Foot Protection and Offloading Guidance Pressure Ulcer Prevention 2015

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NHS Fife Podiatry

Contents

Introduction

Pressure ulcers, sometimes known as “bed sores”, “decubitus ulcers” and “pressure sores”, to name but a few, are injuries that break down the skin and underlying tissue. They pose a huge financial burden to the NHS and other agencies and cause distress and complications for patients, carers and staff alike. Pressure ulcers are often preventable and many approved strategies for risk assessment and avoidance exist.

Due to the variety of ways in which a pressure ulcer can develop, prevention and treatment need to be applicable across a variety of settings. This guideline is intended to apply to all environments, including hospitals, long term, rehabilitation and community care. The guideline may be used as a resource for individuals who are “at risk” of, or have an existing foot pressure ulcer, to guide awareness of the range of preventative and treatment strategies which are available.

All patients vary and there is no such thing as the perfect offloading device for each and every individual. Patient preference and choice are large deciding factors in selecting the most appropriate product, aligned with the current and potential mobility of each person. Invariably product suitability may alter as individual circumstances change and offloading devices must be utilised to reflect this. Where possible, future planning should be adopted to reduce costs and minimise misuse of products, whilst giving patients the best possible outcome in the shortest possible time. Offloading equipment must reflect the clinical needs of the patient and change in response to their level of risk and mobility.

Acknowledgement of the various positioning of the patient throughout the day is necessary to address all possible areas of pressure and ensure the least inconvenience and stress in changing from one product to another, which may ultimately result in no offloading being in place at vital times.

This guideline aims to assist practitioners in the assessment, management and prevention of pressure ulcers. It encourages rational and cost-effective supply of offloading and pressure relieving products. All products reported on have been trialled and tested by NHS Fife Podiatry for offloading abilities in a number of patients, in a variety of positions and for a variety of anatomical locations, however it should be noted that this is not definitive research and each individual case must be assessed for its own merit and suitable judgements made.

Offloading devices are widely accepted as a method of trying to prevent complications of pressure in the “at risk” patient group. They work in a number of ways to redistribute and reduce pressure, shear and friction forces. There is limited evidence on the effectiveness of these devices and much of the available data has been funded by industry and thereby subject to bias.

It is important to note that whilst many pressure relieving mattresses are effective in providing sufficient protection for some high risk areas, they may be inadequate in avoiding the development of a pressure ulcer in the foot and heel or in assisting healing in those with

an existing pressure ulcer in these areas. In this instance, additional offloading measures may be required.

A selection of suitable products for each situation has been provided but, staff are reminded to use their own clinical judgement in line with patient preference when making decisions. Prices have been included to make practitioners aware of cost. More expensive offloading equipment may still be cost effective if used in the correct manner. Practitioners are advised to contact Podiatry or Tissue Viability if further advice or guidance is required.

These guidelines are based on a selection of clinical expertise of group members, up to date research and product trials and evaluations. We do accept that opinions vary and point out that these guidelines are not intended to be a definitive textbook.

Disclaimer

Guideline users should be mindful that, as with any clinical guideline, recommendations may not be appropriate for use in all circumstances. Clearly, a limitation of any guideline is that it simplifies clinical decision making processes and recommendations.

The guideline is intended for use by all health and social care professionals, regardless of clinical speciality, who are involved in the care of individuals who are “at risk” of developing pressure ulcers, or who have an existing pressure ulcer.

NHS Fife

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Pressure Ulceration Definition

"A pressure ulcer is a localised injury to the skin and/or underlying tissue, usually over a bony prominence, as a result of pressure, or pressure in combination with shear. A number of contributing or confounding factors are associated with pressure ulcers; the significance of these is yet to be elucidated" (EUPAP and NPUAP, 2009).

Pressure ulcers can range in severity from small areas of discoloured skin to open wounds which expose the underlying deeper tissues including bone and muscle.

It is important for staff to be aware when an ulceration is due to pressure and when it is not and treat each situation accordingly. Ischaemic, neuropathic and neuro-ischaemic ulcerations may present within the foot, very similar to that of a pressure ulcer but the underlying cause and associated treatment may vary considerably. Staff should feel confident in diagnosing the cause of ulceration and where unsure specialist advice and assessment should be sought.

Pressure Ulcer Prevalence and Incidence

Pressure ulcers represent a major burden and create significant difficulties for patients, their families and health and social care staff. The impact of pressure ulcers can be psychologically, clinically and physically challenging. They significantly increase the sickness burden and reduce quality of life.

The cost of treating and preventing pressure ulcers in the UK is estimated to be in excess of £2 billion annually, comprising around 4% of total NHS expenditure. Costs vary depending on the grade of the ulceration and much has been documented to confirm that prevention is better than cure, both for patient care and overall cost. Significant cost savings can indeed be made through early speculation with regard to product placement and utilisation. It is widely considered that with appropriate assessment and intervention, up to 95% of pressure ulcers can be avoided.

Around 4-10% of all people admitted to hospital with a sudden illness will develop a pressure ulcer with some sources putting this as high as 20%. Data to ascertain the number of community based pressure ulcers is unreliable however, it is estimated that around 1 in every 20 people living in a range of healthcare and community settings are affected again with this being reported to be as high as 20%.

Pressure Ulcers

<u>How they develop</u>

Pressure ulcers are injuries that break down the skin and underlying tissue. They are caused by irritation or sustained pressure being placed on a particular part of the body. This pressure interrupts the blood supply to the affected area of skin and without a constant supply, the tissue is damaged and will eventually die.

Pressure ulcers can develop when a large amount of pressure is applied to an area over a short period of time but can also develop when a small amount of pressure is applied over a long period of time. The time it takes for a pressure ulcer to develop will depend on the amount of pressure, the time the pressure is sustained and the individual's vulnerability and risk. It is important to note however that they can develop and deteriorate very quickly so early identification and action is vital.

Friction and shear of the skin can also play a part in the formation of pressure ulcerations with the layers of the skin sliding over one another due to patient movement whether actively or passively. This risk increases with age as ageing skin is more susceptible to friction forces.

