already using them and real time education for staff if used or placed improperly.
3. Staff buy-in and investment (i.e. a night shift RN and day shift RN) who advocated for use of the devices and served as a resource when leadership wasn't there was instrumental in the success.
4. As our Wound Ostomy Service became familiar with the products and their benefits, they also advocated for the use by making formal recommendations to use the products in their consults when they felt it would be beneficial.
5. Monthly recognition via our house skin assessment survey showing that CCU had gone over 6 months without a HAPU during those surveys encouraged staff to continue to use the products.

## REFERENCES

1. Cox J. Predictors of pressure ulcers in adult critical care patients. Am J Crit Care. 2011 Sep;20(5):364-75.
2. VanGilder C, Amlung S, Harrison P, Meyer S. Results of the 2008-2009 International Pressure Ulcer Prevalence Survey and a 3-year, acute care, unit-specific analysis. Ostomy Wound Manage. 2009 Nov 1;55(11):39-45.
3. Alderden J, Whitney JD, Taylor SM, Zaratkiewicz S. Risk profile characteristics associated with outcomes of hospital-acquired pressure ulcers: a retrospective review. Crit Care Nurse. 2011 Aug;31(4):30-43.