

A Successful Heel Ulcer Prevention Program Resulting in 95% Reduction of Heel Ulcer Incidence

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ABSTRACT

PROBLEM

Loretto recognized a historically high incidence of heel ulcers (87 between February -December 2005), with rate of incidence ranging 2.1% to 5%. An intervention was necessary to ensure heel ulcer prevention.

SOLUTION

A comprehensive in-service educational program was developed to expand understanding and knowledge of appropriate heel ulcer prevention. The existing protocol for the prevention of heel ulcers was revised to utilize one standardized off-loading heel protector device. All patients at high risk for heel ulcers, as determined by an in-house assessment tool, were entered into the protocol. By April of 2006, all units were consistently utilizing the heel protector device on at-risk patients.

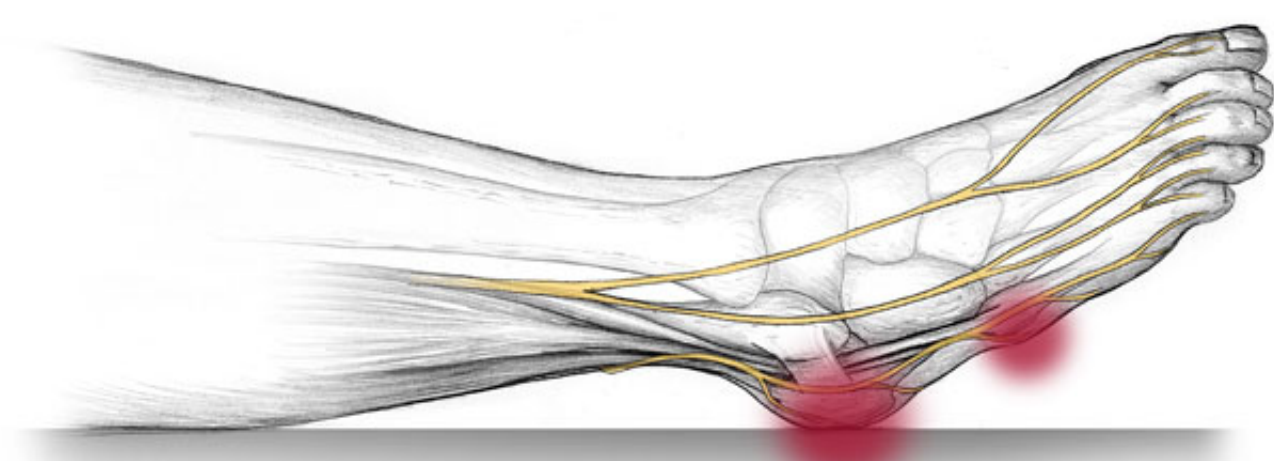
DISCOVERY

During the pre-intervention time period of April 2005 - September 2005, there were 39 occurrences of heel ulcers, compared to the post-intervention time period of April 2006 through September 2006, when there were 2 heel ulcers that developed. This represents a 95% reduction in heel ulcer development. The facility documented significant cost savings as a result of this reduction, specifically noting a facility-wide reduction in heel ulcer treatment products and staff time spent on heel ulcer treatment. The success of and adherence to the protocol are attributed to the educational program, revised protocol, and supervisory auditing for compliance and staff/patient adherence.

WHAT CAN BE LEARNED?

A process improvement intervention for heel ulcer prevention can be effective if implemented on multiple levels, including staff education, revisions of ineffective protocols, and efforts from supervisory staff to ensure ongoing staff and patient compliance.

30.3% of pressure ulcers develop on the heels²



Impaired mobility is the most common risk factor for pressure ulcer development²

INTRODUCTION

The national incidence of nosocomial heel pressure ulcers is steadily increasing (from 19% to 30% over the past decade).¹ Heel ulcers account for 30.3% of total pressure ulcers and are the second most common site for skin breakdown.² Pressure ulcers adversely affect both the physical and psychosocial condition of the patient.