Increased skin moisture through sweating or urinary or faecal incontinence can make skin softer and more fragile and therefore increase and intensify the effects of pressure, friction and shearing forces. Moisture alone will not cause a pressure ulcer but may exacerbate the overall outcome.

Appropriate patient management and use of the correct and necessary preventative measures should mean that the majority of pressure ulcers can be avoided but it is important to note that even with the highest standards of care, it is not always possible to prevent pressure ulcers, particularly in the most vulnerable of patients or those non concordant to care.

<u>Those "At Risk"</u>

Everyone is at risk of developing a pressure ulcer, however, they typically occur in those confined to lying in a bed or sitting for prolonged periods of time and are more likely to occur to people with health conditions which make it difficult for them to move around or those who are seriously ill. Contributing factors include:

- poor posture or deformity
- chronic obstructive pulmonary disease
- impaired mobility
- impaired circulation
- underlying neurological condition
- cognitive impairment
- the elderly
- obese/bariatric (see page 6)
- sensory impairment
- incontinence
- poor nutrition
- history of previous pressure ulceration

In conjunction with these factors, use of equipment not designed to provide pressure relief, such as beds and chairs can cause and deteriorate pressure ulcerations.

People with normal mobility and sensation are unlikely to develop pressure ulcers as the body automatically makes hundreds of movements to prevent the build up of pressure and the occurrence of damage, as a result, is reduced.

Pressure ulcerations can develop quickly. A full thickness pressure ulceration (page 9) can develop in under 1-2 hours however, it can take some time for the full extent of the injury to become apparent (Newson, 2012). For this reason practitioners must be vigilant in assessing and reviewing patients, particularly where changes occur in their individual circumstances which may affect their risk. Immediate preventative and treatment methods must be adopted as required.

CPR for Diabetic Feet (page 10) stresses the importance of checking all individuals with diabetes for good foot health and ulceration risk as a result of ischaemia and neurological complications in combination with pressure. This procedure can be adopted for all patients to extend good working and assessment practice and where possible should not be limited to the diabetic population alone.

Obese/Bariatric patients

Obesity is a common problem said to affect around 1 in every 4 adults within the UK population. Obese patients have an increased risk of developing pressure ulcerations and wound healing can be slower. As a result, maintaining skin integrity is both a priority and a challenge. Surprisingly, no validated pressure ulcer risk assessment tool has been developed for obesity however the risks are notable.

Due a variety of origins including: greater weight ergo increased pressures, reduced blood supply to fatty tissue, breathing difficulties, multiple co-morbidities including Type II Diabetes, difficulties with positioning and repositioning, increased friction, shear and moisture, as well as others, obese and bariatric patients have a greatly increased vulnerability to pressure ulcer development. Pressure relief and prevention of complications is the ultimate objective and it is important to ensure that all areas are considered including contemplation of risk from poorly sized chairs, beds, etc and utilisation of poor moving and handling techniques which may cause damage to fragile skin.

Risk Assessment

Various pressure ulcer risk assessments exist taking into account a variety of factors including:

- Patient Pain/Discomfort
- Skin Integrity
- Skin Discolouration
- Variations in heat, firmness and moisture
- Patient mobility/immobility
- Nutritional deficiency
- Ability of patient to reposition themselves
- History of ulceration or existence of existing ulceration
- Peripheral Vascular Disease
- Significant loss of sensation
- Significant Chronic Obstructive Pulmonary Disease (COPD)
- Significant cognitive impairment

Staff should always consider using a validated scale to support clinical decision making such as Waterlow and PPURA, when assessing pressure ulceration risk and this should be completed at each assessment. Frequency of assessment will depend on findings but in those deemed "at risk", recurrent assessment may be appropriate until preventative measures are in place and beyond.

Minor skin changes may be the first sign of pressure complications, with the advancement of non-blanching erythema developing over time (page 9). This can be assessed very simply using finger palpation to determine whether erythema or discolouration is blanchable. Once recorded, consideration of preventative measures should be immediately established.

In the very high risk patient, measures to avoid pressure may be appropriate prior to the development of any skin change and should not be withheld, taking into account patient preference and prognosis.

Again it is important to note that pressure relieving mattresses are often not enough in providing pressure protection for the heel and foot and in these instances additional offloading measures may be required.

Pressure Ulcer Grading Tool

How to use this tool well

- Firstly, recognise when a lesion is a pressure ulcer and when it is not.
- Consider other causes for ulceration in line with patient co-morbidities and where not deemed pressure use alternative grading tools such as TEXAS
- Where necessary seek specialist advice and intervention from Podiatry and Tissue Viability
- Do not use this tool to assess wound healing. This tool is a diagnostic tool and should be used accordingly
- Accurate and appropriate treatment planning is vital. Recording offloading measures put in place and plan for assessment and review is essential to ensure good patient care and to prevent further deterioration.

Key Principles of pressure ulcer grading as advised by Healthcare Improvement Scotland (2015)

- Knowing how to grade a pressure ulcer accurately requires knowledge of the skin and its underlying anatomy. You must also be able to recognise different types of tissue and be able to differentiate between healthy tissue and damaged tissue.
- Making a visual assessment of a lesion is the most common way to defining whether or not it is a pressure ulcer. Our grading and excoriation tools as well as discussion with colleagues can assist your assessment. Podiatrists, Nurse specialists in the field of Tissue Viability and Dermatology are also excellent points of reference.
- Once a lesion is classified as a pressure ulcer, it is important that the ulcer is assessed. You can determine its severity by allocating an appropriate grade.
- Once a grade is allocated, you should formulate an appropriate plan of care, allocate appropriate resources and implement the plan. Such action(s) should prevent the ulcer from getting worse and prevent further ulcers from developing.
- In accordance with good practice, you should always document your actions, and this information should be made accessible to all staff involved in the care of an individual who has developed a pressure ulcer, or who is at risk of doing so.
- You must evaluate all plans of care on a regular basis in order to determine if the plan of care is working in the way that it is intended.
- A pressure ulcer grading tool acts as a method of communication

See page 11 for information on reporting of pressure ulcers

Scottish Adaptation of the European Pressure Ulcer Advisory Panel (EPUAP) Pressure Ulcer Classification Tool

NATVNS

Early warning sign - Blanching erythema

Areas of discoloured tissue that blanch when fingertip pressure is applied and the colour recovers when pressure released, indicating damage is starting to occur but can be reversed. On darkly pigmented skin blanching does not occur and changes to colour, temperature and texture of skin are the main indicators.

