Interprofessional Perspectives on Individualized Wound Device Product Selection©

A Kestrel *WoundSource* White Paper

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INTRODUCTION

Like many aspects of wound care, wound device product selection has become an increasingly complex and sophisticated process over the past several decades. Not only are more products available, but the challenge of matching the appropriate device for a specific patient's profile has become a rising expectation. From pressure redistribution surfaces to negative pressure wound therapy, the process of device selection requires careful interprofessional consideration of the individual's wound as well as his/her holistic, biopsychosocial needs and the setting/environment/access (Figure 1)(1). By utilizing interprofessional thinking, healthcare teams can "propose" solution[s] that would have been unattainable through single disciplinary means (2).

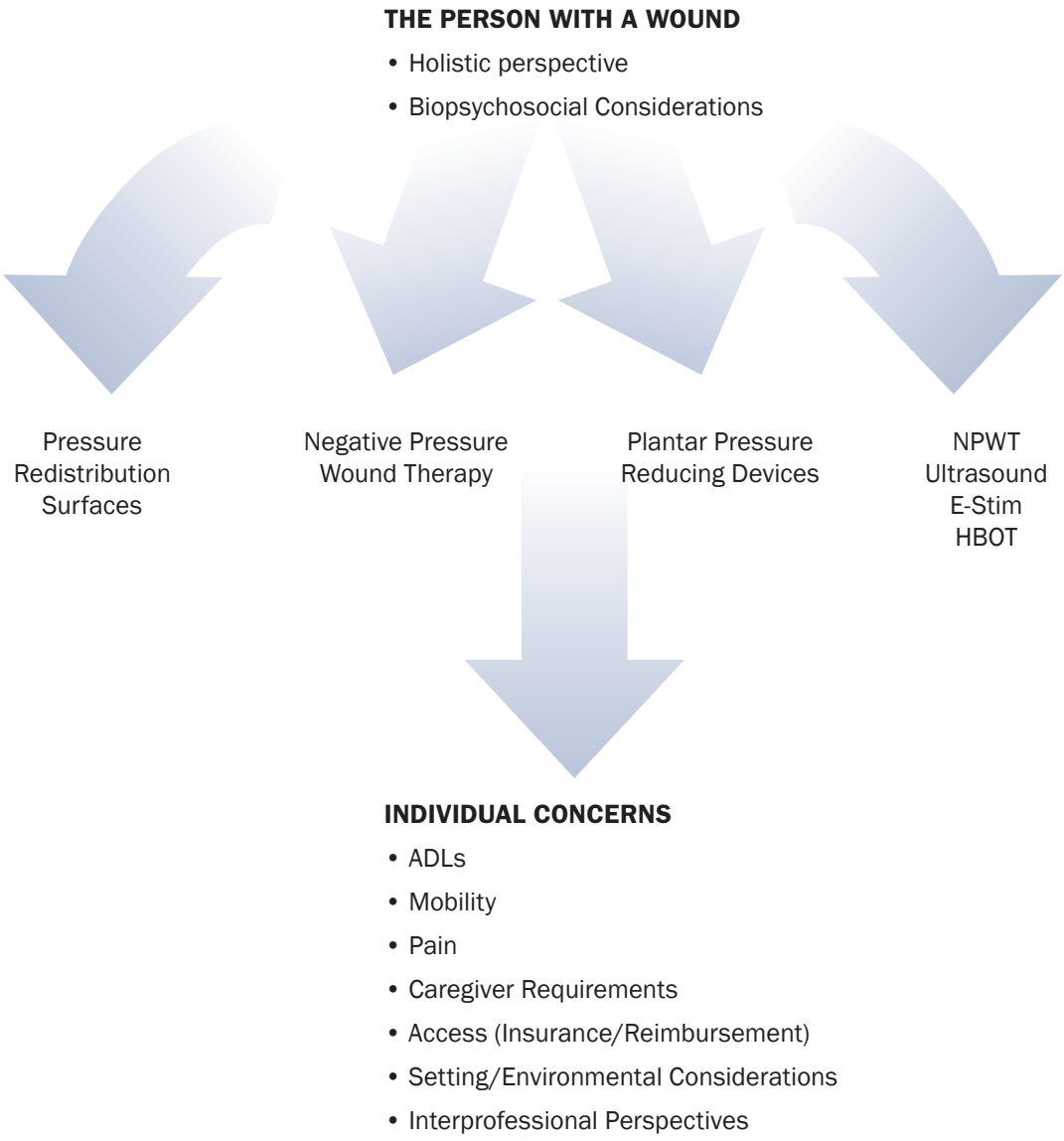
The following general categories of wound care-related devices will be reflected in this White Paper. Specific category and/or product information can be found at www.woundsource.com.

