Wounds UK

CATEGORY: PRESSURE ULCER PREVENTION

PROLEVO FOOTSAFE BOOT

MAKING THE CASE

PRESSURE ULCERS – A KEY QUALITY INDICATOR

Pressure ulcers are localised injuries to the skin and/or underlying tissue that usually occur over a bony prominence, as a result of pressure, or pressure in combination with shear and/or friction (NPUAP, 2014). Common locations for pressure ulcers (PUs) include the ishium, trochanter, elbows and heels. Nationally, the incidence of PUs is considered an indicator of care quality. Where avoidable, they are seen as a patient harm, and a number of initiatives have been designed to facilitate a reduction in hospital-acquired PUs. For example, a national CQUINN target incentivising use of the NHS Safety Thermometer, which allows organisations to measure harm in four key areas, including PUs.

THE PROBLEM OF HEEL PRESSURE ULCERS

Heels are the second most common site for PUs after the sacrum (Baath et al, 2016), with this high risk resulting from a number of factors, including (McInnis, 2015; Langemo, 2014; Black, 2004):

- Location at a bony prominence
- The load-bearing nature of the foot
- The shape of the calcaneous heel bone, which is not well protected and subject to internal and external forces
- Poor circulation, with little blood supply to the Achilles tendon
- Lower limbs themselves are susceptible to arterial disease, neuropathy and oedema.

The heels are also reportedly susceptible to development of deep tissue injury (DTI); a PU prevalence survey revealed that the incidence of DTI on the heels was evident in 41.4% of all PU sites (Van Gilder et al, 2008).

Specific risk factors for heel PUs include previous history of heel ulceration, dementia, patient agitation, lower extremity oedema, vascular insufficiency and use of profiling beds (Fletcher, 2015). If not treated promptly and properly, heel PUs may be costly, leading to complications such as osteomyelitis and limb amputation (Black, 2004).

Q DO YOU UNDERSTAND THE RISKS OF HEEL PRESSURE ULCERS?

INTRODUCING THE PROLEVO FOOTSAFE BOOT

The Prolevo FootSafe Boot is part of the Prolevo range of products, which has been designed to prevent and treat PU in all sub-groups of patients across various healthcare settings. All of the products with the Prolevo range incorporate innovative design features that ensure they are:

- Simple
- Safe
- Effective.

The Prolevo FootSafe Boot is a low-cost, high-quality intervention for either protection (*Figure 1*) or prevention (*Figure 2*) from PUs in 'at-risk' patients or patients with existing heel ulceration.

Figure 1: Prolevo FootSafe Boot for Protection

PROTECTION: For non-ambulatory patients with an active foot ulcer

The FootSafe protection boot is available in three sizes, with adjustable fastening straps. Unlike the FootSafe prevention boot, it is covered in Dartex Care 420, a 4-way stretch material that is highly durable. The covers are replaceable and allow for single- or multiple-patient use, as determined by local infection control decontamination protocols. The FootSafe protection boot can be used for patients with an active ulcer and has an inspection gate to allow for dressing changes without removal.

Figure 2: Prolevo FootSafe Boot for Prevention

PREVENTION: For non-ambulatory, at-risk patients

An inflatable boot, manufactured in five sizes, with adjustable fastening straps to increase patient comfort and minimise boot movement. These can be single- or multiple-patient use, as determined by local infection control decontamination protocols. The main difference when compared with other foot protection devices is that the plantar protection area is anatomically profiled and has an inspection gate for skin assessment without removal.

The inflatable core cell is manufactured in antimicrobial-impregnated polyurethane, with all seams and valves high radio-frequency welded for optimal strength. Polyurethane button fastenings allow adjustment with no risk of harbouring harmful bacteria.

Explanation of how to use this guide: This document can be used to make the case for implementing effective prevention and management measures and may be supported by data from your own care setting. As well as economic impact, it is important to know the impact of interventions on patient quality of life and outcomes.

MAKING THE CASE

HEEL ULCERATION PREVENTION PRACTICES

Studies have confirmed that offloading the heels alongside regular PU prevention practices can lead to reduced incidence of heel PUs and DTIs, with protective interventions minimising risk of skin breakdown caused by pressure, friction or shear to the heels. For example, vertical pressure can be markedly reduced by applying heel protection devices (de Keyser et al, 1994).

Donnelly (2011) conducted a randomised evaluation into the effectiveness of heel elevation (*n*=120) with an offloading device versus standard care (*n*=119). Both groups were cared for on a pressure-redistribution support surface. A wide variety of support surfaces were used, including foam mattress, mattress overlay and dynamic mattress. Results showed that older people with fractured hips were less likely to develop heel PUs if these were elevated off the mattress during the acute treatment phase.

Q COULD YOUR PATIENTS BENEFIT FROM ANY ADDITIONAL PROTECTIVE INTERVENTIONS?

EVIDENCE FOR THE PROLEVO FOOTSAFE BOOT

Over 409 days, a non-controlled evaluation of the Prolevo FootSafe Boot was conducted across St Helens & Knowsley Teaching Hospitals NHS Trust to assess effectiveness in the prevention and management of heel PUs – the results of this study are outlined below.