Grade 1 - Non Blanchable Erythema

Intact skin with non-blanchable redness, usually over a bony prominence.
Darker skin tones may not have visible blanching but the colour may differ from the surrounding area.
The affected area may be painful, firmer, softer, warmer or cooler than the surrounding tissue.

Grade 2 - Partial thickness skin loss

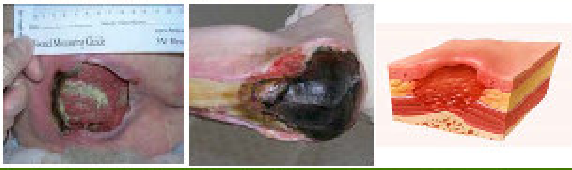
Loss of the epidermis/dermis presenting as a shallow open ulcer with a red/pink wound bed without slough or bruising.*
May also present as an intact or open/ruptured blister.

Grade 3 - Full thickness skin loss

Subcutaneous fat may be visible but bone, tendon or muscle is not visible or palpable.
Slough may be present but does not obscure the depth of tissue loss. May include undermining or tunnelling. **

Grade 4 - Full Thickness Tissue Loss

Extensive destruction with exposed or palpable bone, tendon or muscle. Slough may be present but does not obscure the depth of tissue loss. Often includes undermining or tunnelling.**



Suspected Deep Tissue Injury:

Epidermis will be intact but the affected area can appear purple or maroon or be a blood filled blister over a dark wound bed. Over time this skin will degrade and develop into deeper tissue loss.
Once grade can be established this must be documented.

Ungradable:

Full thickness skin / tissue loss where the depth of the ulcer is completely obscured by slough and / or necrotic tissue. Until enough slough and necrotic tissue is removed to expose the base of the wound the true depth cannot be determined. It may be a Grade 3 or 4 once debrided. Once grade can be established this must be documented.

Combination Lesions:

These are lesions where a combination of pressure and moisture contribute to the tissue breakdown.
They still need to be graded as pressure damage as above but awareness of other causes and treatments is needed.
See Excoriation & Moisture Related Skin Damage Tool

*Bruising can indicate deep tissue injury
**The depth of a Grade 3 or 4 pressure ulcer varies by anatomical location. Areas such as the bridge of the nose, ears, occiput and malleolus do not have fatty tissue so the depth of these ulcers may be shallow. In contrast areas which have excess fatty tissue can develop deep Grade 3 pressure ulcers where bone, tendon, muscle is not directly visible or palpable.

Ref: European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel. (2009) Prevention and treatment of pressure ulcers: quick reference guide. National Pressure Ulcer Advisory Panel, Washington DC
NHS Quality Improvement Scotland (2009) Best Practice Statement: Prevention and management of pressure ulcers. NHS Quality Improvement Scotland, Edinburgh

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CPR for Diabetic Feet

Additional learning available - www.diabetesframe.org or LearnPro module - CPR for diabetic feet

DO NOT DELAY INTRODUCTION OF OFFLOADING PRODUCT IF ANY CONCERNS FOR PATIENT

Whilst being designed for diabetic patients, the principals of CPR for diabetic feet, translate universally and the techniques and advice can be adopted to continue and extend good practice for all compromised and vulnerable patients.

Guidance for DATIX Reporting

There is a strong need for consistency in reporting and recording pressure ulcer occurrence. NHS Fife operate a zero tolerance to pressure ulcers. It is important to remember that reporting via DATIX or similar systems allows suitable recording and mangement of situations and should not be viewed as a "blame culture" system.

All Grade 2, 3 and 4 pressure ulcer **must** be reported via DATIX and the guidance for reporting follows:

- Holistically assess the patient and their wound/s.
- Complete all relevant documentation.
- Determine the grade of the wound/s using the European Pressure Ulcer Grading Tool (EUPAP).
- Report all pressure wounds unless you have clear confirmation that this has already been done. Contact DATIX administrator if required to prevent duplication of reporting.
- All grade 2 pressure ulcers must be reported as **MODERATE** severity grading.
- All grade 3 and 4 pressure ulcers must be reported as **MAJOR** severity grading.
- Ensure you have documented the following in your information –
    - pressure relieving equipment currently insitu or what has been ordered including the date ordered
    - patient's Waterlow score or PPURA for inpatient settings
    - the current wound care regimen
    - GP and practice details for community incidents
- The reporter should include their e-mail address to allow feedback

Please ensure you document the DATIX web number in the patient's notes and include it in any relevant documentation such as internal transfer information and discharge letters.

Staff must remember that it is only pressure ulcerations which must be reported via DATIX. Wounds developed as a result of other causes do not routinely need to be reported although the continuation of good practice is also fundamental for these individuals.

Monographs for Offloading

Product	**REPOSE boot** 	REPOSE Plus  Retention strap with magnets	**REPOSE cushion** 	REPOSE wedge 
Cost	NHS costing Small boot 6501100 - £62 pump and set of 2 REPOSE Plus 6511100 - £64.89 pump and set of 2 Cushion 6201100 – £44.10 each cushion with pump Wedge 6711100 - £79 each wedge with pump Non NHS costing Small boot 6501100 - £89 pump and set of 2 REPOSE plus 6511100 – £104 pump and set of 2 Cushion 6201100 – £70 each cushion with pump Wedge 6711100 - £79 each wedge with pump		Large boot 6021100 - £69 pump and set of 2 Large boot 6021100 - £94 pump and set of 2	
Uses	Provides effective pressure redistribution for all people at risk of developing pressure ulcers, including those assessed as very high risk. Typically for use in people who have been confined to bed			
Best for	• Immobile patients • All round support and protection • For individuals who will not tolerate boot around foot, wedge/cushion can be considered to offload heel pressures in bed			
Considerations	• REPOSE may stick to fragile skin and cause sweating, use of pillow cases, etc prevent this but must be loose and not cause “hammocking” effect • Can be used in conjunction with light bandaging to maintain in place or consider REPOSE Plus • Not suitable for use during mobilisation • Washable			
Calf size/Shoe size	N/A			
Weight/ Bariatric	Max weight 139kg – full body across all products All products unsuitable for weights in excess of this so may not be suitable for Bariatric patients			
ADC	Small boot – Yes	Large Boot – No	Cushion = No	
Single Patient Use	No			

