

# Using a step-up, step-down approach to exudate management

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The management of exudate in acute and chronic wounds is a common issue for community nurses, with too much exudate resulting in issues with infection and the breakdown of periwound skin; while too little moisture risks the wound bed becoming too dry. Nurses need to find the most cost-effective and clinically proven treatment regimen when treating wounds that produce different levels of exudate, minimising dressing changes and patient discomfort. While it can be difficult to make a choice about which dressing to use because of the vast array on offer, it is important to match the dressing to the wound and use the most appropriate dressing for the levels of exudate being produced. Similarly, using a more responsive approach to wound management — adapting treatment as the wound changes — will result in a more cost-effective approach. Advancis Medical have a range of wound management dressings that are suitable for different wound types and can handle varying levels of exudate. This allows nurses to use a step-up, step-down approach to the management of exudate as the most cost-effective dressing regimen.

## KEYWORDS:

■ Wounds ■ Exudate ■ Cost-effectiveness ■ Dressing choice

Exudate is a serous wound fluid produced in response to wounding and which acts as a vital part of the healing process. Exudate develops during the inflammatory stage as it leaks from the blood capillaries into the site of the wound and contains essential nutrients needed for cell growth, such as electrolytes and growth factors. It also assists with wound cleansing by transporting matrix metalloproteinases (MMPs) to the wound bed; MMPs are responsible for autolysis, removing any devitalised (necrotic) tissue and slough from the wound bed and allowing the wound to heal without impediment (White and Cutting, 2006).

Necrotic tissue hinders healing by preventing granulation and the growth of new tissue; it is also a perfect breeding ground for bacteria and biofilms and its presence can increase the risk of infection (Davis et al, 2006; White and Cutting, 2006).

The make-up of 'normal' exudate will vary over the course of a wound's healing trajectory and will be affected by a range of elements such as the patient's nutritional status, circulation and tissue perfusion (White and Cutting, 2006).

## ACUTE VERSUS CHRONIC WOUNDS

As mentioned above, when an acute wound follows a normal wound-healing trajectory, the exudate bathes the wound bed in the nutrients and cells required for new tissue growth to flourish, while the amount of exudate reduces gradually as the wound heals. Acute exudate

will nourish epithelial cells, repair damaged cells and stop the wound from drying out.

In chronic wounds that fail to heal, however, the inflammatory response is extended and the production of wound exudate is overstimulated. The presence of this excessive wound exudate begins to have a negative effect and becomes a 'wounding agent' in itself (Chen et al, 1992). This is because chronic wound exudate has an entirely different make-up to acute wound fluid. It contains more inflammatory mediators and proteases, while activated MMPs can attack the extracellular matrix and the periwound skin. It is vital that excessive wound exudate is kept in check, although it is also important not to let the wound dry out as this also hinders wound repair — it has been estimated that a dry wound takes 2–3 times longer to heal (Swezey, 2014).

Overall, creating an optimum moist wound environment is one of the main goals for community nurses, and this includes achieving the right balance between a moist and dry wound bed, which is hugely important for healing. Choosing a product that encourages an optimum environment for each wound is one of the challenges for the community nurse.

## DRESSING CHOICE

There are many wound care products on the market for community nurses to choose from; in fact the choices can be overwhelming. It is important that community nurses are able to respond to changes in the wound's exudate levels over time, trying different options to find the best solution at each stage of healing. Hydroactive wound dressings are

designed to create an optimum moist environment at the wound bed and include the following types:

- ▶ Alginates: absorbent wound care dressings that contain sodium and calcium fibres derived from seaweed, which form into a gel in contact with fluid
- ▶ Hydrocolloids: contain gel-forming agents (e.g. gelatin or sodium carboxymethylcellulose) to absorb and control exudate in an adhesive compound
- ▶ Foams: dressings that contain a hydrophilic polyurethane foam (although a silicone foam has also been developed), and which provide a soft absorbent dressing for granulating wounds of varying aetiologies and sizes
- ▶ Silicone dressings: those coated with atraumatic soft silicone as an adhesive or wound contact layer. Silicones are rubber-like synthetic compounds of long chain polymers (large molecules made when smaller molecules join together). These dressings may be removed without causing trauma to the wound or the surrounding skin and include silicone gel

sheets, foam dressings with silicone adhesive and absorbent dressings for exuding wounds.

Another option for heavily exuding wounds are superabsorbent dressings, which are made from polymers and absorb and lock away excessive fluid (Browning, 2016), while dressings that contain antibacterial substances, such as silver or honey, and antiseptics such as polyhexanide biguanide and chlorohexidine, aim to control the level of microorganisms in the wound.

