Selecting dressings to manage exudate and enhance patient wellbeing

KEY WORDS
- Exudate management
- Dressing selection
- Patient wellbeing

Wound pain, odour and exudate can have a considerable impact on a patient's quality of life. Patients with highly exuding wounds are also subjected to frequent dressing changes. Appropriate choice of wound dressing should be based on volume and type of exudate, skin condition and patient lifestyle needs. In addition to the dressing's ability to manage exudate, it should aim to promote wellbeing, in part by managing exudate and odour, and by minimising pain and discomfort during wear and at dressing change. In this article we describe a number of case studies using both ALLEVYN® and DURAFIBER® dressings in the management of patients with moderate-to-highly-exuding wounds.

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Wound exudate occurs during the inflammatory stage of healing and is essential for the normal wound healing process. It has been found to prevent tissue dehydration and cell death, increase the speed with which new blood vessels form and damaged ones regenerate, and help break down dead tissue (Romanelli et al, 2010).

Bacteria-destroying macrophages, inflammatory mediators, platelet-derived growth factors, fibroblast growth factors and epithelial growth factors aid wound healing (Spear, 2012). However, in chronic wounds, an imbalance of inflammatory mediators, with higher concentrations of matrix metalloproteinases (MMPs), can have a detrimental effect on wound healing (Romanelli et al, 2010).

High levels of wound exudate increase the risk of maceration and may lead to breakdown of the periwound area, delaying healing. Stalled wounds result in increased morbidity and higher costs of continued care. Strikethrough and/or associated malodour can significantly decrease patient quality of life and prompt non-concordance with treatment, which can make exudate management all the more difficult. For all these reasons, it is critical that exudate be managed adequately, while taking into account patient preferences (Wounds UK, 2013).

PATIENT WELLBEING AND COMFORT WITH A CHRONIC WOUND

Patient wellbeing in those living with a wound is influenced by a number of factors: physical, social, pyschological and spiritual (Wounds International, 2012). Components of physical wellbeing that decrease quality of life include pain, odour, discomfort during dressing wear and skin irritation or maceration. Patients find pain particularly distressing, and odour and exudate leakage can lead to feelings of social isolation, disgust and low self-esteem (Wounds International, 2012). Dressings that do not securely stay in place cause discomfort and can impede the patient's ability to carry out everyday activities. In addition, people who have a chronic wound often have multiple comorbidities that affect their ability to function independently, which may lead to greater dependence on others, unplanned admission to hospital and/or the need to adapt their lifestyle to fit around clinic appointments and nurse visits.

SELECTING DRESSINGS TO BALANCE EXUDATE AND MOIST WOUND HEALING

Maintenance of a moist wound environment in the presence of exudate is important for wound healing. This requires an absorbent dressing that retains excess exudate, but does not dry out the wound bed. Rather, when the dressing is removed, there should be small amounts of fluid visible and the primary dressing may be lightly marked (WUWHS, 2007). If clinically indicated, the dressing should be able to manage exudate, as well as signs and symptoms of local infection (e.g. pain, warmth, erythema >1–2 cm, odour).

Table 1: Desired dressing qualities for exudate management

Deep wounds	Shallow wounds
Absorbent and retains exudate	Absorbent and retains exudate
Stays intact with minimal shrinkage	Stays intact with minimal shrinkage
Can be gently packed or layered to fill cavity	Comformable to the wound bed
Maintains moist wound environment	Maintains moist wound environment
Minimises odour	Minimises odour
Conformable and fits the contours of the anatomical location	Conformable, remains in place and does not impede physical activity
Is comfortable during wear/minimises wound-related pain	Is comfortable to wear/minimises wound-related pain
Easy to apply and atraumatic to remove	Easy to apply and atraumatic to remove

Table 2: Dressing selection criteria for ALLEVYN and DURAFIBER dressings

	No signs & symptoms of infection	Signs of infection
Shallow wounds	**ALLEVYN Gentle Border * ALLEVYN Life ****	**ALLEVYN Ag Gentle Border**
Deep wounds	**DURAFIBER**	**DURAFIBER Ag**

*ALLEVYN Gentle Border is recommended for use on wounds requiring 1-2 dressing changes per week

**ALLEVYN Life is recommended for use on wounds currently requiring 3 or more dressing changes per week

After thorough, holistic assessment of the patient, wound and exudate levels, the dressing regimen chosen should maintain a moist wound environment; prevent leakage; manage odour; minimise pain and discomfort and, if clinically indicated, manage signs and symptoms of local infection (*Table 1*). Where possible, the choice of dressing should aim to reduce frequency of dressing changes to avoid disruption to the wound healing environment (McGuinness et al, 2004).