- Compression therapy devices
- Off-weighting devices (also known as off-loading devices)
- Adjunctive therapies, such as electrical stimulation, ultrasound and hyperbaric oxygen therapy (HBOT)
- Negative Pressure Wound Therapy (NPWT)
- Pressure redistribution surfaces (also known as specialty beds, support surfaces)

These devices cover a wide range of products: some are prescription; some are over-the-counter (OTC). Many are regulated or classified by the Food & Drug Administration (FDA) in the United States or a comparable agency in other countries. In the United States, the Centers for Medicare and Medicaid (CMS) may or may not reimburse for devices based on specific policies and criteria (e.g. Group 1, 2 and 3 support surface criteria; hyperbaric oxygen therapy coverage policies). Individual medical necessity, if it can be demonstrated by the prescriber, may enable an individual to obtain a reimbursed device under circumstances that usually would not be covered.

Wound care devices may or may not have indications, contraindications or precautions – just like medications. These are particularly important for such wound devices as NPWT and HBOT. The prescriber (physician or his/her designee, e.g. physician's assistant, nurse practitioner), is responsible for knowing the indications, contraindications and precautions and ascertaining whether a specific device is appropriate for an individual patient. Failure to do so can result in serious adverse outcomes with legal consequences.

FIGURE 1: WOUND DEVICE CONSIDERATIONS FOR THE PERSON WITH A WOUND



WOUND DEVICE PRODUCT USAGE ISSUES

In addition to labeled product usage guidelines from the manufacturer, facilities often have their own "policies and procedures" or "protocols" for using devices. It is important that such documents be updated on a regular basis; be updated whenever the manufacturer updates its guidelines for product use; reflect national and international best practices and guidelines (Figure 2)(3). All prescribers must be aware of such documents. Legal advisors suggest the facilities should call such documents "guidelines" instead of "policies and procedures" or "protocols" to reflect the need to individualize them for each patient and to reduce legal exposure (4). All prescribing healthcare professionals should be trained in the use of the device they are prescribing and if certification courses are available from the manufacturer, having prescribers certified is highly recommended by legal counsel and risk managers. Other process issues with legal ramifications related to devices usage include:

- Appropriate orders by appropriate prescribers
- Timely device initiation and discontinuation
- Documentation of device efficacy
- Patient/Caregiver education regarding device use, trouble shooting and who to contact in case of emergency
- Seamless transitioning across the continuum of care

Devices are frequently rented through a vendor or other external source. These relationships should be acknowledged by written contracts or agreements that specify vendor and facility responsibilities. Issues to consider include:

- Timely delivery and pick-up
- Support for problems/device malfunction
- For devices that are purchased and owned by the facility, the process for annual inspection by the manufacturer or in-house bioengineering

The "lens" through which wound device product selection is viewed, is – in part - a function of our professional training, considerations and vantage points. Three international thought leaders in wound care will now present their perspectives from the physician, nursing and therapist perspectives.

