



Evidence-Based Heel Pressure Ulcer Prevention Guideline Development for Saskatoon Region

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BACKGROUND/RATIONALE

The heel is at increased risk for pressure ulcer. Facility-acquired heel pressure ulcers (FAhPUs) are a significant challenge in patients who are high risk for pressure ulcer breakdown, and are well known to be associated with increased morbidity, increased length of stay, decreased quality of life, and increased economic costs.¹⁻⁴ The risk for FAhPUs extends to a large patient population, including patients with impaired mobility and nutrition, decreased circulation and sensation, and multiple comorbidities. The costs of treatment substantially outweigh the costs of prevention, with Canadian cost analyses estimating the cost to treat a heel pressure ulcer at approximately \$5,000 and extending length of hospital stay a median of 4.31 days.⁴

The majority of FAhPUs are preventable, and require an interdisciplinary collaborative

adherence to evidence-based guidelines, which include treating the underlying cause of pressure ulcer risk, appropriate heel offloading, pressure redistribution, repositioning, and other multiple interventions.^{5,6}

A pilot study published by the Canadian Association of Wound Care in 2006 reported "a 100-bed health-care facility with a pressure ulcer prevalence of 25%, the national average for acute-care facilities, could save between \$239,000 and \$1.2M annually by reducing their pressure ulcer prevalence by 35%."⁷ Within the Saskatoon Health Region (SHR), the incidence of FAhPUs was 1 in 12 over a 10-week period in 2009, and the SHR determined an evidence-based guideline was necessary to prevent FAhPUs and improve patient outcomes.

METHODS

Clinical Setting

This was a regional health care initiative developed and disseminated by the Saskatoon Health Region.

Literature Review

An evidence-based literature review was conducted to determine best practices in identifying patients at risk for heel pressure ulcers, effective prevention efforts, and recommendations for ensuring interdisciplinary collaboration by reviewing 1) evidence-based literature; 2) regional resources; 3) national resources.

Standardization of Materials

Multiple heel protectors were in use, creating confusion amongst caregivers on when to use the heel protector, how to apply it, and when to evaluate heels according to best practices. An interdisciplinary team trialed 10 different heel protectors and selected one standardized heel protector* to introduce to the SHR to ensure standardization of materials, education, and processes. The interdisciplinary team selected this heel protector because it was single-use, did not introduce additional friction or shear, and was easily to apply.

Simple Guideline

After reviewing the evidence-based literature, a simple 3-criteria guideline was developed (Figure 2), and if any of the 3 criteria were met, the patient was to receive a heel protector. It should be noted that if a nurse judged the patient a strong candidate for a heel protector and they did not meet the criteria, the patient was able to receive a heel protector, providing appropriate justification was documented in the patient care plan.

Developing Checklists

Three checklists were developed to ensure the clinical team consistently adhered to standardize care:

- Skin care checklist determined if skin was intact or reddened
- Skin care product checklist provided algorithm for routine bathing, perineal cleansing for incontinent patients, and daily moisturizing
- Skin care protocol checklist documented the following:
 - ❖ Skin protocol was initiated
 - ❖ Pressure management equipment was in place
 - ❖ Heel boots were in place
 - ❖ Nurse was notified if skin was reddened
 - ❖ Turning sheets were in place
 - ❖ Turning schedule was organized in patient care plan
 - ❖ Appropriate referrals had been requested (PT, OT, Dietician)

One of the key collaborative measures put into place which did not exist until this guideline was the ability of nurses to order OT consultations. This ensured timely consults were ordered in at-risk patients and increased time-to-treatment.

Caregiver Education

The nursing and therapy staff were educated on this evidence-based guideline, appropriate use of the guidelines and checklists, and application of the heel protector. The need for effective FAhPU prevention was reinforced through group education, one-on-one competency training, and ensuring accountability of evidence-based care.



Figure 1. Cushioned, engineered heel protector designed to offload the heels

*Prevalon® Pressure-Relieving Heel Protector (Sage Products, Cary, IL)

RESULTS

After comprehensive caregiver education and staff engagement to ensure accountability and increased communications, FAHPUs decreased significantly as follows: 6% (24/424) by March 2010; 1% (5/460) by March 2011; and 0.7% (3/445) by March 2012, representing a 95% decrease from 2009.

GUIDELINES FOR USE OF PRESSURE-RELIEVING HEEL BOOTS

INDICATION:
Heel protection will be used on patients with decreased lower extremity mobility, existing heel pressure ulceration or at risk for developing heel, Achilles, malleoli and/or foot ulcers or possibly plantar flexion of the foot. The boot may be worn in a sitting position and in bed. These boots are designed to be single patient use items.

PURPOSE:
To help prevent and treat pressure ulcers on the heel by maintaining heel suspension and to help prevent plantar flexion by maintaining the neutral position of the foot.

HOW TO DETERMINE IF A PRESSURE-RELIEVING HEEL BOOT IS INDICATED:

Key indicators:		
1. Total Braden Scale of 13 or less (includes Activity &/or mobility score 1 or 2)	Yes	No
OR		
2. Decreased lower extremity movement (can't lift limb/s)	Yes	No
OR		
3. Existing heel ulcer	Yes	No

If a patient meets the one or more of the 3 key indicators listed above please order, place the boot and document in the patient's care plan. If the above criteria are not met, but the nurse feels the patient requires heel protection, documentation should indicate the reason for placement.

PROCEDURE:

- a) Remove the heel boot q shift and inspect the patient's skin for any areas of redness.
- b) Cleanse and moisturize skin daily.
- c) Follow procedures for assessing pedal pulses and performing range of motion exercises.
- d) Use the heel boot while the patient is sitting or lying; do not allow the patient to stand or walk while in the heel boot.

Figure 2. Simple Evidence-Based Guideline

Date	Skin Intact?	Skin Reddened?	If reddened: does the skin whiten in response to firm fingertip pressure? (Stage 1 pressure ulcer)	Heel Boot in Place	Initial
	Yes	Yes	Yes	Yes	
	No	No	No	No	
	Yes	Yes	Yes	Yes	
	No	No	No	No	
	Yes	Yes	Yes	Yes	
	No	No	No	No	
	Yes	Yes	Yes	Yes	
	No	No	No	No	
	Yes	Yes	Yes	Yes	
	No	No	No	No	
	Yes	Yes	Yes	Yes	
	No	No	No	No	

Figure 3. Table completed daily for patients wearing heel protectors

Definition of non-intact skin: If the client/patient/resident has an area of persistent redness (redness lasting 20 minutes or longer when pressure is off the area) or a break in the skin the RN/LPN needs to assess the area and complete the documentation.

CLINICAL IMPLICATIONS

- Evidence-based best practices must be applied at the patient's bedside through interdisciplinary collaboration for effective FAhPU prevention
- Standardization of heel offloading boots is helpful in preventing confusion of appropriate application and use
- A quality improvement initiative that ensures adherence to evidence-based best practices and accountability is effective in FAhPU prevention
- The direct costs of a heel protector are justified when offset by the indirect costs of treating a FAhPU

REFERENCES

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