Hydration response technology, negative pressure wound therapy (NPWT) and self-adaptive wound dressings can all be used to cope with excessive wound exudate (Revzelman and Vartivarian, 2015), while hydrogels can hydrate a wound that is too dry.

Because of this vast array of dressings, however, it can be difficult for the community nurse to make a choice about which one to use in a particular patient. It is important, however, to always match the dressing to the individual's

wound rather than relying on the 'usual' dressing used in a particular circumstance.

## COST-EFFECTIVENESS AND DRESSING CHOICE

Finding the correct dressing and managing a wound though to healing has obvious budgetary implications as the cost of treating a wound that eventually heals is far lower than continuing to treat a chronic wound indefinitely (Browning, 2016). This is backed up by the figures. The cost to the NHS of treating healed wounds is £2.1 billion per year; however, the cost of treating chronic wounds that remain unhealed is £3.2 billion per year (Guest et al, 2015).

A report from the Department of Health (DH, 2015) argued that the NHS Supply Chain could reduce costs by relying on generic equipment and products such as wound dressings, which could be fit for purpose for up to 80% of patients. However, plans to treat wounds as a homogenous clinical group and reduce the range of dressings available to healthcare professional has been derided as shortsighted by some experts, who believe it will negatively affect wound care innovation (Browning, 2016; White et al, 2016).

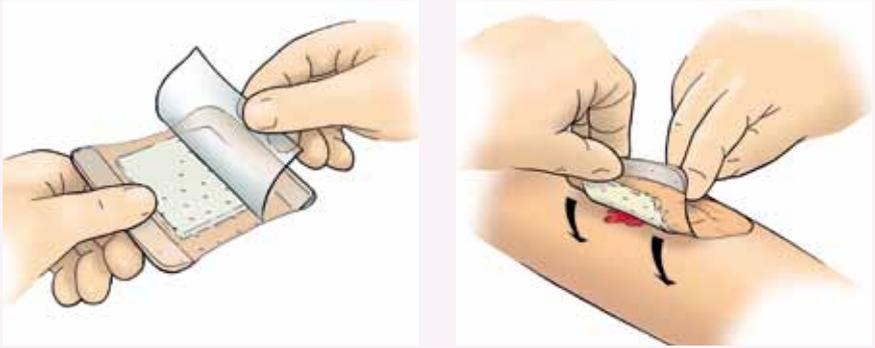
In fact, forcing clinicians to choose from a limited range of wound dressings could conceivably have the opposite effect to the one desired, increasing the amount of wounds requiring extended treatment with a significant number remaining unresponsive to the one-size-fits-all approach to dressing choice, thus raising costs. A more responsive approach to wound management — one where clinicians such as community nurses adapt the treatment regimen as the wound changes — would result in a more cost-effective approach.

## MAKING AN INFORMED CHOICE

For community nurses seeking to choose the best dressing for their patient, the plethora of different products and amount of evidence for their use can be confusing. However,



Figure 1.  
*Advazorb Border is designed to fit the body's natural contours.*



**Figure 2.**  
*Applying Advazorb Border.*

manufacturers and academics may not be helping the situation, with a wide range of methods used to evaluate wound care dressings, not all of which may be fully evidence-based.

According to the European Wound Management Association (EWMA, 2010), there is confusion over the best way to evaluate wound care products, a factor that EWMA stated was demonstrated 'by recent reviews of the value of various treatment strategies for non-healing wounds, which have highlighted methodological inconsistencies in primary research'.

EWMA (2010) further stated that wound care research demonstrates a paucity of high-quality evidence for the following reasons:

- ▶ Studies are often based on

- ▶ inadequate sample sizes,
- ▶ Studies often have short follow-up periods
- ▶ There is often non-random allocation to treatment groups
- ▶ Studies demonstrate non-blinded assessment of outcomes
- ▶ Many studies have poorly described control groups
- ▶ Many studies have inadequately described concurrent interventions.

When it comes to exudate management specifically, Mennini et al (2016) have argued that there are few objective criteria that can be used to reliably test wound care products in laboratory settings. Despite this, wound care manufacturers will often cite unpublished 'data on file', referring to laboratory studies they have commissioned, which purport to demonstrate the fluid-handling capacity of their product.