Increased lengths of stay, inconvenience, and higher medical costs make complex heel pressure ulcers one of the most costly health complications in the elderly. Costs to treat pressure ulcers range from \$2,000 to \$30,000 and can be as high as \$70,000 for a complex full-thickness pressure ulcer.³ The annual cost of treating facility-acquired pressure ulcers ranges from \$46 million to \$3.6 billion.^{4,7}

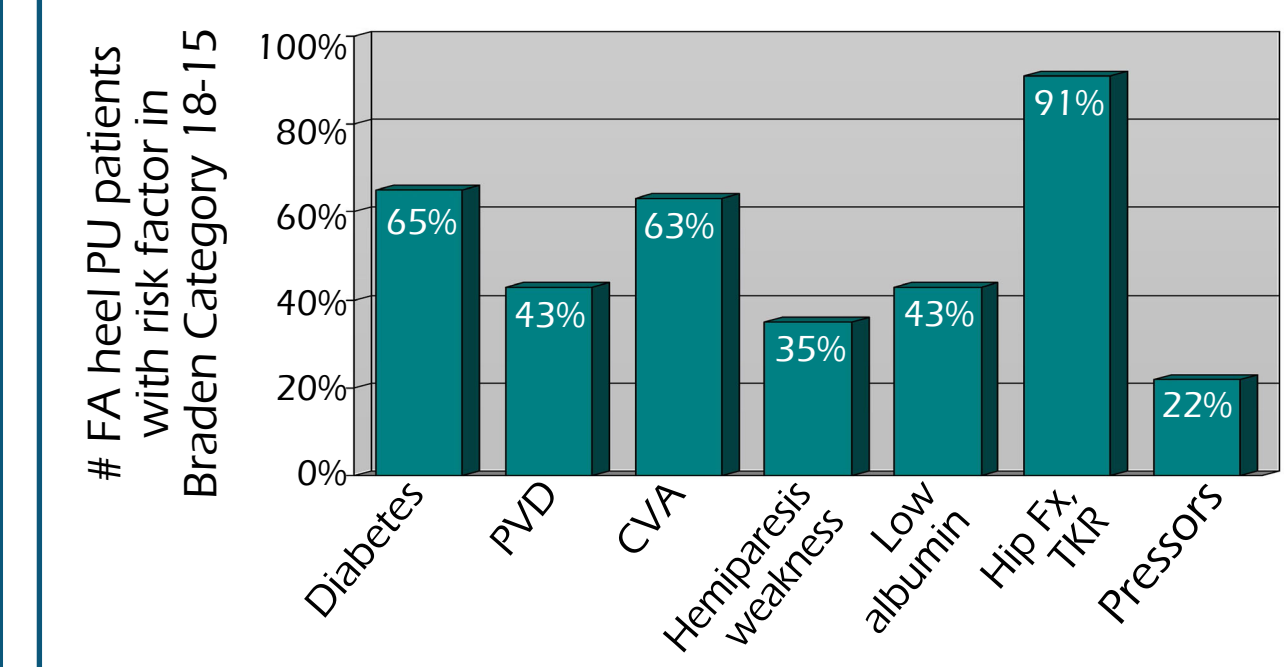
Estimated Costs For Heel Ulcers In Nursing Home Patients

Ulcer Stage	Estimated healing (days)	Total cost in supplies	Potential costs in the US*
I	Prevention only	\$0	0
II	83	\$444	\$179 million
III & IV	143	\$765	\$46 million

* US nursing home population - 1.6 million.⁸ Reported prevalence rates for pressure ulcers in long-term care range up to 29%.⁹ This cost estimate is based on the observation that 97% of heel ulcers in the long-term care setting are stage II ulcers.⁸

Pressure ulcers are often viewed as quality-of-care indicators. Because most heel pressure ulcers can be prevented, accurate identification of patients at risk is the first step in preventing the occurrence.

Facility-Acquired Heel Pressure Ulcers Braden "At Risk" Category 18-15



OVERVIEW

Accurate risk identification and assessment of comorbidities combined with an effective heel pressure ulcer prevention protocol and early, aggressive implementation of pressure-reducing and pressure-relieving devices can reduce the incidence of heel pressure ulcers.^{9,10} The result is decreased long-term care costs and F-tag fines, and improved patient outcomes and quality of care.