Prices correct as at July 2015. Costs may be subject to VAT and delivery costs

Product	FootSafe Prevention Boot  FootSafe Protection Boot  HeelSafe Over Mattress Pad  SoleSafe Bed End Pad 
Cost	**FootSafe Prevention Boot (SOLD IN PAIRS)** Uncovered, Pre-I nflated - Small Adult PHPB-UC-PI-SM-P - £70, Standard Adult PHPB-UC-PI-ST-P - £80, X Large Adult PHPB-UC-PI-XL-P - £90 Uncovered, Inflatable, WITH manual Pump - Small Adult PHPB-UC-IP-SM-P - £80, Standard Adult PHPB-UC-IP-ST-P - £90, XLarge Adult PHPB-UC-IP-XL-P - £100 Uncovered, Inflatable, NO Pump - Small Adult PHPB-UC-NP-SM-P - £75, Standard Adult PHPB-UC-NP-ST-P - £85 Large Adult PHPB-UC-NP-XL-P - £95 **FootSafe Protection Boot (SOLD IN PAIRS)** Covered, Pre-I nflated - Small Adult PHPB-C-PI-SM-P - £120, Standard Adult PHPB-C-PI-ST-P - £130, X Large Adult PHPB-C-PI-XL-P - £160 Covered, Inflatable, WITH manual Pump - Small Adult PHPB-C-IP-SM-P - £130, Standard Adult PHPB-C-IP-ST-P - £140, X Large Adult PHPB-C-IP-XL-P - £170 Covered, Inflatable, NO Pump - - Small Adult PHPB-C-NP-SM-P - £125, Standard Adult PHPB-C-NP-ST-P - £135, X Large Adult PHPB-C-IP-XL-P - £165 **HeelSafe Over Mattress Pad** Uncovered, Pre-I nflated - PHP-UC-PI-OS - £55, Uncovered, Inflatable, WITH manual Pump - PHP-UC-IP-OS - £65, Uncovered, Inflatable, NO Pump - PHP- UC-NP-OS - £60 Covered, Pre-I nflated - PHP-C-PI-OS - £90, Covered, Inflatable, WITH manual Pump - PHP-C-IP-OS - £100, Covered, Inflatable, NO Pump - PHP-C-NP-OS - £95 **SoleSafe Bed End Pad** Uncovered, Pre-I nflated - PSP-UC-PI-OS - £55, Uncovered, Inflatable, WITH manual Pump - PSP-UC-IP-OS - £65, Uncovered, Inflatable, NO Pump - PSP- UC-NP-OS - £60 Covered, Pre-I nflated - PSP-C-PI-OS - £90, Covered, Inflatable, WITH manual Pump - PSP-C-IP-OS - £100, Covered, Inflatable, NO Pump - PSP-C-NP-OS - £95
Uses	FootSafe Prevention – suitable for heel pressure protection in the "at risk" patient, not for use with existing heel ulcerations FootSafe Protection, HeelSafe and SoleSafe – offers protection from pressure forces. Designed for patients with existing heel ulceration or those with a high risk of developing an ulcer
Best for	• FootSafe prevention/protection boots – for non ambulatory use only • For individuals who will not tolerate boot or who self mobilise and require pressure relief only in bed the HeelSafe and SoleSafe may be considered
Considerations	• FootSafe prevention/protection have adjustable straps which allow it to remain in place and minising movement of the boot, increasing patient comfort and allowing for swelling of legs and bulky wound dressings • All products are fully washable
Calf size/Shoe size	FootSafe All products – Small Adult UK Shoe Size 2-7, Standard Adult UK Shoe Size 7.5-11, XLarge Adult UK Shoe Size 11+ HeelSafe – One Size W80cm x L66cm SoleSafe – One Size W80cm x H28cm
Weight/Bariatric	No maximum reported
ADC	No
Single Patient Use	No

Prices correct as at July 2015. Costs may be subject to VAT and delivery costs

Product	**LEEDER** 
Cost	NHS costing Regular ambulatory LBAR - £29.95 each — Large ambulatory LBAL - £29.95 each Regular non ambulatory LBR - £53.30 each — Large non ambulatory LBL - £53.30 each Non NHS costing Regular ambulatory LBAR - £53.30 each — Large ambulatory LBAL - £53.30 each Regular non ambulatory LBR - £53.30 each — Large non ambulatory LBL - £53.30 each
Uses	Can be used in presence of foot drop, Pressure sore prevention and non fixed plantar flexion contracture
Best for	• Suitable for in bed, transferring, short distance mobilising and in seated position • Offloading of posterior heel in bed and chair • Patients with lateral complications when supine as anti-rotation bar can prevent foot drift • Patients with cognitive issues who attempt to remove products – very firm Velcro maintains in place
Considerations	• Comes in both ambulatory and non-ambulatory – consider reasoning for non-ambulatory choice in NHS due to limited difference in boot but considerable cost increase • Anti-rotation bar can help with foot drift in bed • Can remain in place for transfer, sitting in chair and mobilisation • Only offers posterior protection to heel so limited plantar relief whilst sitting or weightbearing • Other areas of the leg and foot may be subject to pressure from the boot, so it is important to consider pressure and skin integrity of all areas in contact with the boot such as sides of feet and Achilles Tendon, etc • Patients who sleep on their side or in contracted positioning, product offers no protection to malleoli areas • Machine washable cover • May increase patient instability – take care in unstable patient required to mobilise unaided or unsupervised • Heel must not come in to contact with product at back at all or ineffective and will increase risk and complications
Calf size/Shoe size	Regular up to 400mm Large > 400mm
Weight/Bariatric	Foot Extender and Calf Extender pads can be ordered to allow to fit over large calves and feet Ensure heel does not come into contact with rear of boot
ADC	LBAR – Yes LBAL – Yes LBR – No LBL - No
Single Patient Use	Yes