FIGURE 2; NATIONAL & INTERNATIONAL DEVICE-RELATED GUIDELINES, RESOURCES & WEBSITES

National Pressure Ulcer Advisory Panel (NPUAP)
Support Surface Standards Initiative: Terms and Definitions
Version 01/29/2007
http://www.npuap.org/NPUAP_S3I_TD.pdf

Cochrane Review on Support Surfaces
McInnes E, Bell-Syer SE, Dumville JC, Legood R, Cullum NA
Support Surfaces for Pressure Ulcer Prevention.
Cochrane Database Sept Rev. 2008; 4:CD001735

WEBSITES WITH DEVICE-RELATED INFORMATION

European Pressure Ulcer Advisory Panel
www.epuap.org

European Wound Management Association
www.ewma.org

World Union of Wound Healing Socities
www.wuwhs.org

World Wide Wounds
www.worldwidewounds.org

WoundPedia
www.woundpedia.org

Wound Source
www.woundsource.com

The Physician's Perspective on Individualized Wound Device Product Selection

R. Gary Sibbald BSc, MD, FRCPC (Med, Derm), MACP, FAAD, MEd, MAPWCA

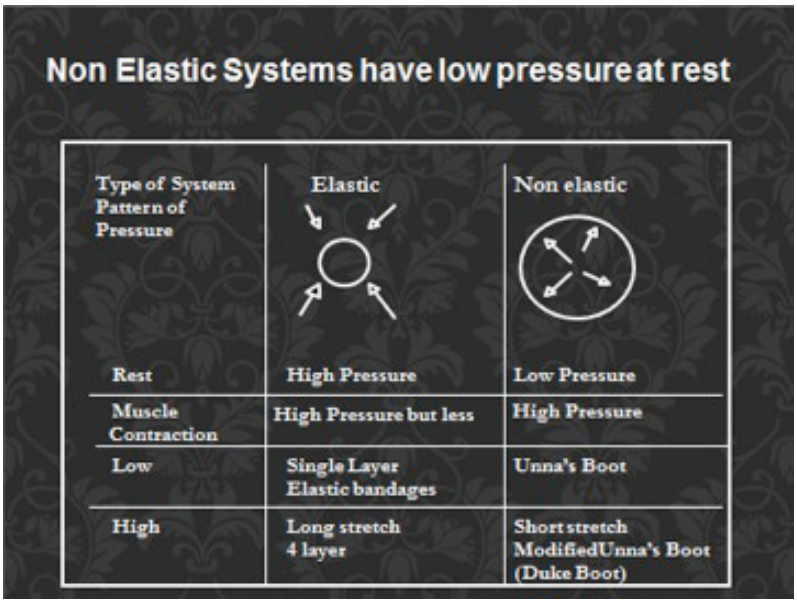
COMPRESSION AND VENOUS STASIS ULCERS

In the Wound Bed Preparation paradigm (5), members of the interprofessional wound care team need to treat the cause and address patient-centered concerns before considering the components of local wound care. In the case of venous ulcers, clinicians must rule out arterial disease with an ABPI (Ankle Brachial Pressure Index). If the ABPI (ankle systolic pressure over brachial systolic pressure expressed as a ratio) is between 0.8 and 1.2, persons with venous leg ulcers should receive compression bandages for healing and stockings to prevent recurrences post healing. The Cochrane Review on compression therapy (6) evidence base has concluded:

- Compression increases ulcer healing rates compared with no compression
- Multicomponent systems are more effective than single-component systems
- Multicomponent systems containing an elastic bandage appear more effective than those composed mainly of inelastic constituents

There are several multilayered elastic and inelastic systems available that deliver high compression (7). Two elastic systems are the four layer bandage systems and long stretch bandages. For high compression systems that are inelastic, there is the zinc oxide paste boot (Unna boot) that can be made more rigid with an outer layer of a flexible cohesive bandage (Coban™ over Zinc Oxide paste bandage = Duke Boot) or the Coban™ 2 layer bandage. After healing, it is recommended that patients with venous disease are transitioned into the appropriate compression stockings to help prevent recurrence.

That pain is much more common with venous disease has been discussed by Krasner (8) and the World Union of Wound Healing Societies consensus statements on pain (9 & 10). A patient with pain due to venous edema prior to the application of compression therapy may tolerate an inelastic support system and move up to an elastic system as the pain and edema are controlled. As illustrated in Figure 3 right (7):



Non-elastic systems have low pressure at rest (less squeezing) and may increase patient adherence until edema and pain control have been optimized. If appropriate, an elastic system can then be introduced.

