

# Simple low cost intervention saves hospital thousands through reduction in heel injury

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## Overview

### Objective of Intervention:

The North Florida/South Georgia Veterans Health System implemented a clinical intervention in the effort to reduce the prevalence of hospital-acquired heel pressure ulcers (PUs) by a minimum of 45% in one year.

### Inspiration Behind Intervention:

During an initial 5-month trial of using the Prevalon™ pressure-relieving heel device on all high-risk patients in extended care units, the rate of facility-acquired heel pressure ulcers (FAHPU) dropped from an average of 7.3% to 0.5%. In the subsequent 18-month trial in acute care units, the rate of FAHPU dropped from an average of 5.6% to 1.9%.

## Background

### PUs & Heel PUs in Acute Care

- National incidence of PUs ranges from 7- 9%<sup>1</sup>
- National prevalence of PUs ranges from 14% to 17%<sup>1</sup>
- Approximately 30.3% of PUs are located on the heel<sup>2</sup>
- Patients with PUs are at increased risk for death<sup>3</sup>
- Approximately 40% of patients with PU-associated deaths have septicemia present<sup>4</sup>
- In March 2006, a VA report<sup>5</sup> looked at 24 VHA facilities (240 patients with PUs) and found the following:
  - "System wide comprehensive pressure prevention management and guidance was needed".
  - "More consistent reporting, tracking and cost analysis were needed."
  - "Improved patient and staff education were needed."
  - One facility in the analysis reported a cost per patient pressure ulcer of \$22,734 to \$50,669
- A June 2006 VHA handbook<sup>6</sup> for assessment and prevention of PUs was released and stressed the importance of preventing heel PUs
  - Reported estimated cost for treatment of pressures ulcers of \$1.3 to \$3.6 billion annually in all hospitalized patients
- Costs to treat pressure ulcers range in the literature from \$2,000 to \$30,000 and can be as high as \$70,000 for a complex full-thickness pressure ulcer<sup>7</sup>
- One of the goals in the Institute for Healthcare Improvement Campaign is prevention of hospital-acquired PUs, which lists minimization of pressure as a key step in that effort<sup>8</sup>

### Heel PU Prevention

Most heel pressure ulcers can be prevented and dramatic reductions in pressure ulcers can be achieved if hospitals implement proven best practices and effective prevention programs.<sup>8,9,10</sup> Incorporating a heel PU prevention protocol - combined with early, aggressive implementation of pressure relieving devices and early identification of high risk patient populations - has been proven to reduce the rate of heel pressure ulcers.<sup>11</sup> The results are decreased care costs, improved patient outcomes, and enhanced quality of care.

## Intervention/Methods

This intervention began with a preliminary 5-month evaluation, conducted between May 2006 and September 2006, looking at two different applications of the Prevalon pressure-relieving heel device:

- In extended care units, the device was used on all high-risk patients (Braden score 12 or less) and kept on as long as possible.
- In acute care and Med Surg units, heels were elevated with pillows first and if the nursing staff determined that the pillows were not working effectively, the Prevalon pressure-relieving heel device was then used.

At risk (Score of 15-18)	Moderate risk (Score of 13-14)	High risk (Score of 12 or less)
<ul style="list-style-type: none"> <li>Turn patient Q 2H. Utilize intact skin surfaces. Use 30 degree side-lying position.</li> <li>Limit HOB elevation to 30 degrees if not medically contraindicated.</li> <li>Assess heels daily for signs of pressure.</li> <li>Float heels w/pillow(s) under calves or Prevalon boots (SPD).</li> <li>Place on Zone Air bed if available.</li> <li>Toilet Q2H &amp; PRN</li> <li>EUD-change QD &amp; PRN</li> <li>Absorbant briefs, check Q2H &amp; PRN. Use Sage wipes and skin protectant.</li> <li>Inspect all skin surfaces daily, particularly bony prominences.</li> <li>Limit time in chair to 2H intervals, with frequent weight shifting.</li> <li>If wound present, complete skin/wound assessment template and initiate wound consult.</li> <li>Assess pain and medicate as needed.</li> <li>Teach patient/family prevention / treatment of pressure ulcers.</li> </ul>	<ul style="list-style-type: none"> <li>Turn patient Q 2H. Utilize intact skin surfaces. Use 30 degree side-lying position.</li> <li>Limit HOB elevation to 30 degrees if not medically contraindicated.</li> <li>Assess heels daily for signs of pressure.</li> <li>Float heels w/pillow(s) under calves or Prevalon boots (SPD).</li> <li>Place on Zone Air bed if available.</li> <li>Toilet Q2H &amp; PRN</li> <li>EUD-change QD &amp; PRN</li> <li>Absorbant briefs, check Q2H &amp; PRN. Use Sage wipes and skin protectant.</li> <li>Inspect all skin surfaces daily, particularly bony prominences.</li> <li>Limit time in chair to 2H intervals, with frequent weight shifting.</li> <li>Initiate PT consult for pressure reducing seating cushion.</li> <li>Assist with meals/provide snacks.</li> <li>Initiate nutritional consult.</li> <li>If wound present, complete skin/wound assessment template and initiate wound consult.</li> <li>Assess pain and medicate as needed.</li> <li>Teach patient/family prevention / treatment of pressure ulcers.</li> </ul>	<ul style="list-style-type: none"> <li>Turn patient Q 2H. Utilize intact skin surfaces. Use 30 degree side-lying position.</li> <li>Limit HOB elevation to 30 degrees if not medically contraindicated.</li> <li>Assess heels daily for signs of pressure.</li> <li>Float heels w/pillow(s) under calves or Prevalon boots (SPD).</li> <li>Place on Zone Air bed if available.</li> <li>Toilet Q2H &amp; PRN</li> <li>EUD-change QD &amp; PRN</li> <li>Attends diapers, check Q2H &amp; PRN. Use Sage wipes and skin protectant.</li> <li>Inspect all skin surfaces daily, particularly bony prominences.</li> <li>Limit time in chair to 2H intervals, with frequent weight shifting.</li> <li>Initiate PT consult for pressure reducing seating cushion.</li> <li>Assist with meals/provide snacks.</li> <li>Initiate nutritional consult.</li> <li>If wound present, complete skin/wound assessment template and initiate wound consult.</li> <li>Assess pain and medicate as needed.</li> <li>Initiate wound consult for specialty bed.</li> <li>Teach patient/family prevention / treatment of pressure ulcers.</li> </ul>