Prices correct as at July 2015. Costs may be subject to VAT and delivery costs

Product	**PODUS (PODOUS)** 
Cost	Regular 79-90550 - £27 each X Large 79-90551 – £29 each
Uses	Help treat and prevent lower extremity disorders associated with trauma or immobility including pressure necrosis, and ankle contractures Adjustable toe extension helps protect toes from bedding. Anti-rotation bar may be repositioned to assist with internal or external rotation.
Best for	• Offloading of posterior heel in bed and chair • Suitable for in bed, transferring, short distance mobilising and in seated position • Patients with lateral complications when lying on their backs as anti-rotation bar can prevent foot drift
Considerations	• Supplier has written to advise upcoming price increase 2.5% • Cognitive issues and patient will be able to remove • Significant mobilisation in boot unsuitable • Anti-rotation bar can help with foot drift in bed • Toe extension can be utilised to prevent bed sheets from causing pressure • Can remain in place for transfer, sitting in chair and mobilisation • Only offers posterior protection to heel so limited plantar relief whilst sitting or weightbearing • Patients who sleep on their side or in contracted positioning, product offers no protection to malleoli areas • Other areas of the leg and foot may be subject to pressure from the boot, so it is important to consider pressure and skin integrity of all areas in contact with the boot such as sides of feet and Achilles Tendon, etc. • Machine washable cover • May increase patient instability – take care in unstable patient required to mobilise unaided or unsupervised • Heel must not come in to contact with product at back at all or ineffective and will increase risk and complications
Calf size/Shoe size	Regular < or = 22” X Large < or = 25”
Weight/Bariatric	Ensure adequate attachment and hold around large calves and feet to ensure product does not move and increase falls risk Ensure heel does not come into contact with rear of boot
ADC	Regular – No X Large - No
Single patient use	Yes

Prices correct as at July 2015. Costs may be subject to VAT and delivery costs

Product	**Heelift Suspension Boot** 
Cost	£56.32 each
Uses	Typically for use in people who have been confined to bed Includes an extra pad which can be used to help prevent hip rotation or foot drop
Best for	• Variety of pressure areas including Achilles Tendon, malleoli, etc where internal padding can be cut and modified to assist with positioning and pressure • Advice for customisation and fitting guide can be found at: http://www.vmorthotics.co.uk/forms/HLforms/Heelift-sus-applics.pdf while http://www.vmorthotics.co.uk/Heelift_Videos_HL.php provides useful video links for customisation.
Considerations	• Machine washable • The pad can easily be customised to address Achilles tendon erythema and other high pressure areas • Significant leg rotation – additional pad supplied to attached as anti-rotation • Best used for bed bound patients • Issues have been noticed with product moving and increasing pressure to vulnerable areas • Strapping may caution friction and trauma to leg if applied incorrectly or too tightly so must be monitored and used with caution in those with large bulk to calves
Calf size/Shoe size	Comes in 3 sizes – Petite (15-25cm calf circumference) Standard (20-36cm) and Bariatric (30-58cm)
Weight/Bariatric	Petite Size for 32kg-50kg patient weights, Standard Size for 54kg-113kg patient weights & Bariatric Size for 100kg-271kg patient weights
ADC	No
Single patient use	Yes

Prices correct as at July 2015. Costs may be subject to VAT and delivery costs

Product	**Sundance Fluidised Medium** 	**DAP600 Static Air** 	**DAP600z Air Fluidized** 
Cost	Sundance Fluidised Medium from £68 DAP600 Static Air - £50 DAP600z Air Fluidized - £60		
Uses	Heel suspension boot		
Best for	• Immobile patients • Mainly used in bed but sometimes when sitting • All round support and protection • DAP600 suitable for heel pressure protection in the “at risk” patient, not for use with existing heel ulcerations • Fluidised medium can be used to • Fluidised medium is suitable for bariatric patients to support leg and foot		
Considerations	• Fluidised medium must be placed in pillow case or similar and should not be in direct contact with patient skin • Fluidised medium can reduce shear and friction • Fluidised Medium should be contoured to the leg position for maximum benefit • Patient with contracture or small calf muscles may find heels continued to be exposed to pressure as insufficient offloading • All products are unsuitable for use during mobilisation • DAP600 is suitable for use in early prevention of tissue damage only • DAP600z can be used for prevention and to aid healing in existing pressure ulcerations • DAP 600z contains fluidised medium in Achilles tendon area and for maximum benefit this should be contoured to position and support ankle		
Calf size/Shoe size	Not reported		
Weight/Bariatric	No maximum reported		
ADC	No		
Single Patient Use	No		

Prices correct as at July 2015. Costs may be subject to VAT and delivery costs

Product	**MaxXcare Heel Protector** 
Cost	NHS costing Standard £25.67 each Extra Large £27.62 each Non NHS costing Standard £29.15 each Extra Large £31.15 each
Uses	Offloads the heel and ankle for total pressure relief. It offers protection against shear and friction on the heel.
Best for	• Suitable as a prevention device for patients. • Can be used as an additional therapeutic measure for patients with existing decubitus of the heel or ankle • Reduces the pain during prolonged periods of bed rest • Helps to prevent footdrop
Considerations	• Utilised primarily as preventative measure but can be used in place with existing breakdowns • Does not restrict in-bed mobility and can be worn whilst mobilisation over short distances • Machine washable at 60^{o}C • May increase patient instability – take care in unstable patient required to mobilise unaided or unsupervised
Calf size/Shoe size	For boot sizing measure contour of instep Standard – under 45cm/18 inch Extra Large – greater than 45cm/18 inch
Weight	None reported
ADC	No
Single Patient Use	Yes