Because of its small surface area and high interface pressure, the heel is one of the most difficult anatomical areas to be addressed by preventive products. Individuals who are completely immobile and unable to reposition their lower extremities should have a care plan that includes totally relieving pressure on the heels.^{9,11}

Support surfaces, including special beds, mattresses, and overlays, do not provide complete pressure relief in the heel region.^{11,12} Common methods of raising the heels off the bed (i.e., through the use of pillows or foam blocks) have had limited success in the prevention and control of heel ulcers.^{13,14}

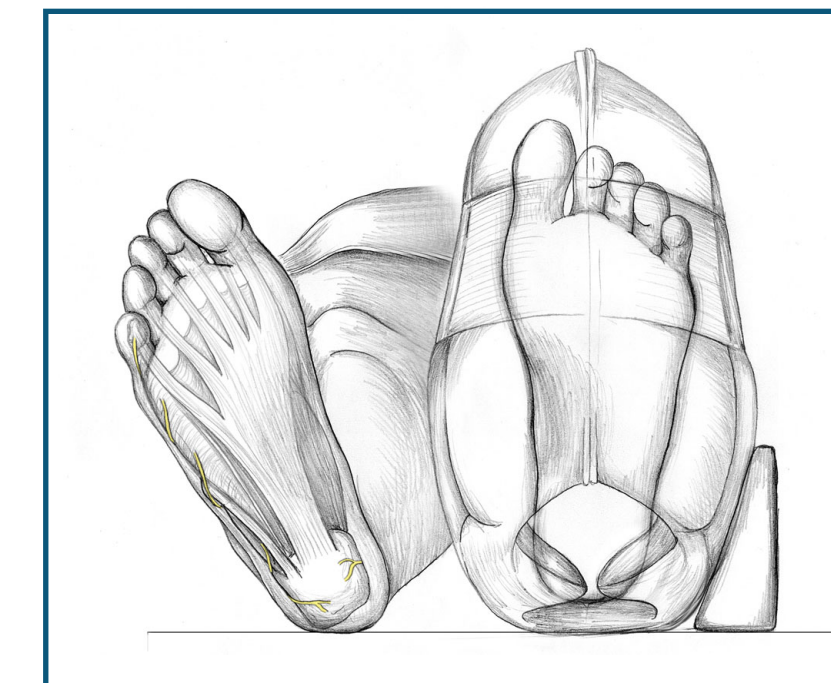
In a recent study⁸ to compare and evaluate established and new products for the prevention of heel pressure ulcers, the new Prevalon Pressure-Relieving Heel Protector received statistically significant higher scores from critical care nurses on the following evaluation criteria:

- comfortable interior
- not too warm
- no hard, sharp, or rough edges
- protects heels from pressure, friction, and shear
- compatibility with DVT prevention compression devices
- floats the heel for total pressure relief



METHODS

This clinical trial began following a period of high incidence of heel ulcers in the 550-bed Loretto nursing home (87 between Feb -Dec 2005 with rate of incidence ranging 2.1% to 5%).



Following a comprehensive in-service educational program that was developed to expand understanding and knowledge of appropriate heel ulcer prevention at Loretto, this clinical trial began in January 2006. The existing heel ulcer prevention protocol was revised to target low Bradens scores and specific co-morbidities and utilize the Prevalon Heel Protector, similar to the protocol recently published by Walsh and Plonczynski.⁸

