

Prolevo range

made easy

Introduction

The latest costing statement on pressure ulcers (PUs) from the NICE highlights that treatment is more costly than prevention (NICE, 2014a); the challenge is to minimise their occurrence using prevention initiatives. This Made Easy focuses on the Prolevo range of pressure redistribution devices for the prevention and treatment of PUs. These devices can be used as part of a simple algorithm to reduce the number of avoidable heel PUs, minimising impact on healthcare budgets.

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WHAT DO THE LATEST GUIDELINES SAY?

In 2014, the National Institute of Health and Care Excellence (NICE) published recommendations for the prevention and management of PUs (NICE, 2014b). PUs occur over areas that are prone to prolonged periods of pressure, such as the sacrum or heel (Figure 1). At these sites, the thin subcutaneous tissue between skin and bone does little to provide protection from the applied forces of pressure, shear and friction that contribute to PU development (Romanelli et al, 2008).

Savings could be realised by reducing the number of patients who develop avoidable PUs, since treatment is more expensive than prevention (NICE, 2014a). A costing statement published alongside the latest NICE guidance presented some of the resource implications (potential costs and savings) associated with implementing their recommendations (NICE, 2014a). These costings generally do not include the cost of litigation and the human cost to the patient of extended stays in hospital, and possible amputation and rehabilitation (Stang and Leese, 2014).

MEETING THE UNMET NEED

There is a need to protect all patients at risk of a PU, which may incur an increased initial spend, but will lead to larger savings in the long term. Strategies that can be considered to bridge the gap between what is currently provided and what should be provided are as follows:

Patient risk assessment on admission to any care setting

Routine assessment should be carried out on all patients to determine risk status and allow effective preventative strategies



Figure 1. Heel pressure ulcer. Pressure ulcers are largely preventable, with a zero tolerance approach adopted by the NHS. Meeting targets to eliminate avoidable PUs places greater demands on clinicians to use preventative strategies.

to be introduced for those at risk (NICE, 2014a). This will require an initial investment, but will lead to immediate cost savings for providers (NICE, 2014a).

Frequent repositioning of at-risk patients

NICE recommends frequent repositioning of patients at risk of a PU (NICE, 2014a). The amount of time and number of staff members required for manual repositioning varies by patient, from very minimal (i.e. prompting) to up to four nurses for immobile individuals. This may have a substantial impact on providers who are not currently repositioning patients as often as recommended; costs may be further increased due to an ageing population and corresponding high number of at-risk patients (NICE, 2014a). Costs could be reduced through the use of simple preventative initiatives to reduce incidence, releasing staff time and resources.

High specification foam mattresses or other equipment

NICE recommends the use of high specification foam mattresses for all at-risk patients (NICE, 2014a). While this is standard practice in many facilities, where it is not, cost implications will need to be considered. In some cases, localised reusable heel protection devices may provide an alternative cost-effective strategy (NICE, 2014a).

PREVENTION IS MORE COST-EFFECTIVE THAN TREATMENT

The key message is that the cost of PU prevention is lower than the cost of treatment (Demarre et al, 2015). By implementing NICE's best practice guidelines and ultimately reducing the number of patients with PUs, it may be possible to realise cost savings as seen in Box 1 (NICE, 2014a).

Box 1: Cost savings through reduced PU incidence

- Reducing the incidence of PUs would release staff resource and hospital beds, making it possible to treat more patients
- The daily cost of treating PUs in patients who are admitted to hospital for other conditions would be reduced
- Average length of stay in hospital would be reduced, meaning patients have a lower chance of contracting other diseases, such as MRSA
- Assessment of at-risk patients may help to reduce numbers of patients developing a PU
- Commissioners could make savings based on a reduction in excess bed-day payments. The average excess payment is £236 per day, with patients with PUs staying in hospital an average of 5 to 6 days longer than patients without PUs (Dealey et al, 2012)

WHO IS AT RISK?

