

Finding a cost-effective dressing solution with multiple applications

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In the current economic climate it is important that clinical quality and cost-effectiveness is maintained and community nurses must be confident that they are selecting dressings which provide multiple treatment outcomes. This can include exudate management, reducing trauma and pain at dressing change, extended wear time, and protection of the periwound area. Similarly, there has been a recent rise in the incidence of skin tears, particularly within care homes and in the elderly population, and this requires a dressing that can both protect vulnerable skin and prevent the entry of contaminants and bacteria into the wound bed. Community nurses need a dressing that can perform all of these roles and this article examines Advazorb® Border (Advancis Medical), a dressing specifically designed to manage exudate, prevent pain, trauma and skin stripping on removal, and protect the periwound skin. Crucially, in clinical practice Advazorb Border has been shown to manage skin tears appropriately while staying in place longer and the author discusses clinical evidence that shows how the dressing provides cost-effective wound management and long-term savings within clinical practice.

KEYWORDS:

■ Periwound ■ Skin tears ■ Cost-effectiveness ■ Wear time

The current economic climate has placed added pressure on community nurses to ensure that they are delivering a high-quality service with ever-decreasing resources (Fenton et al, 2010). At the same time, the patient population is changing as people live longer with more complex health needs, which means that treatment interventions have to be carefully considered to ensure care delivery is both efficient and effective (Dowsett, 2010).

NHS England's *Five Year Forward View* focused on improving the quality of care and patient experience, while simultaneously reducing costs (Farrar, 2009), proposing that

quality improvement be achieved by improving productivity through innovation and prevention (known as the 'quality improvement programme planning system', or QUIPPs) (Dowsett, 2010).

The field of wound care, however, poses a significant economic burden to the NHS, with an estimated 2.2 million wounds treated in 2012/13 (Guest et al, 2015), while a recent economic study indicated that most wound care is undertaken within the community setting and accounts for £4.5–5.1 billion per annum (Guest et al, 2015).

In the UK, there were an estimated 2.2 million wounds in adults being managed by the NHS in 2012/2013 at a cost of £5.3 billion. This equates to 3.5% of the total UK healthcare spend in 2013 and is greater than the direct NHS costs relating to obesity (Browning et al, 2016), while Guest et al (2015) revealed that 30% of wounds

lacked a differential diagnosis, which in itself can lead to inappropriate costly treatment and prolonged treatment times.

IMPROVING QUALITY IN WOUND CARE

For community nurses working in the field of wound care, significant cost and quality improvements can be made through accurate assessment and diagnosis, which will in turn optimise patients' general health through astute dressing selection (Milne, 2016). Appropriate dressing selection should be influenced by:

- ▶ Tissue type within the wound bed
- ▶ Amount of exudate
- ▶ Periwound skin condition
- ▶ Prevention of pain and trauma on removal
- ▶ Managing bioburden
- ▶ Patient choice
- ▶ Formulary availability.

By addressing all of the above requirements, as well as providing increased wear time and reducing the need for complex dressing combinations, modern dressings can fulfil multiple roles, allowing them to improve clinical and cost-effectiveness. There are several challenges faced by community nurses when selecting an appropriate dressing, however, including management of exudate, prevention of periwound skin breakdown and pain on dressing removal.

MANAGEMENT OF EXUDATE

Exudate is produced when protein- and cellular-rich fluid leaks from the blood vessels due to inflammation and pools in nearby tissues. A normal amount of exudate facilitates moist wound healing, providing cells with key nutrients, assisting cell migration across the wound bed and facilitating

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important functions like wound cleansing and autolysis (where dead and devitalised tissue is removed by the body's own enzymes) (White and Cutting, 2006).

Excess exudate

In some cases, however, the body produces excessive amounts of exudate, which if not managed properly can lead to periwound maceration, increase the amount of dressing changes required and affect the patient's quality of life causing strikethrough and odour, for example (Wounds UK, 2013).

Excess exudate can have several causes, including the size of the wound, wound infection, uncontrolled cardiac failure, venous hypertension, lymphatic disease, noncompliance with treatment or any medical condition that might cause fluid overload, for example, congestive cardiac failure.