Mennini et al (2016) went on to explain the difficulty in creating 'real-life' conditions and found that testing portions of dressings can give misleading results as it is difficult to recreate the temperature and humidity that a dressing would usually be subject to in clinical settings. They also found difficulties in recreating an approximation of wound 'exudate' to use in laboratory tests, as well as developing tests that could accurately



**Figure 3.**  
*Eclipse superabsorbent is designed to deal with high levels of exudate.*

assess a dressing's ability to retain exudate under pressure. Mennini et al (2016) further claimed that these unpublished data on file results can be misleading and suggested that there is a need to develop more objective measures to test wound care products.

Similarly, many wound care manufacturers rely on individual case studies to publicise the benefits of particular dressings; but again, while interesting in many cases, the scientific rigour of these clinical studies is hard to replicate across a number of patients, or indeed, to independently verify.

In fact, in clinical situations, dressing choice is reliant on the nurse's experience and may require some experimentation before the right product is chosen. Having a bank of reliable products that can cope with changes in the amount of exudate produced during the wound-healing trajectory can be important for the community nurse when they are attempting to find cost-effective treatment options.

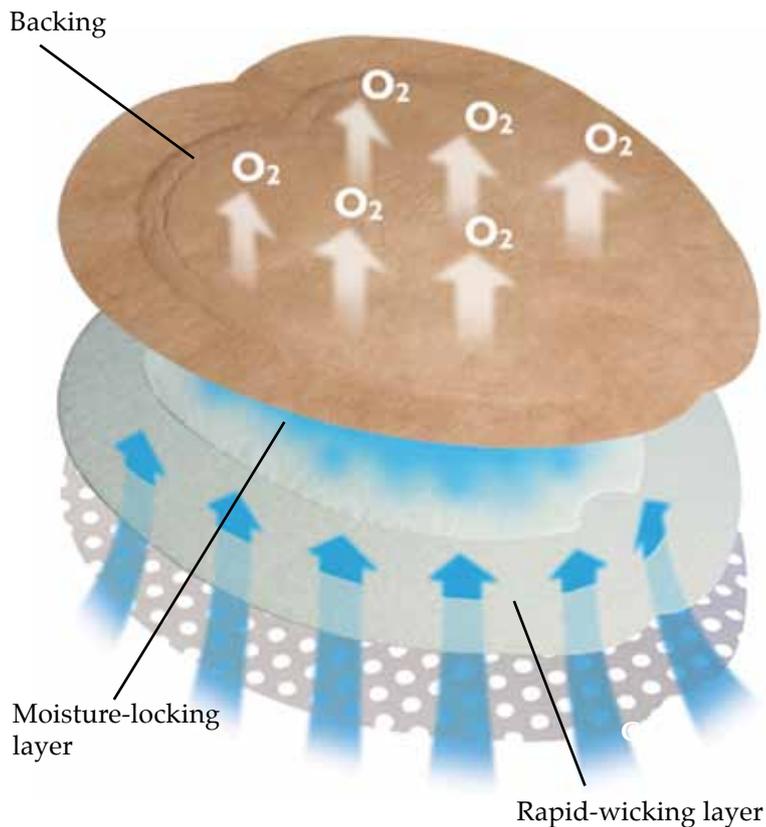
### THE PRINCIPLES OF EXUDATE MANAGEMENT: STEP-UP AND STEP-DOWN

To help community nurses choose the right dressing for a particular wound stage, Advancis Medical have produced a range of dressings that are suitable for various wound types and can handle differing levels of exudate. This enables community nurses to instigate a step-up, step-down approach, which focuses on the needs of the wound at a particular time, rather than using a one-size-fits-all approach to dressing choice.

This responsive approach to the levels of exudate being produced by a wound allows the nurse to ensure that the wound bed has an optimal level of moisture and the wound has the best chances of healing, without over-spending on products that would be better suited to more problematic wounds.

### Advazorb

Advazorb Border® and Advazorb Border Lite® (Advancis Medical)



**Figure 4.**  
*Graphic showing different layers of the Eclipse superabsorbent dressing.*

(Figure 1) are hydrophilic foam dressings with a soft silicone wound contact later, which means they can act as atraumatic self-adhesive dressings. They are also ergonomically designed to conform to the wound's contours.

Advazorb is a breathable dressing, which increases its total absorbency capacity, allowing it to retain excess exudate as well as reducing the likelihood of periwound maceration.

The dressing has been designed to manage exudate and prevent pain, trauma and skin-stripping during dressing changes (Rafter et al, 2016), as well as protecting the vulnerable periwound skin (Mahoney, 2016). The dressing's high absorbency means that it requires fewer dressing changes, which saves money not only on the cost amount of dressings used, but also by reducing the time spent by nurses on dressing changes (see Figure 2 for application).