All patients are at risk of developing a PU (NICE, 2014b), but patients in hospital are more likely to develop a PU if they (Coleman et al, 2013):

- **Are immobile or non-ambulatory** — these patients tend to be elderly or frail or are suffering from dementia. They may be post-surgical or orthopaedic, or have neurological impairment (e.g. stroke victims)
- **Have diabetes** — risk is high in patients who are admitted in diabetic ketoacidosis, have neuropathy, a history of ulceration or a previous amputation, or have active ulceration
- **Have vascular impairment** — risk is high in patients who are taken to theatre, have areas of ischaemia, or a previous amputation
- **Are malnourished** — these patients tend to be in long-stay wards or nursing homes, often receiving end-of-life care.

In 2010, PUs became a focus of the NHS High Impact Actions initiative: *Your Skin Matters*. This estimated that between 4% and 10% of all patients treated by the NHS will develop a PU, and called for elimination of all preventable PUs (NHS Institute for Innovation and Improvement, 2009).

WHAT IS CPR FOR AT-RISK HEELS?

CPR is a national inpatient foot care campaign for at-risk patients. This was launched in response to a review undertaken in 2013 by the Scottish Diabetic Foot Action Group, which carried out a 'snap shot' audit of the care of 1048 inpatients with diabetes in Scottish hospitals (Stang and Leese, 2014). The key drivers behind the campaign were:

- Preventing harm to patients
- Improving quality of patient care
- Ensuring resources are used more efficiently.

This audit found that 57% of patients with diabetes did not have their feet checked on admission to hospital and 60% of those discovered to be at risk had no protection in place. Overall, 2.4% patients developed a new heel ulcer during their hospital stay. This has considerable cost implications for practice (Stang and Leese, 2014).

Patients with a diabetic foot ulcer on average spend 13 days longer in hospital than a patient without a foot ulcer. As such, if all 24 patients per 1000 admitted to hospital who acquired a new foot ulcer in the audit stayed in hospital an extra 13 days (a total of 312 extra bed days at a cost of £650 per day), this would lead to total costs of £202,800 (Stang and Leese, 2014). The audit also showed that 226 patients had no pressure relief in place; if it had been in place, at a maximum cost of £100 per patient, the saving would have been £180,200 per 1000 patients (assuming it is possible to prevent all new ulcers from developing). Even assuming a 75% success rate, the cost saving by carrying out effective prevention would be £135,150 per 1000 patients (Stang and Leese, 2014).

Acting on these findings, the 'CPR for Diabetic Foot' campaign promotes a process of Check, Protect, Refer. Its main goals are to ensure that all patients with diabetes have their feet *Checked* on admission to hospital, ensuring those who are deemed at risk of developing an ulcer are *Protected*, and those with existing foot ulcers are *Referred* to the appropriate team. This campaign has also prompted a move towards simplifying and standardising the pressure redistributing devices provided to patients, to ensure they are suitable for individual patient requirements and to reduce confusion to the staff fitting the devices (Stang and Leese, 2014). Diabetes UK is currently looking at adopting 'CPR for Diabetic Foot' as their inpatient campaign for 2016.

WHAT IS THE PROLEVO RANGE?

Prolevo is a range of products designed to prevent and treat PUs in all groups of patients in various healthcare settings. It has been designed with input from podiatrists, tissue viability nurses, and infection control specialists, taking into account patients who are ambulatory or confined to a bed, have active ulceration or are at risk of developing a PU (Wounds UK, 2015). All products in the range are high in quality, simply designed, and meet the requirements of healthcare professionals and infection control specialists, while being in line with patient and carer needs (Medicare Innovations, data on file). These products can be used as part of a standard protocol for PU prevention (Figure 2, page 3).

USING THE PROLEVO RANGE IN PRACTICE

Prolevo products incorporate innovative design features that ensure they are:

- Simple
- Safe
- Effective.