It is essential that the underlying cause of the excess exudate is identified through holistic assessment as this will guide decision-making and formulation of an appropriate treatment plan. Once any underlying aetiologies have been addressed, dressing selection should be based on a range of factors, including (Wounds UK, 2013):

- ▶ Fluid-handling properties of the dressing, i.e. to create a moist wound-healing environment a

balance is required in the wound bed, neither too wet, nor too dry, which may involve an absorbent dressing, for example

- ▶ The site of the wound: different wound sites may require different dressing shapes, e.g. a wound on a patient's sacrum may require a particular-shaped absorbent dressing
- ▶ The tissue type within the wound bed, i.e. is the wound full of slough and devitalised tissue that may create even more moisture when it begins to break down?
- ▶ The presence of infection: this may require an antibacterial dressing that can also absorb exudate
- ▶ Wear time
- ▶ Patient preference.

PROTECTING THE PERIWOUND SKIN

The skin surrounding a wound can be at risk of damage from enzymes contained within wound fluid if the periwound environment is not managed appropriately. Causes of periwound skin problems are outlined in *Table 1*.

Choice of dressing is an important consideration when assessing the periwound skin and appropriate dressing selection can either assist in managing the periwound area effectively, for example by reducing the amount of exudate that leaks onto the periwound skin, or can lead

to further skin breakdown with poor outcomes for the patient.

The skin surrounding a wound should be assessed for problems such as maceration (breakdown of skin from prolonged exposure to moisture), excoriation (where the skin becomes abraded or wears off), erythema (superficial reddening of the skin), 'spongy' texture (indicating possible maceration) and skin breakdown.

To reduce the risk of periwound complications, dressings should possess the following properties (Gardner, 2012):

- ▶ Non-adherence: the dressing should not 'stick' to the wound bed and should facilitate gentle removal
- ▶ Adequate fluid-handling capacity: to manage exudate with no leakage or strikethrough
- ▶ Be hypoallergenic
- ▶ Be able to promote moist wound healing
- ▶ Provide a barrier against bacteria
- ▶ Allow gaseous exchange
- ▶ Be able to stay in place for a significant period
- ▶ Maintain haemostasis and optimum temperature
- ▶ Be acceptable to patients
- ▶ Be cost-effective.

PAIN ON DRESSING REMOVAL

Pain on dressing change is often caused by poor dressing choice (Edwards, 2013), particularly dressings that have dried out and adhered to the periwound skin, causing skin stripping and erythema on removal (Davies and Rippon, 2008). Any dressing that causes skin stripping and/or bleeding to the periwound skin or needs to be soaked to be removed should be considered inappropriate and requires reassessment.

Pain experienced by patients is very individual and community nurses should assess this using a validated pain measurement chart before, during and after dressing change to build-up a picture of how individual patients are affected (Edwards, 2013). The consequences of traumatic dressing removal include

Table 1: Causes of periwound skin problems

Cause of skin damage	Effect on periwound skin
Age (older people)	▶ The elderly experience skin thinning, reduction in sebum production, and reduced elasticity
Age (children and the young)	▶ Fragile skin with poor barrier properties (Van Onselen, 2001)
Excessive exudate	▶ High amounts of exudate saturate the periwound skin causing epidermal cells to become 'waterlogged', which leads to maceration and skin breakdown (Coutts et al, 2001) ▶ Protein-digesting enzymes may cause damage to the stratum corneum, which affects the skin's barrier properties
Frequent dressing removal and adherence to surrounding tissue	▶ Damage to skin's surface and stripping of barrier function (stratum corneum), leading to erythema and pain (Dykes and Heggie, 2003)
Harsh adhesives in dressings	▶ May cause erythema and allergic reaction ▶ Can lead to skin stripping and trauma at dressing change
Inappropriate dressing selection	▶ Pooling of exudate under dressing may cause maceration ▶ Dressings that adhere to the skin and/or wound will cause trauma and damage to new cells (Dykes and Heggie, 2003)

psychological stress and pain (Upton, 2011), and may lead to the patient becoming non-compliant with treatment. Several studies have also indicated that the use of a soft silicone dressings may prevent wound pain and trauma and should be considered where pain at dressing change has been identified as an issue (Timmons et al, 2009; Benbow, 2010).

SKIN TEARS

Skin tears are usually a result of a traumatic injury, often through contact with furniture, where the epidermis separates from the dermis, leaving a 'flap' of skin over a shallow wound (Stephen-Haynes and Greenwood, 2014). There is a particularly high incidence of skin tears in the elderly population (Carville et al, 2007) and among those who have multiple comorbidities. With the ageing process the skin naturally becomes more fragile, loses its elasticity and produces less sebum (Timmons et al, 2009), leaving it susceptible to damage. Over the past few years there has been a rise in the incidence of skin tears, particularly in care homes (Stephen Haynes et al, 2011), and with an increasing elderly population, this may be set to increase.