Methods

The aim of this study was to assess patient-focused clinical outcome data for the FootSafe Boot in a real-world setting. On admission, patients were risk-assessed using the Maelor Score (Vowden, 2012; Moore et al, 2016), and where there was evidence of heel tissue damage or a PU, a record of the incident was completed and a tissue viability nurse (TVN) was alerted to the admission.

Sixteen patients with 18 PUs of varying grades were recruited and gave fully informed consent to take part in this study. The mean age of subjects was 76.9 years. The enrolled patients all wore the FootSafe Boot alongside regular PU prevention and management strategies, with a mean wear time of 25.5 days. All PUs were recorded, measured and graded by the TVNs and ward staff, who monitored and recorded progress on a daily basis. Upon completion of the evaluation (either when the subject was discharged or at the end of the evaluation period), the TVN reviewed the ulcers and confirmed whether the status of the heel had changed.

Clinical results

Notable clinical results were as follows (Table 1):

- Three of the four **grade 1 PUs** that were evident at the start of the evaluation resolved. None of the grade 1 PUs evolved further during the study period.
- Two of the **grade 2 PUs** progressed to full healing whilst two remained a grade 2 with no further deterioration or tissue destruction. None deteriorated in either level of tissue damage or size and no new pressure ulcers developed.
- All the **grade 3 and 4 PUs** (*n*=9) remained the same with no further deterioration in either level of tissue destruction or ulcer size.

Table 1: Outcomes by grade of pressure ulcer

Grade	Outcome	Number of PUs
Grade 1 (*n*=4)	Resolved/healed	3
	Remained Grade 1 at completion	1
Grade 2 (*n*=4)	Improved	2
	No deterioration	2
Grade 3 and 4 (*n*=9)	No deterioration	9

Patient and staff feedback

Feedback scores for the 11 patients who completed evaluation questions demonstrated high scores particularly for comfort (3.5/5) and for treatment advantages (3.8/5). Feedback from 20 nursing staff who applied and recorded daily the performance were also favourable, with particularly high scores for conformability (4.62/5) of the Prolevo FootSafe Boot whilst on a limb and ease of application (4.48/5).

C CHECK

Check both feet:
Are there any breaks in the skin/areas of discolouration?
Are there any ulcers present?
Is neuropathy present?
Is action required?

P PROTECT

Protect feet if:
Pressure damage/ulcer present **or at risk due to:**
Neuropathy
Previous ulcer/ pressure damage or amputation
Bed bound or fragile skin

R REFER

Refer...
...all patients with a foot ulcer/pressure damage or other major concern to the podiatry department or Tissue Viability Services for treatment and reassessment of pressure relief requirements.

SUMMARY

Heel ulcers are a significant challenge across all care environments and require more protection than specialty beds and mattresses overlays can offer. Combining heel protection devices – particularly those that suspend the heel off the bed – and nursing activities such as repositioning of the extremity, removing the device for cleaning, and appropriate skin assessment could have powerful impact in the prevention of heel PUs. This Making the Case outlines the potential benefits of the Prolevo FootSafe offloading heel device in the prevention of heel ulcers.

References

Baath C, Egstrom M, Gunningberg L, Muntlin Athilin A (2016) Prevention of heel pressure ulcers among older patients – from ambulance care to hospital discharge: a multi-centre randomised controlled trial. *Appl Nur Res* 30:170-5
Black J (2004) Preventing heel pressure ulcers. *Wound and Skin Care* 34(11):17
Donnelly J, Winder J, Kernohan WG, Stephenson M (2011) An RCT to determine the effect of a heel elevation device in pressure ulcer prevention post hip fracture. *Journal of Wound Care* 20(7):309-16
Fletcher J (2015) Articulated bed frames and heel ulcer prevalence. *Wound Essentials* 10(1):8-13
Langemo D (2014) Heel Pressure Ulcer: 2014 International Pressure Ulcer Prevention & Treatment Guidelines. Panel. http://www.npuap.org/wp-content/uploads/2015/02/4.-Preventing-Treating-Heel-Ulcers-D-Langemo.pdf (accessed 4.09.2017)
McInnes E, Jammali-Basi A, Bell-Seyer SEM et al (2011) Support surfaces for pressure ulcer prevention. *Cochrane Database Syst Rev* 13:4 CD001735
National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance (2014). Prevention and Treatment of Pressure Ulcers. Emily Haesler (Ed.). Cambridge Media: Perth, Australia
Van Gilder C, Macfarlane GD, Meyer S (2008) Results of nine international pressure ulcer prevalence surveys: 1989 to 2005. *Ostomy Wound Manage* 54(2):40-54
Wilson A (2002) Prevention of heel pressure ulcers in an orthopaedic unit. *Nursing Times Plus* 98(25):53-4

Wounds UK

This Making the Case guide was developed using the literature and data provided by TalarMade Ltd