HeelSafe overmattress pressure redistribution pad

An inflatable overlay that can be placed under the lower leg, aimed at reducing interface pressures at the heel and ankle areas.



Appropriate for ambulatory or non-ambulatory patients who are at risk

Pre-inflated or manually inflated models are available; inflatable models include a Pressure Limitation Valve (limiting to 20mmHg) and a manual inflation pump for rapid inflation. Strap fastenings are replaceable, easily adjustable and provide secure fixation to the mattress. Because the pad is strapped to the bed, rather than being worn by the patient, it may improve concordance with treatment and avoid the falls-risk associated with strap-on offloading boots. The HeelSafe overlay may be combined with the SoleSafe pressure redistribution pad to provide complete protection for the heel, ankle and plantar surface areas.

SoleSafe bed end pressure redistribution pad

A pressure redistribution pad for placing between the foot and the end of the bed, which is designed to prevent plantar surface pressure injuries.



Appropriate for ambulatory or non-ambulatory patients who are at risk

As with the HeelSafe pressure redistribution pad, pre-inflated or manually inflated models are available. Strap fastenings are replaceable, easily adjustable and provide secure fixation to the bedframe. The covers are durable and can be decontaminated according to local infection control protocols.

FootSafe prevention boot

An inflatable boot, manufactured in five sizes, with adjustable fastening straps to increase patient comfort and minimise boot movement.



Appropriate for non-ambulatory, at-risk patients

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.

FootSafe protection boot

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.

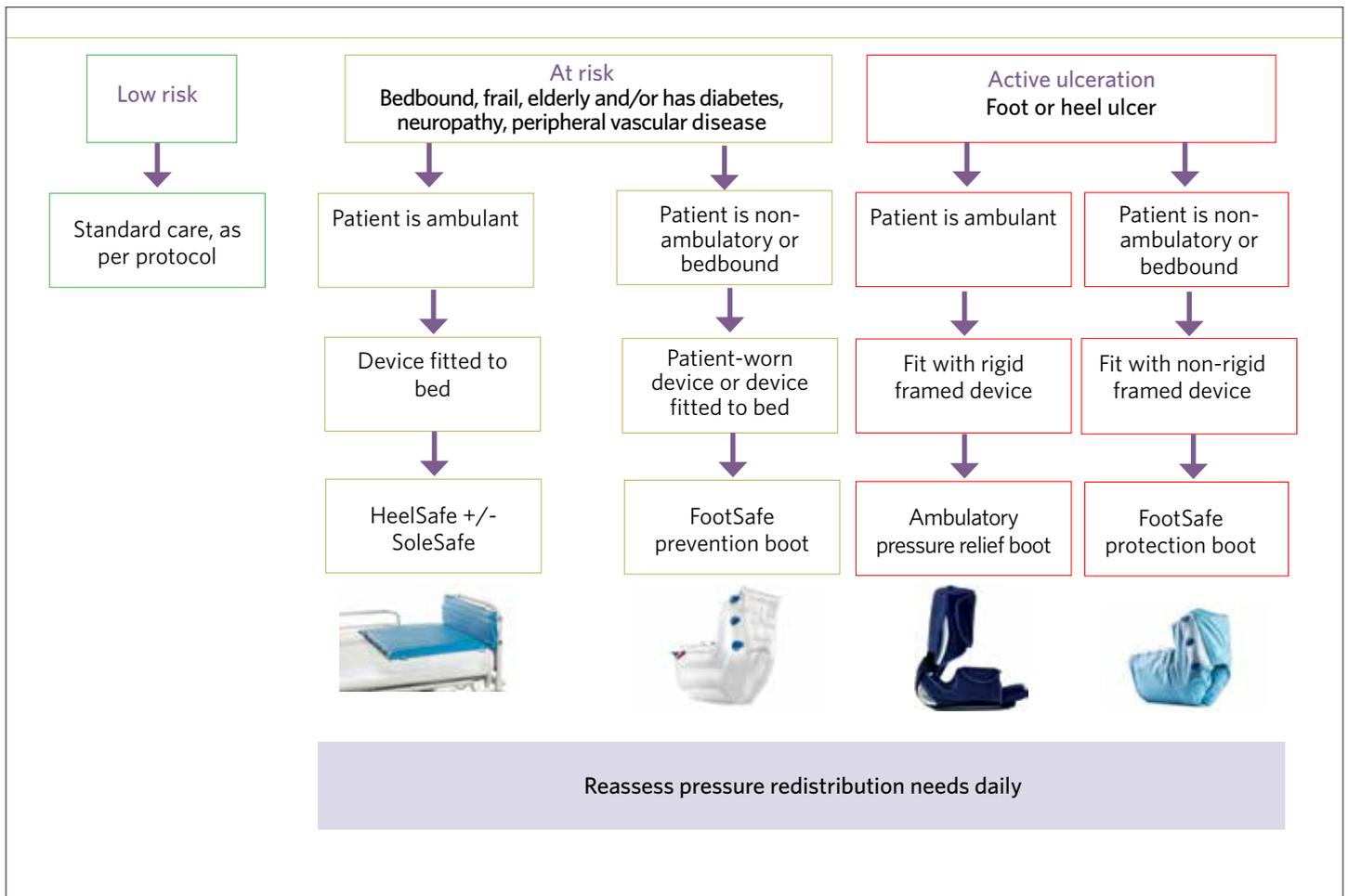
The FootSafe protection boot can be used for patients with an active ulcer and has an inspection gate to allow for dressing changes without removal.