Prices correct as at July 2015. Costs may be subject to VAT and delivery costs

Product	**Heelmedix** 
Cost	£30 each
Uses	Relieves pressure on vulnerable heels Completely off-loads the heel and helps redistribute pressure Open heel design allows for airflow and easy monitoring
Best for	• Relieves pressure on vulnerable heels • Open heel design allows for airflow and easy monitoring • Straps pull down on sides to help protect against foot drop • Inner lining helps reduce friction and shear on heels
Considerations	• Side strap help protect against foot drop • Inner lining helps reduce friction and shear on heels • May provide protection and cushioning to other vulnerable areas such as ankles • An optional wedge can be used to help prevent medial and lateral rotation • Machine washable up to 30 times • Not for use in mobilisation
Calf size/Shoe size	Petite – 5-11 Inches, Regular 11-19 Inches, Extra large 19-25 Inches
Weight/Bariatric	None reported
ADC	No
Single Patient Use	Yes

Prices correct as at July 2015. Costs may be subject to VAT and delivery costs

Localised pressure, friction and shear prevention

Product	**ADERMA dermal pad** 
Cost	£24.98 for set of 2
Uses	Designed to prevent pressure ulcers. ADERMA works by redistributing pressure to protect critical areas. Typically used over bony areas to help prevent tissue damage
Best for	• High risk pre ulcerative areas. • Bony areas of high pressure
Considerations	• Can be hand washed • A preventative measure only, the product is contraindicated in those with an existing ulcerated area • Significant patient movement is an issue • These do not measurably redistribute pressures and should be with caution and under advisement • Have been shown to be well tolerated in the mobilising patient requiring additional localised cushioning to prevent breakdown
Calf size/Shoe size	N/A
Weight/Bariatric	N/A
ADC	No
Single Patient Use	Yes

Prices correct as at July 2015. Costs may be subject to VAT and delivery costs

Product	Bed cage/Blanket Raiser  Product 1  Product 2  Product 3
Cost	Variety of products available with varying costs but these can be sourced easily from most specialist mobility shops, chemists and online for around £20
Uses	Keep blankets and pressure off painful legs and feet
Best for	Reducing weight and pressure related problems to tender and painful legs and feet Prevent apical breakdown of toes from pressure from bedding
Considerations	A large variety of products is available and there are many things to consider when ordering the necessary product • How does patient get in and out of bed and will placement of device hinder or prevent this? • Do patients feet move considerably and will device cause potential trauma? • Is mattress thick and will device sit high enough from feet if placed under mattress? • Will the device have the strength to hold the blankets placed upon it?
Calf size/Shoe size	N/A
Weight/Bariatric	Device dependent but must be considered if heavy duvet is to be placed on top that device can hold it For Bariatric care, important to ensure adequate height from bed to not cause damage or trauma to feet and legs
ADC	No
Single Patient Use	No

Prices correct as at July 2015. Costs may be subject to VAT and delivery costs

Product	**Parafricta bootee** 
Cost	£40.75 ex VAT each (retail) £35.14 each (drug tariff price)
Uses	Offer protection to patient skin from the damaging effects of surface friction and shear on skin integrity.
Best for	Protection against breakdown due to friction and shear, particularly in the heel area. Protects wound dressings on the foot, especially the heel, from being lost due to friction.
Considerations	• Will not prevent pressure as a standalone agent but can be used in conjunction with other offloading measures • Alternatively can be used stand alone to prevent tissue damage in those only at risk of shearing stress or friction abrasions • Partial non slip sole for mobilising and transfer (not to be used as a slipper for walking) • Will assist in keeping dressings in place • 2 varieties available – slip-on, sock-like product and Velcro-fastened product (for swollen or bandaged foot, allowing adjustment throughout the day as required)
Calf size/Shoe size	Sizes available: Extra Small, Small, Medium. Large, Extra Large
Weight/Bariatric	N/A
ADC	No
Single Patient Use	Yes (or can be washed at up to 70^{o}C and reused for another patient)

Prices correct as at July 2015. Costs may be subject to VAT and delivery costs

Mobilising and offloading

Product	**Forefoot offloader (DARCO Orthowedge)** 
Cost	NHS costing £12.75 each Non NHS costing £12.45 each Sizes available: Small RA64571, Medium RA64572, Large RA64573, Extra Large RA654574 (also available in an Extra Small size)
Uses	Used to offload forefoot when sitting and walking
Best for	Forefoot ulcerations Advice for usage can be found at: http://www.vmorthotics.co.uk/Orthowedge_Healing_Shoe.php
Considerations	• May increase patient instability – take care in unstable patient required to mobilise unaided or unsupervised • Patient must be taught to walk correctly in this as gait pattern must be altered to reduce trauma to toes • PEG assist insole (page 15) available which can be adapted for offloading specific areas • Can be worn with the Darco Twin Balance Shoe (non-medical shoe) to reduce the height discrepancy when wearing an orthopaedic device
Calf size/Shoe size	Unisex Shoes available in 5 sizes: Extra Small - up to shoe size 4 Small - 4.5 - 6 Medium - 6.5 - 8 Large - 8.5 – 10 Extra Large – 10.5 – 12.5
Weight/Bariatric	N/A
ADC	No
Single Patient Use	Yes

Prices correct as at July 2015. Costs may be subject to VAT and delivery costs

Product	**Rearfoor offloader (DARCO Heelwedge)** 
Cost	NHS costing £17.30 each Non NHS costing £13.25 each Sizes available: Small 091234301, Medium 091234087, Large 091234079 (also available in an Extra Small and Extra Large size)
Uses	Used to offload rearfoot when sitting and walking
Considerations	• May increase patient instability – take care in unstable patient required to mobilise unaided or unsupervised • Patient must be taught to walk correctly in this as gait pattern must be altered to reduce trauma to heels • PEG assist insole (page 15) available which can be adapted for offloading specific areas • Can be worn with the Darco Twin Balance Shoe (non-medical shoe) to reduce the height discrepancy when wearing an orthopaedic device
Calf size/Shoe size	Unisex shoes available in 5 sizes Extra Small - up to shoe size 4 Small - 4.5 - 6 Medium - 6.5 - 8 Large - 8.5 – 10 Extra Large – 10.5 – 12.5
Weight/Bariatric	N/A
ADC	No
Single Patient Use	Yes