The ALLEVYN range has been designed to meet everyday wound care challenges. ALLEVYN Gentle Border has a soft silicone adhesive border, which is trauma-free on removal and is particularly suited to use on fragile skin (Palmer and Smith, 2008; Skytte, 2008). ALLEVYN Life is a five-layer silicone foam dressing. It has a quadrilobe shape incorporating a wide silicone adhesive border for a secure fit, a masking layer to minimise the visual impact of strikethrough (Stephen-Haynes et al, 2013), a lock-away layer that locks in wound fluid and odour (Smith & Nephew, 2012), plus a change indicator for improved dressing change efficiency (Stephen-Haynes et al, 2013; Smith & Nephew, 2013). The change indicator has also been shown to help patients understand when their dressings need changing (Stephen Haynes et al, 2013).

The DURAFIBER range comprises gelling fibre dressings designed to meet the challenges posed by medium- and heavily-exuding infected and non-infected wounds. The dressing is highly absorbent (Smith & Nephew, 2010) and conformable (Barratt et al, 2012); the gelling action maintains a moist wound environment (Myers, 2010) and prevents the dressing from sticking to the wound bed. DURAFIBER® Ag includes silver for broad-spectrum antimicrobial activity (Vaughan et al, 2010) in wounds showing signs and symptoms of local infection.

The ALLEVYN dressings can be used on their own to promote moist wound healing for shallow wounds, or in combination with DURAFIBER as a secondary dressing for deeper wounds, to manage exudate by locking in exudate and to secure the primary dressing (Smith & Nephew, 2012).

Dressings from these ranges should be selected based on wound depth, signs of infection and fluid handling requirements (*Table 2*). Location and other factors may determine the shape and size of dressing used.

EVALUATING DRESSING PERFORMANCE USING A CASE STUDY APPROACH

A total of eight cases were carried out in both acute and community settings to evaluate dressing performance in patients with exuding wounds. In the case studies that follow, the four possible combinations of ALLEVYN and DURAFIBER dressings were used in a variety of chronic and stalled wounds, according to the clinical indications of each wound and the benefits offered by each dressing in isolation and in combination (*Table 3*). In seven out of eight case studies, the dressing combinations were rated as 'excellent' or 'very good' on ease of application and removal, ability to conform to the wound bed, ability to handle exudate, patient comfort during wear, and remaining intact upon removal. The dressing was rated as 'good' in one case as the ward nurses waited for the tissue viability nurses to change the dressing rather than performing the change when needed.

All eight cases saw good outcomes — complete healing or progression towards healing, despite complicating factors in each patient. The three case

studies outlined below offer insight into some of the considerations and outcomes that can be expected when using ALLEVYN and DURAFIBER dressings.

Case 1: Pilonidal sinus with moderate exudate

RM is an 18-year-old male who presented to the district nurse community clinic with a pilonidal sinus that had formed after an abscess had been surgically removed. He had no past medical history and was not on any medication.

The wound, of 5 weeks' duration, measured 2cm (length) x 1.5cm (width) x 1.5cm (depth). The wound bed comprised 100% granulating tissue and periwound skin was healthy. There was a moderate level of serous exudate. Due to the level of exudate and the sensitive anatomical location, DURAFIBER was chosen as a primary contact layer with ALLEVYN Life as a secondary dressing. Dressing change was scheduled for 2 days later, due to high exudate levels.

Review 1: When reviewed 2 days later, the dressings had stayed in place and there was good absorption of exudate. The patient reported the dressings to be comfortable during wear. The wound had reduced in size to 1.9cm x 1.5cm x 0.5cm (*Figure 1*). The dressing regimen was continued with dressing changes scheduled for every 2 days.

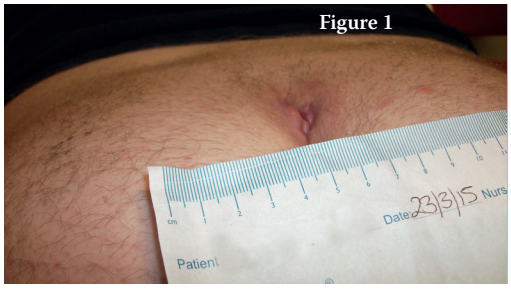
Review 2: One week later, exudate levels were well controlled and the wound had further reduced in size to 1cm x 0.4cm x 0.5cm. Between reviews, the patient had been able to shower with the dressing combination in place and perform dressing changes on his own, reducing the requirement to visit the clinic. DURAFIBER was continued and, due to a reduction in exudate levels, ALLEVYN Gentle Border was chosen as the secondary dressing. Dressing changes were scheduled for every 2 days.