Appropriate for non-ambulatory patients with an active foot ulcer

For patients who are mobile and have an active ulcer, a rigid frame device such as the ambulatory pressure relief boot (APRB, Talarmade) should be considered.

Figure 2. Algorithm for selecting the most appropriate pressure redistribution device, according to whether the patient is at risk or has an active ulcer, and taking into account whether they are ambulatory or non-ambulatory.



EVIDENCE FOR THE PROLEVO RANGE

The performance of HeelSafe and SoleSafe has been evaluated using standard test methods, while evidence for FootSafe is based on early clinical evaluations.

HeelSafe

The aims of the HeelSafe evaluation were:

- To estimate the effect of HeelSafe on peak interface pressures on the heel and lateral malleolus
- To establish the optimum pressure setting for HeelSafe at a range of leg weights
- To evaluate the heat and water vapour transfer properties of HeelSafe.

HeelSafe provided effective reduction in heel pressure at all body weights tested. Under independent test conditions, the optimum inflation pressure was 20mmHg across all body weights; this means that a patient's weight does not need to be considered prior to selecting the product. Heat and water vapour transfer rates were within expected norms, with no adverse effects on skin microclimate (temperature and humidity) reported. When compared with two other support surfaces, HeelSafe demonstrated the lowest peak pressures (Figure 3).

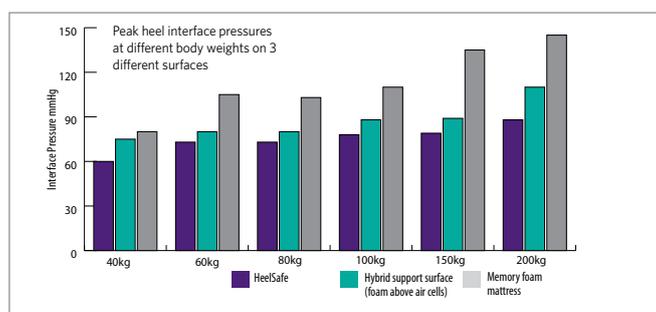


Figure 3. Summary of results for HeelSafe at different modelled body weights.