Individuals with mixed venous and arterial disease but, who have an ABPI between 0.65 -0.80 should modify their compression therapy with modified product kits delivering lower compression (e.g. Profore lite™, Coban 2 lite™).

PLANTAR PRESSURE REDISTRIBUTION FOR DIABETIC AND OTHER NEUROPATHIC AND NEUROISCHEMIC FOOT ULCERS

Persons with loss of protective sensation are unaware of trauma or injury to the foot. These individuals often develop plantar calluses (increased pressure) and blisters (friction or shear) with the foot sliding or moving in relation to their footwear. These individuals have three important components (11 & 12) to address before considering sharp surgical debridement of the callus. Using the mnemonic VIP, they are:

V - VASCULAR SUPPLY: Must be adequate to heal: Palpable pulse, or when the pulse is not palpable, a biphasic or triphasic Doppler signal, toe pressure over 55 or transcutaneous oxygen saturation over 30 mm Hg.

I – INFECTION: There should be no signs of increased surface bacterial burden (any three signs from the NERDS mnemonic: Non-healing, ↑Exudate, Red friable granulation, Debris on the wound surface or Smell= use a topical antimicrobial) or deep and surrounding tissue infection (any three of the STONEES mnemonic: ↑Size, ↑Temperature, Os Latin for bone- exposed or probes, New areas of breakdown, Erythema or Edema= cellulitis, or ↑Exudate, Smell = use a systemic antimicrobial). If increased exudate and smell are present, an additional NERDS criteria is needed for a topical antimicrobial or and additional STONEES criteria for systemic antimicrobials or both (13 & 14).

P - PLANTAR PRESSURE REDISTRIBUTION: The gold standard is the contact cast that the patient cannot remove and will download the forefoot where 80% of neuropathic ulcers are usually located. Removable cast walkers (e.g. Air Cast or CROW walker) can be made non-removable by securing them with a fiberglass, flexible cohesive or zinc oxide bandage to increase adherence to treatment. Less expensive alternatives include the half shoe (absent forefoot for forefoot ulcers and absent heel for heel area ulcers) that comprises 10-15% of neuropathic ulcers. Many of these devices will have a rocker bottom surface. Other custom orthotics and footwear may be ordered in selected cases (15).

It is also important after the healing of a foot ulcer to order the correct orthopedic deep toed shoes and orthotics.

The last two treatments in this section are reserved for individuals with chronic wounds that have the cause corrected or compensated and there is adequate blood supply to heal. In addition, local wound care

should be optimized: adequate debridement, infection and persistent abnormal inflammation controlled and moisture balance optimized and still a healable wound is stalled. There are certain indications where acute wounds may have evidence for hyperbaric oxygen therapy and NPWT at an earlier stage.

HYPERBARIC OXYGEN

Hyperbaric oxygen therapy (HBOT) is the patient administration of 100 percent oxygen at airtight pressures greater than 1 atmosphere absolute (ATA). Adequate tissue oxygen tension is essential to wound healing. Diminished circulation and hypoxia increases lactate production that is deleterious to wound healing. HBOT sessions usually entail approximately 45 to 120 minutes in the chamber once or twice daily for 20-30 sessions. ***In vivo*** studies have shown that elevated arterial oxygen tensions can increase regulate growth factors, decrease regulate of inflammatory cytokines, promote angiogenesis, and exert antibacterial effects in wounds.

Hyperbaric oxygen is often beneficial with overwhelming infection as long as there is enough blood supply to heal and maintain the healing response. Pooled data from six randomized controlled trials on diabetic foot ulcers suggest a significant reduction in the risk of major amputation with HBOT (16) but wound size reduction and number of healed wounds was not increased.

High doses of oxygen are toxic, particularly to the brain and lungs. Other potential drawbacks of HBOT include damage to the ears and sinuses, time and direct cost associated with daily travel to and from the treatment center, and the psychological effect of confinement.