Based on the early positive results in the extended care units, the wound care team became much more aggressive with the use of the pressure-relieving heel device in the acute care units, calling for its use in all high-risk patients beginning in January 2007. Prevalence surveys were conducted quarterly through Q3-2007.

Quarterly facility-acquired pressure ulcer prevalence surveys measured the following:

- All extended care facility-acquired pressure ulcers pre-intervention and post-intervention
- Extended care FAHPUs preintervention and post-intervention
- All acute care facility-acquired pressure ulcers pre-intervention and post-intervention
- Acute care FAHPUs pre-intervention and post-intervention

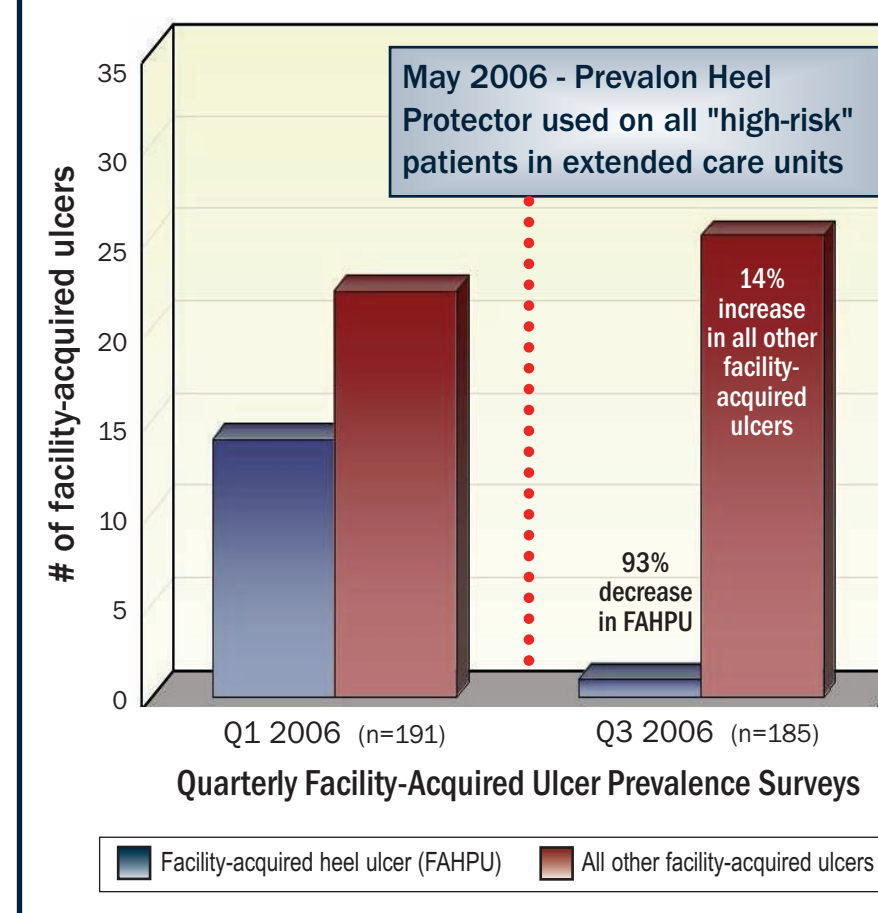
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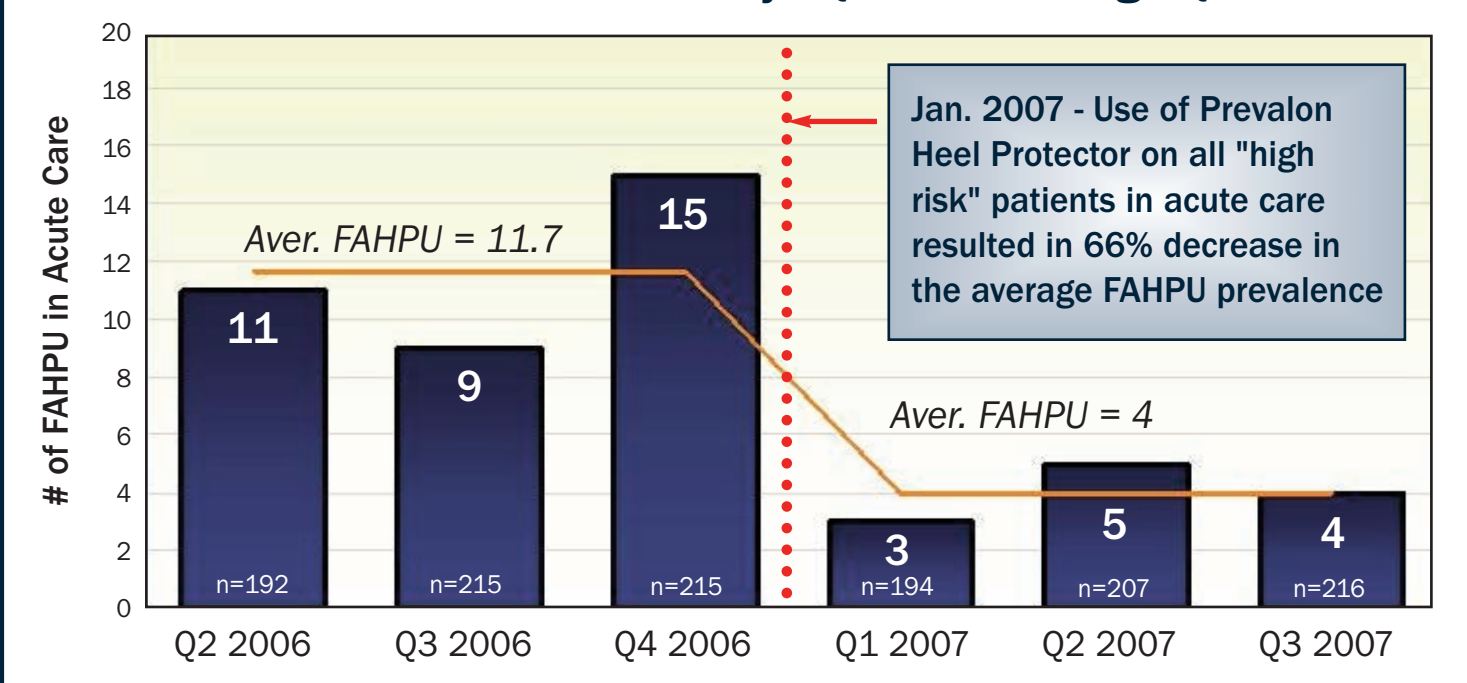
## Results

Prevalence of FAHPUs in extended care units went from 14 in Q1- 2006 (pre-trial) to 1 in Q3-2006 (one month after trial began), representing a 93% decrease in FAHPUs. During this same time period, the prevalence of all other facility-acquired ulcers increased by 14% (from 22 in Q1-2006 to 25 in Q3-2006; see Figure 1). Based on that 93% reduction in FAHPU on the Extended Care units during the initial 5-month interventional trial period, the wound care team began using the Prevalon pressure-relieving heel device on all high-risk patients in the acute care units beginning in Q1 of 2007. The resultant change was a 66% reduction in FAHPU, decreasing from an average of 12 FAHPUs per prevalence survey to an average of 4 FAHPUs per prevalence survey (see Figure 2).

**Figure 1. Facility-Acquired Ulcer Prevalence in VA Extended Care Facility During Initial Prevalon Trial Period**



**Figure 2. Facility-Acquired Heel Ulcer (FAHPU) Prevalence Data in VA Acute Care Facility - Q2 2006 through Q3 2007**



## Lessons Learned

### Use of a pressure-relieving heel protector device early and consistently with all at-risk patients results in reduction of FAHPUs.

- Based on the success of this study, North Florida/South Georgia Veterans Health System have started using pressure-relieving heel protector device on all at-risk patients system-wide. The decrease in FAHPUs resulted in significant cost savings.
- During the study period, the decrease in FAHPUs accounted for an estimated cost savings between \$26,000 and \$390,000 (based on wide-ranging literature estimates for cost per FAHPU). Establishing a written protocol to treat at-risk patients preventatively may help ensure consistent application of a heel protector.
- The written protocol should identify at-risk patients based on a combination of low Braden Scale scores and known comorbidities which may put the patient at greater risk of developing FAHPUs, including diabetes, cerebrovascular accident, peripheral vascular disease, low albumin, and hip fractures.

\*The VA does not endorse this or any other product