Management

The management of skin tears should be based on an appropriate assessment using a recognised classification system, such as the International Skin Tears Advisory Panel (ISTAP) system, which is considered a simple and easy-to-use method for grading skin tears (LeBlanc et al, 2013):

- ▶ Type 1: no skin loss; linear tear where skin flap can be repositioned to cover wound bed
- ▶ Type 2: partial flap loss; skin flap cannot be repositioned to cover whole of the wound bed
- ▶ Type 3: total flap loss; exposes the entire wound bed (will require specialist intervention).

The STAR classification is also recognised as a reliable skin tear assessment tool (Carville et al, 2007):

S: select appropriate dressing

T: tissue alignment

A: assess

R: review.

Any patient with a skin tear should receive a full holistic assessment, which should include medical history, medication and general health status, identifying any potential underlying comorbidities or factors that may delay healing such as peripheral vascular disease, poor nutrition or diabetes. The wound itself should then be assessed and its dimensions, wound bed characteristics, exudate, surrounding skin, pain, and any signs and symptoms of infection, noted. The skin flap should be classified using a recognised classification system, such as those described above. Classification of a skin tear will assist in identifying the amount of tissue loss and guide treatment goals.

Once assessment has been completed, application of an atraumatic dressing is recommended, which ideally should be left in place for up to five days to allow the skin flap to re-adhere (All Wales Tissue Viability Nurses Forum (AWTVNF), 2011). Silicone dressings have been identified as an optimum treatment for skin tears as they do not adhere to the wound bed or periwound skin, can manage exudate, and minimise friction and shear (Meuleneire and Rucknagel, 2013).

CHALLENGES OF COST-EFFECTIVE WOUND CARE

As mentioned above, the QUIPP agenda not only focuses on improving productivity, but also on high-quality outcome measures. Within the field of wound care there is a plethora of wound products that community nurses can select (Milne, 2016), but the choice can often be bewildering. It would be very easy for community nurses to look at the unit cost of a dressing and to select the cheapest option, however, this may not always deliver quality outcomes in practice. Similarly, the lack of robust evidence within wound care sometimes makes it difficult to justify using a more expensive product (Milne, 2016).

Important considerations when selecting wound care products include ensuring that any outcomes are clearly defined, for example, decrease in wound size, managing

exudate, promoting moist wound healing, preventing trauma and pain at dressing change, or protecting the skin. This list is not exhaustive, but it is important that community nurses identify treatment outcomes for individual patients, as well as whether a wound dressing achieved these outcomes; only then will the nurse be able to justify using one particular product over another, possibly cheaper, option.

Bearing this in mind, any dressing that is able to address multiple treatment outcomes while reducing dressing change frequency and not requiring a secondary dressing should be considered as a cost-effective solution for managing wounds.

A dressing for multiple treatment outcomes

Advazorb® Border and Advazorb® Border Lite (Advancis Medical) are absorbent atraumatic self-adhesive bordered dressings with a soft silicone wound contact layer. The dressings have an ergonomically designed shape that enables the dressings to conform well to patients' physical contours (*Figures 1 and 2*).

Contact layer

The silicone contact layer has small perforations, which allow exudate to pass through to the absorbent foam, thus protecting the fragile wound bed and periwound skin from damage caused by excess moisture. Added to this, the silicone adhesive border allows the dressing to stay comfortably in place without the need for secondary fixation.

Advazorb Border's silicone wound contact layer extends across the entire dressing, including the border, thus providing secure but gentle adhesion,

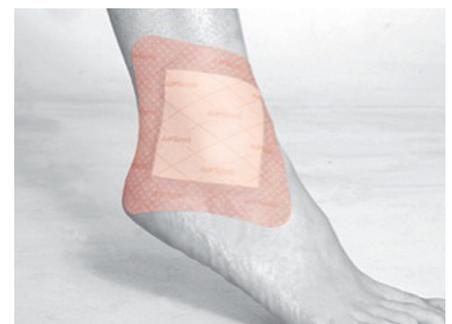


Figure 1.
Advazorb Border in situ.