Advazorb dressings come in a range of shapes and sizes, with specially shaped dressings for the

sacrum and the heel, while the silicone adhesive border allows the dressing to stay in place without the need for secondary fixation.

#### Contact layer

Advazorb's silicone contact layer is designed with tiny perforations, which permit exudate to be absorbed by the absorbent foam layer. This helps to protect the wound bed and periwound skin from damage caused by excess moisture (Mahoney, 2016). Added to this, Advazorb Border's silicone wound contact layer covers the whole dressing, including the border, providing secure but gentle adhesion while reducing pain or trauma when the dressing is removed.

#### Fluid-handling

Advazorb's fluid-handling capacity locks moisture within the dressing, while the waterproof backing means that patients can shower without the need to replace or cover the dressing (Mahoney, 2016).

Advazorb is also manufactured in a range of different thicknesses, which means it can cope with the levels of exudate being produced —

this provides community nurses with more choice when choosing the most suitable dressings for their patients.

#### Eclipse

For those wounds producing higher levels of exudate, Advancis Medical have designed the Eclipse® range of superabsorbent dressings (Figure 3), which have been shown to absorb high levels of exudate while protecting the periwound skin and preventing strikethrough (Rafter et al, 2015). They have a high fluid-handling capacity and can absorb excess exudate and reduce the risk of maceration.

Eclipse wound dressings include a water-resistant backing, a moisture-locking layer with crystals that expand and form a gel to retain moisture, a rapid-wicking layer and a soft silicone contact layer (Figure 4). Eclipse has been found to be effective at absorbing and containing high levels of exudate and is comfortable for patients, helping improve quality of life (Rafter et al, 2015).

The dressings help to maximise the healing environment by controlling moderate-to-high volumes of wound exudate, which is locked away in the dressing's core, keeping bacteria and the damaging factors included in wound fluid away from the wound bed. Containing exudate in the dressing prevents leaks and protects the periwound skin (Ellis, 2015).

Eclipse dressings are suitable for leg ulcers, pressure ulcers and other challenging wounds and can be used under compression. They have a long wear time and can be left in place for up to seven days, depending on exudate levels.

#### Conformability

The range also includes the Contour Eclipse®, a multisite dressing that can mould to the body and maintain maximum contact with the wound, even in difficult-to-dress areas such as the underarm, abdomen, back and lower leg and thigh. A major benefit of this improved conformity is the dressing's ability to maximise exudate uptake — the dressing's even contact with the whole of the wound surface means it can draw



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fluid directly into its core (Ellis, 2015).

### A dynamic approach

Using these two dressing ranges allows the community nurse to take a dynamic approach to exudate management, stepping-up into the Eclipse dressing when exudate levels are high; or stepping-down to Advazorb when levels reduce. This allows the nurse to respond to the patient's clinical need, rather than using a 'blanket' approach to wound management.

### CONCLUSION

In the current economic climate, it is crucial for community nurses to select dressings that can address multiple treatment outcomes, as well as ensuring that quality of care and cost-effectiveness are maintained. Nurses need to find the most appropriate dressings available when treating wounds that are producing different levels of exudate, as this will help to reduce the number of dressing changes and minimise complications such as infection and periwound maceration.

The Eclipse and Advazorb ranges are able to handle a variety of exudate levels, from low to very high, meaning nurses can use them to step-up or step-down treatment according to need.

By using fit-for-purpose products that can reliably handle different levels of exudate, the pressure of dressing changes and dealing with problems associated with excess exudate can be taken away from nurses, releasing more time to care. This has cost benefits to care providers, as well improving patients' quality of life. **JCN**

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### KEY POINTS

- The management of exudate in acute and chronic wounds is a common issue for community nurses, with too much exudate resulting in issues around infection and the breakdown of periwound skin, while too little moisture risks the wound bed becoming too dry.
- Nurses need to find the most cost-effective and clinically proven treatment regimen when treating wounds that produce different levels of exudate, minimising dressing changes and patient discomfort.
- While it can be difficult to make a choice about which dressing to use because of the vast array on offer, it is important to match the dressing to the wound and use the most appropriate dressing for the levels of exudate being produced.
- Advancis Medical have a range of wound management dressings that are suitable for different wound types and can handle varying levels of exudate.
- Advancis advise a step-up, step-down approach to the management of exudate as the most cost-effective dressing regimen.