NEGATIVE PRESSURE WOUND THERAPY

Negative Pressure Wound Therapy (NPWT) is the delivery of intermittent or continuous sub-atmospheric pressure to the wound bed (17). There have been many interface surfaces between the wound and the NPWT suction device including gauze or open-celled foam composed of either polyurethane or polyvinyl alcohol that is cut and placed onto the surface of the wound. The foam is then sealed over with a transparent drape to create a closed airtight system. Contraction of the foam dressing exerts a centripetal effect at the wound edges and a mechanical force at the interface of the foam and wound. The suction effect and mechanical stress is transmitted to cellular and cytoskeletal levels causing deformation of Extracellular matrix (ECM) and cells that is postulated to promote cellular proliferation. Other potential advantages of NPWT are:

- Removal of excess interstitial fluid to reduce the intercellular diffusion distance
- Improvement of local wound blood flow
- Potential reduction of bacterial colonization
- Sequestration of excess matrix metalloproteinase (MMPs) and pro-inflammatory/ abnormal wound exude (18)

Armstrong (2005) conducted a multicenter randomized controlled trial (n=162) to examine the effect of NPWT in complex wounds after partial foot amputation to the trans-metatarsal level in patients

with diabetes (19). Fifty-six percent of the patients healed in the NPWT group compared to 39% of the control group (p=0.04). Investigations pertain to the management of acute post-surgical wounds using NPWT also demonstrated positive results (20 & 21). Many wound care experts utilize negative pressure wound therapy after acute surgical procedures especially when secondary infection is present (e.g. dehiscence of post sternotomy wounds).

The Ontario Health Technology Advisory Committee performed a systematic review on NPWT in 2010 (22) and concluded:

- Negative pressure wound therapy is an effective option in the management of diabetes foot ulcers
- Negative pressure wound therapy is an appropriate option for use following skin grafting of medium sized (around 30 cm^2) vascular ulcers and burns
- To optimize patient outcomes and safety, appropriate guidelines should be adhered to in the application of this technology

In conclusion, devices are important to facilitate the treatment of the cause of chronic wounds (compression for venous stasis and plantar pressure redistribution for neurotrophic foot ulcers). Other devices (HBOT, NPWT) optimize local wound care for stalled chronic but, also healable wounds as well as selected indications in acute wounds.

The Nurse's Perspective on Individualized Wound Device Product Selection

Kevin Y. Woo PhD RN FAPWCA

Pressure ulcers are a significant problem across the continuum of healthcare settings. The overall prevalence was 12.3% (N=92,408) in 2009 according to a national survey in US (23). The burden of pressure ulcers is significant with the average cost associated with the treatment of deep pressure ulcers and related complications being US $129,248 in acute care. People with pressure ulcers are beset by limited mobility, social isolation, depression, and persistent pain. In reviews of 53 studies, support surfaces (e.g. medical grade sheepskin, high-specification foam mattresses) have been recognized to reduce the incidence of pressure ulcers. Appropriate surfaces or mattresses facilitate pressure redistribution, remove pressure to injury prone areas (especially bony prominences) and spread weight evenly to avoid pressure build up. Foam, gel/water filled, and low air loss mattresses are commonly used. They are considered 'reactive' because the effect of pressure redistribution is based on the surface area that the body is in contact with the mattress; the larger the area of the body that is supported by the mattress, the lower the pressure at any given point of contact.

The majority of specialty surfaces are expensive but taking into account the number of ulcers that can be prevented, the calculated cost of using therapeutic surfaces and other preventative measures is approximately 40 times less than the standard care approach (24). Amidst the wide variety of options, clinicians should understand how to make the selection of the right mattress/surface for the right person (who?), the right clinical indication/circumstances (when?), the right length of time (how long?), and the right health outcomes (what to expect?). Remember: there are five rights for the use of therapeutic surfaces. The mnemonic MATTRESSES highlights 10 key factors that should be considered prior to using a support surface to ensure cost-effective use of resources to prevent pressure ulcers.