Table 2: Key benefits of Advazorb Border

Benefit	Details
Addresses the issue of exudate management, while also caring for the periwound skin	<ul style="list-style-type: none"> ▶ The dressing has a large capacity to absorb fluid and lock it away ▶ Together with the soft silicone wound contact layer and border, this helps to prevent damage to fragile periwound skin
No secondary dressing required	<ul style="list-style-type: none"> ▶ The self-adhesive soft silicone border enables the dressing to stay in place without the need for further retention
Silicone adhesive	<ul style="list-style-type: none"> ▶ The wider self-adhesive border provides the patient with confidence that the dressing will not slip ▶ Provides security and comfort
Waterproof backing	<ul style="list-style-type: none"> ▶ Enables patients to shower without the need to replace or cover the dressing ▶ Helps to reduce the number of dressing changes needed
Suitable for wounds in difficult-to-dress areas	<ul style="list-style-type: none"> ▶ The dressing's properties mean that it contours well and remains in place without damaging the skin
Low friction backing	<ul style="list-style-type: none"> ▶ Helps to prevent snagging on clothes and bedsheets etc, thus prolonging wear time and promoting patient comfort
Available in different thicknesses	<ul style="list-style-type: none"> ▶ Caters for the specific volume of exudate being produced ▶ Being available both as 'regular' and 'lite' versions gives community nurses more options when choosing the most suitable dressing for individual patients and wounds

while helping to minimise pain or trauma when the dressing is applied or removed. Having a wider border also makes the dressing suitable for difficult-to-dress areas, as a secondary dressing is not needed.

Fluid-handling

Advazorb Border has superior fluid-handling capacity and locks fluid away within the dressing, while the waterproof backing enables patients

to shower without the need to replace or cover the dressing. Advazorb Border is available in different thicknesses to suit the volume of exudate being produced, giving professionals more options when choosing the most suitable dressings for patients.

In cases of wounds producing extremely high levels of exudate, the community nurse may need to consider a superabsorbent dressing

KEY POINTS

- It is important that clinical quality and cost-effectiveness are maintained and community nurses must be confident that they are selecting dressings, which provide multiple treatment outcomes.
- This can include exudate management, reducing trauma and pain at dressing change, extended wear time, and protection of the periwound area.
- Recent rises in the incidence of skin tears require a dressing that can both protect vulnerable skin and prevent the entry of contaminants and bacteria into the wound bed.
- This article examines Advazorb[®] Border (Advancis Medical), a dressing specifically designed to manage exudate, prevent pain, trauma and skin stripping on removal, and protect the periwound skin.
- Advazorb Border has been shown to manage skin tears while staying in place longer and the author discusses clinical evidence that shows how the dressing provides cost-effective wound management and long-term savings within clinical practice.



Figure 2. Clinical images of Advazorb Border on a patient's lower limb (Rafter et al, 2016).

such as Eclipse[®] (Advancis Medical), which has been shown to absorb high levels of exudate while protecting the periwound skin and preventing strikethrough (Rafter et al, 2015).

Evidence

A recent study of 80 patients looked at the treatment of skin tears in 50 nursing homes (Rafter et al, 2016). The homes were contacted and asked whether they would like skin tear training, backed up with an audit of their residents. Forty-two teaching sessions took place, covering the physiology of the skin, skin tear prevention, risk factors, STAR classification and first aid management. As well as the training, dressing changes were performed and monitored by the tissue viability nurse consultant, with dressing performance evaluated in relation to each product's

effect on the periwound skin, maceration, dermatitis, inflammation, irritation and dryness. The amount of exudate contained within each dressing was recorded by weighing the dressing after removal; ease of dressing removal was also noted. The study concluded that of the four dressings used, Advazorb Border stayed in place more efficiently than other silicone dressings in 98% of patients. Advazorb Border also demonstrated a higher ease of removal compared to the other silicone dressings evaluated.

Indications and contraindications

Advazorb Border is indicated for use in acute and chronic wounds including cuts and abrasions, superficial burns, surgical wounds, leg ulcers, pressure ulcers and diabetic ulcers. Advazorb Border should not be used on arterial bleeds and heavily bleeding wounds, or where the patient is allergic to silicone.

CONCLUSION

In the current economic climate, it is crucial for community nurses to select dressings that can address multiple treatment outcomes and ensure that quality and cost-effectiveness are maintained. Advazorb Border fulfils this remit by managing exudate, preventing pain, trauma and skin stripping on removal, and protecting the periwound skin. Advazorb Border has also been demonstrated in clinical practice to manage skin tears appropriately while staying in place for longer. Clinical evidence indicates that Advazorb Border may be an effective solution to cost-effective wound management and could offer long-term savings in clinical practice. **JCN**

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