RESULTS

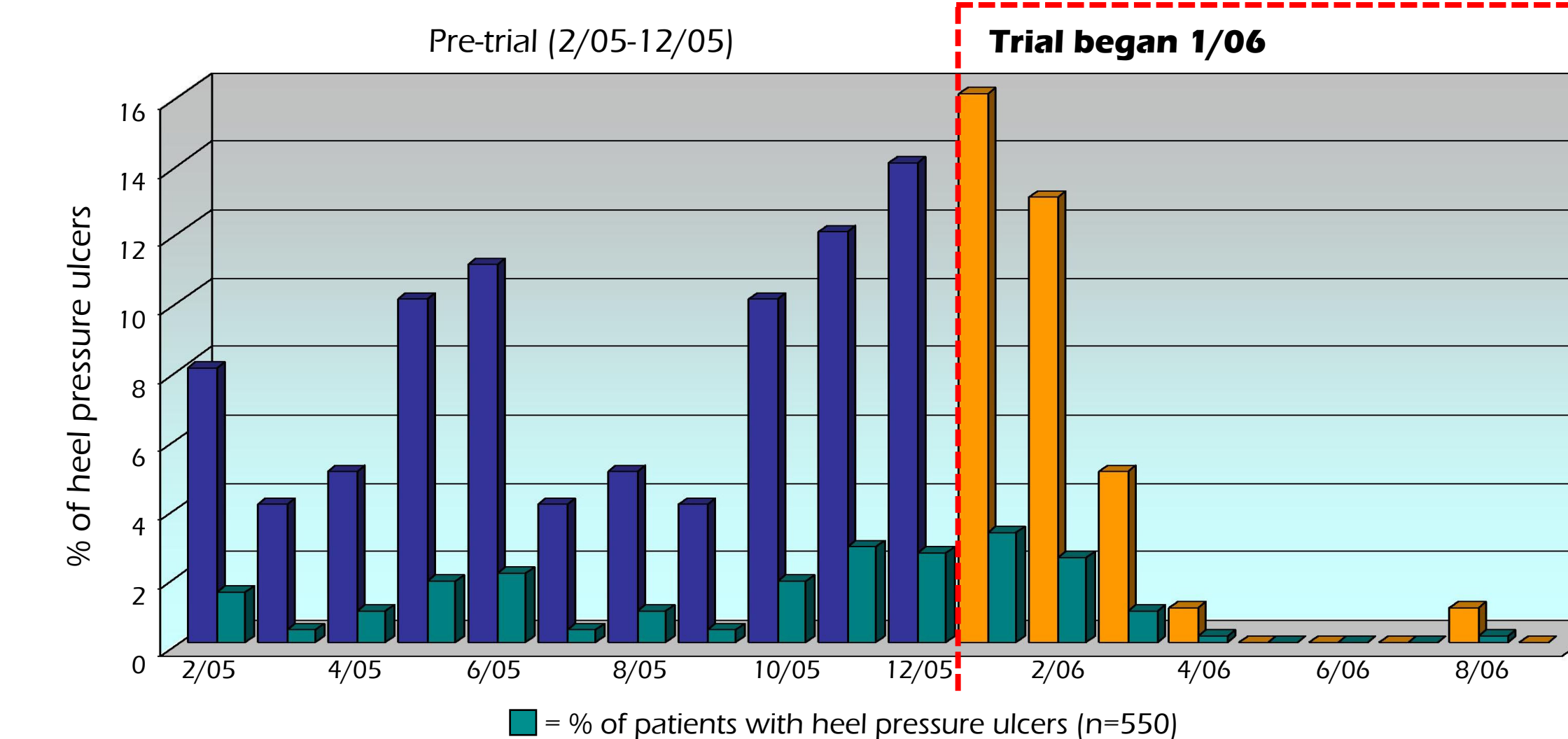
All patients evaluated as high risk for heel ulcers using an in-house assessment tool were enrolled in the Prevalon protocol. CMS F-tags were incorporated as part of the prevention practice. Patients were assessed in a prospective manner from January 2006. By April of 2006, all units were consistently utilizing the heel protector device on at-risk patients.

The Loretto nursing staff had a favorable impression of Prevalon Pressure-Relieving Heel Protector. During the first three months, heel pressure incidence rates significantly decreased. No new cases developed in months four, five, and six. In patients with pre-existing heel ulcers, the use of the Prevalon boot decreased the number of days to healing of the wound.

A 95% reduction in heel ulcer development was observed when comparing the pre-intervention time period (5/05 - 9/05; 39 occurrences of heel ulcers) to the post-intervention time period (5/06 - 9/06; 2 occurrences of heel ulcers).

The facility documented significant cost savings as a result of this reduction, specifically noting a facility-wide reduction in heel ulcer treatment products and staff time spent on heel ulcer treatment.

Number of heel pressure ulcers at Loretto



CONCLUSIONS

The researchers concluded that the Prevalon Pressure-Relieving Heel Protector system significantly reduces the risk of developing heel pressure ulcers in a high-risk population. Staff readily accepted the use of Prevalon because of its ease of use and its ability to fit most patients. Economic benefits in using the system were also identified.

The positive outcomes of this study are attributed to the newly established protocol and to the new Prevalon Heel Protector, which is also featured in a positive outcome experience recently published by Walsh and Plonczynski in the March-April JWOCN.¹⁵

A process improvement intervention for heel ulcer prevention can be effective if implemented on multiple levels, including staff education, revisions of ineffective protocols, and efforts from supervisory staff to ensure ongoing staff and patient compliance.

Early and aggressive implementation of pressure-relief and pressure-reduction products as part of the individual care planning process is effective in prevention of heel facility-acquired pressure ulcers.

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