Prices correct as at July 2015. Costs may be subject to VAT and delivery costs

Product	**DARCO All Purpose Boot** **(Available in flat, round toe version and a rocker sole, square toe version)** 
Cost	£14.24 each Sizes available – Small 091233709, Medium 091233691, Large 091233683, Extra Large 091233717 (also available in an Extra Small and Extra Large size)
Uses	Allows mobilisation with footwear which does not impinge on foot Suitable for patients with bulky dressings not accommodated by footwear
Best for	Patients with bulky dressings not easily accommodated by standard footwear
Considerations	• Significant anti-slip to sole of foot which can have issues for those with shuffling or poor swing phase gait • PEG assist insole (page 15) available which can be adapted for offloading specific areas and worn only with the rocker sole, square toe version not the flat sole version) • Option to be open toed or closed toed
Calf size/Shoe size	Unisex boots available in 5 sizes Extra Small - up to shoe size 4 Small - 4.5 - 6 Medium - 6.5 - 8 Large - 8.5 – 10 Extra Large – 10.5 – 12.5
Weight/Bariatric	N/A
ADC	No
Single Patient Use	Yes

Prices correct as at July 2015. Costs may be subject to VAT and delivery costs

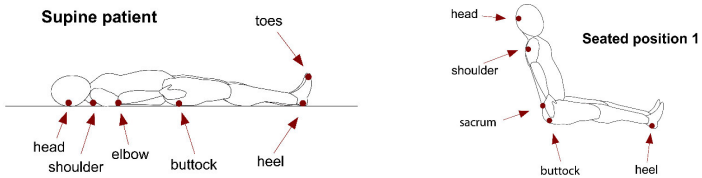
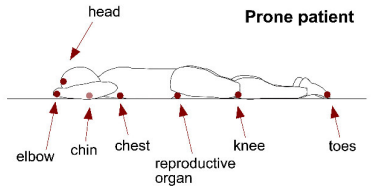
Product	DARCO Medical Surgical Shoe 
Cost	£9.25 each Comes in both male and female sizing Sizes available – Ladies: Small , Medium NV0302, Large NV0303 Mens: Small NV0313, Medium NV0314, Large NV0316, Extra Large NV0317
Uses	Allows mobilisation with footwear which does not impinge on foot Suitable for patients with bulky dressings not accommodated by footwear
Best for	Patients with bulky dressings not easily accommodated by standard footwear
Considerations	• Sizing relevant to sex • Significant anti-slip to sole of foot which can have issues for those with shuffling or poor swing phase gait • PEG assist insole (page 15) available which can be adapted for offloading specific areas
Calf size/Shoe size	Small - Men up to 8, Ladies up to 4 Medium - Men 8.5 - 10 Ladies 4.5 - 5.5 Large - Men 10.5 - 12 Ladies 6 - 7.5 Extra Large - Men 12.5 - 14
Weight/Bariatric	N/A
ADC	No
Single Patient Use	Yes

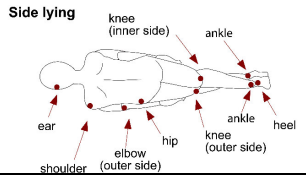
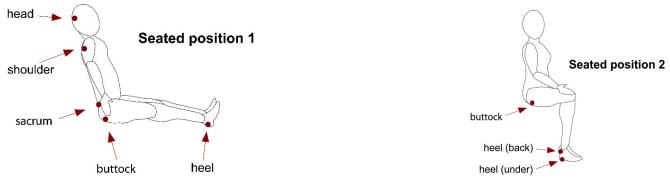
Prices correct as at July 2015. Costs may be subject to VAT and delivery costs

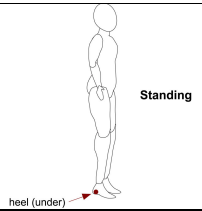
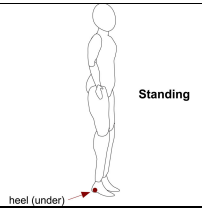
Product	**DARCO PegAssist Insole** 
Cost	NHS costing £10.70 each Sizes available: **For use with Heelwedge, Orthowedge and All Purpose Boot** Small 091233618, Medium 091233766, Large 091233634, Extra Large 031233758 for **For use with Medical Surgical Shoe** Ladies: Small 091233568, Medium 091235592, Large 091233642 Mens: Small 091233568, Medium 091233550, Large 091233543, Extra Large 091233584 Non NHS costing £11.45 each Sizes Available: **For use with Heelwedge, Orthowedge and All Purpose Boot** Small PA1(PQ1), Medium PA2 (PQ2), Large PA3 (PQ3), Extra Large PA4 (PQ4) **For use with Medical Surgical Shoe** Ladies: Small PA1W(PTQW1), Medium PA2W(PTQW2), Large PA3W (PTQW3), Mens: Small PA1M(PTQM1), Medium PA2M(PTQM2), Large PA3M (PTQM3), Extra Large PA4M (PTQM4)
Uses	Additional localised offloading of high plantar pressure areas in conjunction with DARCO Footwear
Best for	High pressure plantar pressure areas in need of offloading Advice for customisation and fitting guide can be found at: http://www.vmorthotics.co.uk/Peg-Assist.php
Considerations	Insoles relevant to specific footwear, ensure that ordered item is correct
Calf size/Shoe size	Small - Men up to Size 8, Ladies up to Size 4 Medium - Men 8.5 - 10 Ladies 4.5 – 5.5 Large - Men 10.5 - 12 Ladies 6 – 7.5 Extra Large - Men 12.5 – 14 (To fit Medical Surgical Shoes) Extra Small up to Size 4 Small 4.5 - 6 Medium 6.5 - 8 Large 8.5 - 10 Extra Large 10.5 – 12.5 (To fit Orthowedge, Heelwedge & High Boots with rocker sole)
Weight/Bariatric	N/A
ADC	No
Single Patient Use	Yes