SoleSafe

The aim of this evaluation was to map the interface pressure between the sole of the foot and the bed footboard, with and without SoleSafe. Under independent test conditions, when a patient's feet were in contact with the footboard without SoleSafe, substantial plantar pressures were recorded on the sole of the foot; with SoleSafe, the plantar pressure were substantially reduced (Figure 4).

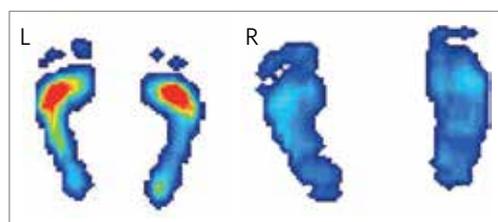


Figure 4. Plantar pressure on bare foot board (left); and with SoleSafe at 20mmHg (right)

FootSafe

Early evaluations and patient feedback using the FootSafe prevention and protection boots have been very positive.

KEY BENEFITS OF THE PROLEVO RANGE

The primary benefits, from preliminary evaluations, of using the Prolevo range in practice are that it enables a standardised, simplified and cost-saving approach to PU prevention.

- **Standardised:** Standardising the pressure redistribution solutions offered to patients using the Prolevo range has ensured that patients' differing needs are met, minimising delays getting products to the patient.
- **Simplified:** The Prolevo product range has simplified the selection of appropriate pressure redistribution devices and reduced confusion amongst staff, especially when it is used as part of a simple algorithm (Figure 2).
- **Cost-saving:** Prevention has been shown to be more cost-effective than treatment. When the Prolevo range is used as a first-line recommendation, savings are made through long-term avoidance of PUs.

SUMMARY

Although the initial cost to provide PU prevention for patients at risk may impact healthcare budgets, the costs associated with the treatment of avoidable foot ulcers will be higher due to increased hospital stay. Innovation can lead to simple strategies that standardise practice and meet the needs of patients, improving quality of life. The Prolevo range can be used as part of a simple algorithm, providing cost savings by preventing avoidable PUs and standardising the selection process for pressure redistribution devices.

REFERENCES

- Coleman S, Gorecki C, Nelson EA et al (2013) Patient risk factors for pressure ulcer development: systematic review. *Int J Nurs Stud* 50(7): 974-1003. d
- Dealey C, Posnett J, Walker A (2012) The cost of pressure ulcers in the United Kingdom. *J Wound Care* (6): 261-2, 264, 266
- Demarré L, Van Lancker A, Van Hecke A et al (2015) The cost of prevention and treatment of pressure ulcers: A systematic review. *Int J Nurs Stud* 52(11): 1754-74
- Medicare Innovations (2015) Cost-effective pressure redistribution products for the prevention and treatment of pressure related injuries. Available from: www.medicare-innovations.com (accessed on 23.10.15)
- National Institute of Health and Care Excellence (2014a) Costing statement: Pressure Ulcers. Implementing the NICE guidelines on pressure ulcers (CG179). Available at: <https://www.nice.org.uk/guidance/cg179/resources/cg179-pressure-ulcers-costing-statement2> (accessed on 30.10.15)
- National Institute of Health and Care Excellence (NICE) (2014b) Pressure ulcers: prevention and management of pressure ulcers. Available at: <https://www.nice.org.uk/guidance/cg179> (accessed on: 30.10.15)
- NHS Institute for Innovation and Improvement (2009) High Impact Actions for Nursing and Midwifery. *Your Skin Matters*. Available at: http://www.institute.nhs.uk/building_capability/general/your_skin_matters.html (accessed on: 29.10.15)
- Romanelli M, Clark M, Cherry G, et al (eds) (2006) *Science and Practice of Pressure Ulcer Management*. London: Springer-Verlag.
- Stang D, Leese G (2014) CPR for diabetic feet. *Diabetic Foot Journal* 17(1): 16-8
- Wounds UK (2015) Quick guide: Innovations in Pressure Ulcer Redistribution. Available at: www.wounds-uk.com

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