	INDICATION	RATIONALE
M	Microclimate and moisture	Low air loss for moisture problems (e.g. sweating) and heat accumulation
A	Activity levels	Certain surfaces may hinder mobility in bed and patient's ability to get out of bed
T	Tissue tolerance	Tolerance to pressure and other mechanical forces is determined by local perfusion and oxygen delivery
T	Total body weight	People with extreme BMIs (high or low) are more susceptible to pressure damage
R	Repositioning needs	Lack repositioning surface or difficulty with repositioning
E	Edema	Alternating pressure or pulsating surfaces may reduce edema and promote circulation
S	Shear and friction	Surfaces that conform to the body may prevent sliding and associated shear damage to the tissue
S	Symptom management	Pain, shortness of breath, fatigue, and other associated symptoms
E	Existing pressure ulcer(s)	Existing pressure ulcer(s) indicates that the person is at risk for further skin breakdown
S	Sites	Heels are more prone to pressure ulcers, heels should be managed independently of the support surface

HOW TO SELECT A SURFACE: THINK MATTRESSES

M - MICROCLIMATE AND MOISTURE: Increasing attention is drawn to the role of 'microclimate' in pressure ulcer care. Microclimate refers to the environment at or near the skin surface that is influenced by the combined effect of skin temperature, humidity/moisture, and air movement. An increase of 1° C in skin temperature results in an approximately 13% increase in tissue oxygen demand making the skin more vulnerable to mechanical damage. Excess moisture from incontinence, sweating, and wound exudation can cause skin maceration, weakening the connections between epidermal cells and collagen fibers. The interruption of normal barrier function increases skin permeability to irritants and pressure damages. Certainly, heat and moisture accumulation is directly related to air movement at the interface between the skin and the supporting surface. Some of the foam mattresses have poor heat properties and tend to 'hug' around the body limiting airflow. In contrast, low air loss or air fluidized beds (with vapor permeable covers) promote air circulation that cools the skin through convection and evaporation of moisture from the skin. This type of mattress may be beneficial for patients with severe burns. Other simple measures to control the microclimate include reducing the layers of pads underneath the patient as well as using incontinent briefs, covering, and clothing that is breathable (avoid plastic). It is important to monitor the skin hydration status to avoid excessive dryness that can also cause skin breakdown.

A - ACTIVITY LEVEL: Accumulating evidence suggests that people with restricted physical activities and mobility are at risk for pressure ulcers. Norton and colleagues have recently proposed (25) that activity levels should be considered when selecting a supporting surface. To optimize activities, clinicians must be aware of the potential of certain therapeutic support surfaces (i.e. foam, gel filled and air fluidized mattresses) that tend to mould around body contours (envelopment) and allow the body to sink into the surface (immersion) compromising the patient's ability to get in and out of bed and his/her independence.

T - TISSUE TOLERANCE: Skin breakdown is inevitable when metabolic demand outstrips the supply of oxygen and vital nutrients. The extent and severity of tissue injury is, however, dependent on a number of intrinsic factors that predispose individuals to the development of pressure ulcers. Some of these key factors are poor nutritional intake, low Body Mass Index (BMI<18.5), hypoproteinemia, low systolic blood pressure, anemia, contractures and prominent bony prominences, vascular disease, neuropathy, and uncontrolled diabetes. Because many of these factors are not addressed by pressure ulcer risk instruments, selection of support surfaces should be individualized, taking assessment of tissue tolerance to injury into consideration.

T - TOTAL BODY WEIGHT: Pressure and other mechanical forces compress, stretch, and distort the normal alignment of the soft tissue leading to potential injury. The impact of mechanical distortion of the tissue is more pronounced in patients who are emaciated. In one study, the maximum shear force at the coccyx was higher ($p<0.01$) in slender than obese individuals when the head of the bed was raised from the supine position (26). On the other extreme of the body weight spectrum, bariatric patients are also at high risk for pressure ulcer development due to a substantial stress that is put on the skin. Patients with either high or low BMI should be carefully evaluated for a supporting surface to prevent skin breakdown.