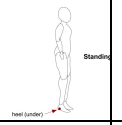
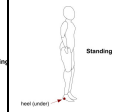
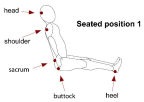
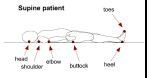
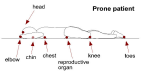
Prices correct as at July 2015. Costs may be subject to VAT and delivery costs

Patient positioning and offloading recommendations

Bedbound patient (whilst in bed or solely bedbound patients)	
Aim to assess the needs at all times throughout the day to ascertain the single best product for use to prevent requirement for multiple changes and multiple product supplies. Secondary items such as mattresses and cushions may be required to protect other areas but for foot protection:	
Ulcer consideration	• **Toes – is this as result of tight fitting bed sheets or heavy bedding? Consider bed cage/blanket raiser or loose fitting light sheets** • **Plantar surface of feet – are feet in contact with board at end of bed, can bed be extended can pillow protect?**
Supine patient	
Consider:	• Additional supportive and offloading cushioning • REPOSE boot/REPOSE Plus • REPOSE cushion/wedge • FootSafe Prevention/Protection • HeelSafe/SoleSafe • Heelift Suspension Boot • Sundance Fluidised Medium • DAP600 Static Air/DAP600z Air Fluidised • MaxXcare Heel Protector • Heelmedix boot • Friction and shear prevention –Parafricta
Prone patient	
Consider:	• Additional supportive and offloading cushioning • REPOSE cushion • FootSafe Prevention/Protection • HeelSafe/SoleSafe • Friction and shear prevention –Parafricta

Side lying	
Consider:	• Additional supportive and offloading cushioning • REPOSE boot/REPOSE Plus • REPOSE cushion • FootSafe Prevention/Protection • HeelSafe/SoleSafe • Heelift Suspension Boot • Sundance Fluidised Medium • DAP600 Static Air/DAP600z Air Fluidized • MaxXcare Heel Protector • Heelmedix boot • Friction and shear prevention –Parafricta
Non-weightbearing transfer patient	
Aim to assess the needs at all times throughout the day to ascertain the single best product for use to prevent requirement for multiple changes and multiple product supplies. Secondary items such as mattresses and cushions may be required to protect other areas but for foot protection:	
Seated position	 Foot pressure will alter from posterior to plantar and product with dual properties is best
Consider:	• Additional supportive and offloading cushioning • REPOSE boot (with light bandaging to retain in place)/REPOSE Plus • REPOSE cushion (under feet) • FootSafe Prevention/Protection • HeelSafe (under feet) • Heelift Suspension Boot • Sundance Fluidised Medium • DAP600 Static Air/DAP600z Air Fluidized • Heelmedix boot • Friction and shear prevention –ADERMA and Parafricta

Semi-mobilising patient (short distance transfer and mobilisation)	
Aim to assess the needs at all times throughout the day to ascertain the single best product for use to prevent requirement for multiple changes and multiple product supplies. Secondary items such as mattresses and cushions may be required to protect other areas but for foot protection:	
	
Consider:	**Always consider patient stability prior to supply of product as any offloading device may increase instability and falls risk of patient.** • LEEDER • PODUS • MaxXcare Heel Protector • Plantar ulcerations –DARCO APB/Medical Surgical shoe to accommodate dressings, with addition of DARCO PegAssist Insole • Intact patients requiring cushioning as preventative measure - ADERMA
Fully mobilising patient	
Aim to assess the needs at all times throughout the day to ascertain the single best product for use to prevent requirement for multiple changes and multiple product supplies. Secondary items such as mattresses and cushions may be required to protect other areas but for foot protection:	
	
Consider:	**Always consider patient stability prior to supply of product as any offloading device may increase instability and falls risk of patient.** • LEEDER • PODUS • Rearfoot – a heelwedge shoe will offload the heel successfully when mobilising • Forefoot – an orthowedge shoe can significantly offload forefoot ulcerations both plantar and distally • Plantar ulcerations –DARCO APB/Medical Surgical shoe to accommodate dressings, with addition of DARCO PegAssist Insole • Intact patients requiring cushioning as preventative measure - ADERMA

Product			Patient positioning and movement							
	Pressure Ulcer development		Mobilising		Seated		Bedbound			Bariatric/ Obese
			Fully	Partially	Position 1	Position 2	Supine	Prone	Side lying	
	At Risk	Existing Ulcer								
REPOSE boot	✓	✓			✓	O **with bandage**	✓		O	
REPOSE Plus	✓	✓			✓	O	✓		O	
REPOSE cushion	✓	✓			✓	O **underfoot**	✓	✓	O	
REPOSE wedge	✓	✓			✓		✓		O	
FootSafe Prevention	✓				O	O	✓		O	✓
FootSafe Protection	✓	✓			O	O	✓		O	✓
HeelSafe	✓	✓			✓	O **underfoot**	✓	✓	O	✓
SoleSafe	✓	✓					✓	✓	O	✓
LEEDER	✓	✓	✓	✓	✓	✓	✓			O
PODUS	✓	✓	✓	✓	✓	✓	✓			O
Heelift Suspension Boot	✓	✓			✓	O	✓		O	✓
Sundance Fluidised medium	✓	✓			✓	O **underfoot**	✓		O	O
DAP600	✓					✓		✓	O	
DAP600z	✓	✓				✓		✓	O	
MaxXcare	✓	✓			✓	✓		✓	✓	
Heelmedix	✓	✓				✓	✓	✓	O	O
ADERMA				O	O	O	O			
Bed cage/Blanket raiser	✓							✓		
Parafricta Bootee **(friction prevention only, no effect on pressure)**						✓	✓	✓	✓	
Orthowedge	✓	✓	✓	✓		✓				O
Heelwedge	✓	✓	✓	✓		✓				O
DARCO APB	O	O	✓	✓		✓				O
DARCO Medical Surgical	O	O	✓	✓		✓				O
DARCO PegAssist	✓	✓	✓	✓		✓				O

✓ = suitable for use, O = may be suitable but clinical consideration and assessment is vital

References and reading list

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