R - REPOSITIONING CHALLENGES: While frequent repositioning is deemed essential to manage pressure, it is not always feasible in critically ill patients as positioning may precipitate vascular collapse or exac-

erbate shortness of breath (e.g. advanced heart failure). A therapeutic surface is recommended for patients who cannot tolerate frequent repositioning or the head of bed less than 30 degrees (due to dyspnea or to prevent aspiration during enteral feeding). The turning frequency can be reduced by the use of redistributing support surfaces, however, prolonged exposure to low pressure can be equally damaging to tissue. Clinicians must not forget the need for repositioning despite the type of mattresses or specialty surfaces being utilized.

E – EDEMA: Edema, which stretches the skin and impairs the delivery of oxygen, is considered a risk factor for skin breakdown. By alternating air pressures in compartments of the mattress under the torso and leg that emulates the body's natural intermittent movements, it is hypothesized that the massage movements may reduce edema by improving capillary blood flow and oxygenation to the wound and skin. Further research evidence is needed to substantiate the physiological impact of alternating mattresses. Despite the potential benefits, alternating air mattresses may not be suitable for individuals with spinal instability, motion sickness, protracted pain and nausea. Individualized assessment is warranted.

S - SHEAR AND FRICTION: Development of pressure ulcers is a dynamic and complex process that involves the combined effect of mechanical forces including shear and friction in addition to pressure. Pressure is defined as the perpendicular force that is applied to the skin distorting and compressing underlying soft tissues, especially over bony prominences (27). Shear or shear stress is produced by displacement or deformation of tissue (usually in a diagonal direction) altering the original alignment of tissue as one layer of tissue slides over the deeper structure in opposite directions (bony skeleton moving in an opposite direction to the surface skin). Deformation disrupts the cell structure, obstructs lymphatic drainage, reduces blood flow, and potentiates ischemia.

In contrast, friction describes the resistance to movement created between two surfaces such as the superficial layers of skin and the adjoining support surface. By simply instituting measures to reduce friction, up to 16% of pressure ulcers can be prevented (28).

S - SYMPTOM MANAGEMENT: A supporting surface is often considered for palliative patients to promote comfort. The primary purpose may not be focused on pressure ulcer prevention but to ensure comfort at the end-of-life.

E - EXISTING PRESSURE ULCER(S): Patients with an existing pressure ulcer are usually at risk for developing further skin breakdown. For patients who have multiple ulcers, a supporting surface should be considered due to the lack of turning surfaces.

S – SITES: One of the areas that is most vulnerable to pressure-related skin damage is the heel. The heel has a pointed shape with a limited surface area of contact to redistribute pressure and when this is combined with the low subcutaneous tissue volume, this area is prone to pressure damage. Heel tissue is enveloped within the fibrous septa that allow pressure to build up easily and occlude vascular supply. Boots with the heel area cut out to allow the heel to be completely lifted off the surface are useful to prevent and treat pressure ulcers. Many different heel boots and positioning devices are available, however no one device works best in all circumstances. Special attention must be paid to potential damage to the lower leg areas where the pressure is redistributed.

The Therapist's Perspective on Individualized Wound Device Product Selection

Linda Norton OT Reg. (ONT), MScCH

Reflecting back to the wound bed preparation paradigm (5), allied health professionals can be especially helpful to manage the cause of wounds while addressing patient-centered concerns. Regardless of the type of wound, until the cause has been addressed, the wound will not progress to closure. The challenge, though, is to address the cause in a way that can be incorporated into the individual's lifestyle. Evidence-based practice is the integration of the best research evidence with clinical expertise and patient values (29). This approach is helpful when considering the prescription of devices to prevent or manage wounds, as the best device is not helpful if the patient does not use it, or the care providers do not know how to use or maintain the device.

When interpreting the evidence, clinical expertise is required as many of the studies have small sample sizes, are completed by the manufacturer and in the case of support surfaces, compare therapeutic support surfaces to standard hospital mattresses (i.e. foam and coil) (30). These studies also usually only consider an indirect measure (such as interface pressure), rather than an outcome measure (e.g. wound prevention or wound closure) (30). In addition, they do not address the impact on the individual's lifestyle or his/her safety. For example, when considering support surfaces in bed, healthcare providers must consider the risk of entrapment. Health Canada (31 & 32) and the FDA have released documents defining the seven zones of entrapment and guidance measurements:

1. Within the bed rail
2. Under the rail
3. Between the rail and the mattress
4. Under the rail at rail ends
5. Between split bed rails
6. Between end of rail and side edge of head or foot board
7. Between head or foot board and mattress end.

Prescription of a therapeutic support surface, whether an overlay or mattress replacement, may impact several of these zones (e.g. zone 2, 3, and 7). A standard measuring device is available to check to see if the new support surface increases the risk of entrapment by allowing spaces greater than those outlined in the guideline. The risk of entrapment may also be greater with support surfaces with large air bladders (these are usually found on low air loss, alternating, or rotating surfaces). These surfaces tend to collapse the further the individual moves to the edge (33) of the surface, even when a perimeter border is present within the mattress.

When an entrapment risk has been identified, bed rails should only be used with extreme caution, and be based on the needs of the individual patient. Some patients find the half bed rail at the head section helpful for repositioning. Another approach for people at high risk is to use an adjustable bed with a very low deck height and a floor mat. This approach allows the bed to be raised during care, to a comfortable height for care providers, but allows the bed to be low enough to help prevent injury if the person falls out of bed. Foam wedges and other devices are also available to help reduce the risk of entrapment.

In terms of pressure ulcer prevention and management, there is evidence that the use of a pressure management cushion reduces the risk of pressure ulcers, and extends the number of pressure ulcer free days for those who do eventually develop pressure ulcers (34). It has been demonstrated that higher peak pressures under the ischial tuberosities has been associated with increased pressure ulcer development (35). One way to evaluate pressure is through use of a pressure mapping device. This device helps the clinician visualize the interface pressure between the individual and the surface upon which he/she sits. Pressure maps must be interpreted with caution, however, as this technology does not measure shear, or consider other factors relevant to the prescription of a seat cushion. Other factors to consider include: comfort, postural stability, balance, cost, weight capacity and maintenance.

When considering an evidence-based approach, the individual's perspectives and values play a pivotal role. The literature suggests that anywhere between 30–70% of devices prescribed are abandoned by the user (36). The main reasons for abandonment include (36):

- Device did not provide the type or extent of assistance required
- Draws unwanted attention to the user
- Individual does not perceive he/she needs the device
- Fit between the individual's environment and the device
- User does not feel his/her opinions were considered
- Training not provided

In addition, the impact of the device on the person's independence also influences its use. For example, compression stockings are usually prescribed for people with venous insufficiency. Once a venous leg ulcer has closed, however, these stockings can be difficult for people to don and duff independently. Many devices have been designed to assist with this process, however, for people with arthritis, or issues with mobility, even when these devices do not foster independence. Many individuals do not want to be dependent on others as this may increase caregiver burden.

To summarize, an evidence-based approach should be taken in the selection and prescription of equipment to prevent and manage wounds. As the specific devices are often changing, the studies are often conducted by the manufacturers and the sample sizes are small; studies need to be interpreted with caution. Reviews, such as the Cochrane Review on Support Surfaces (37), and clinical practice guidelines such as the Registered Nurses Association Best Practice Guideline for the Prevention of Pressure Ulcers (38) or the European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel guidelines (39) may be more helpful for clinicians. Clinical judgment enables the healthcare provider to evaluate new products in relationship to the known evidence and the needs of their individual patients. Patients need education regarding the impact of the device and its use. The patient's perspective needs to be identified and integrated into the plan of care as the best device is the one the individual will use.

CONCLUSION

This Kestrel White Paper illustrates how by blending the vantage points from different disciplines, a stronger plan of care can be developed for the person with a wound or at risk for developing one. An interprofessional team approach to wound care enhances patient outcomes. When wound device product selection is viewed through multiple professional lenses, patient-centered care is optimized.

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