Review 3: Although wound size remained unchanged 6 days later, exudate levels had further decreased. It was decided to continue with DURAFIBER and ALLEVYN Gentle Border, with changes every 2 days and review 8 days later.

Review 4/conclusion: The wound now measured 0.5cm x 0.1cm x 0.5cm — a 99% reduction from baseline (*Figure 2*). The wound was almost completely healed and exudate levels were too low to warrant use of an absorbent dressing; the

Table 3: Dressing distribution in case studies

	ALLEVYN Life + DURAFIBER	ALLEVYN Life + DURAFIBER Ag	ALLEVYN Gentle Border + DURAFIBER	ALLEVYN Gentle Border + DURAFIBER Ag
Patient 1	To first review		From first review to end of study period	
Patient 2	To second review	From second review to end of study period		
Patient 3			To third review; ALLEVYN Gentle Border only used from third review to end of study period	
Patient 4	Throughout			
Patient 5		Throughout		
Patient 6		To first review	From first review to end of study period	
Patient 7			Throughout	
Patient 8		To second review		From second review to end of study period



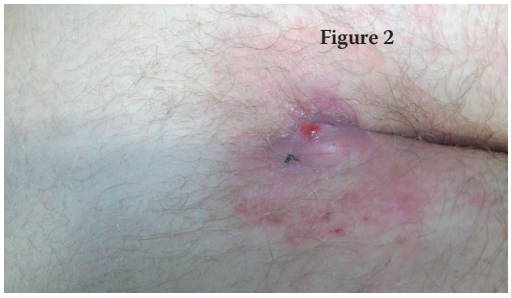


Figure 1. Review 1.
Figure 2. Review 4.

"She was 'delighted' to be able to shower daily, as it meant she felt clean and could 'get on with her "normal" life'. The dressing combination was continued."

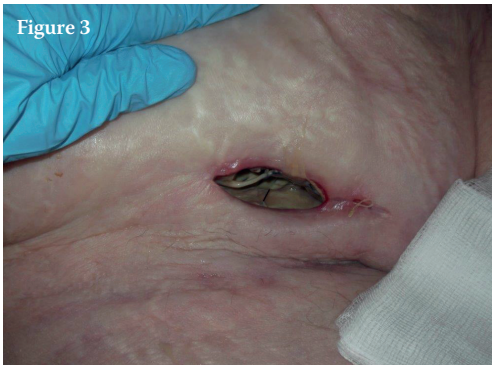


Figure 3

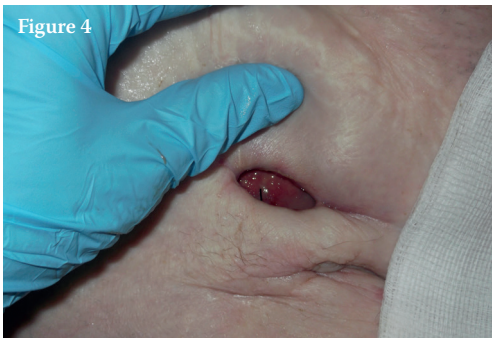


Figure 4

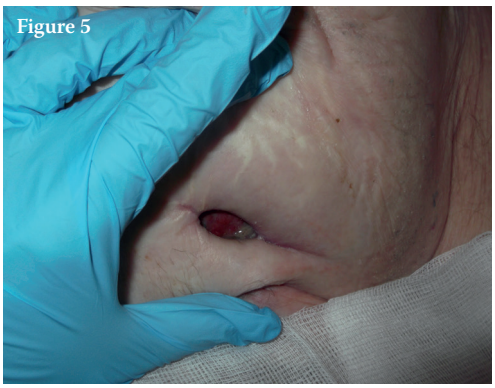


Figure 5

Figure 3. Initial presentation.
Figure 4. Review 3.
Figure 5. Review 4.

regimen was discontinued. Dressing performances for DURAFIBER, ALLEVYN Life and ALLEVYN Gentle Border were deemed 'excellent' throughout.

Case 2: Dehisced surgical wound with slough and heavy exudate

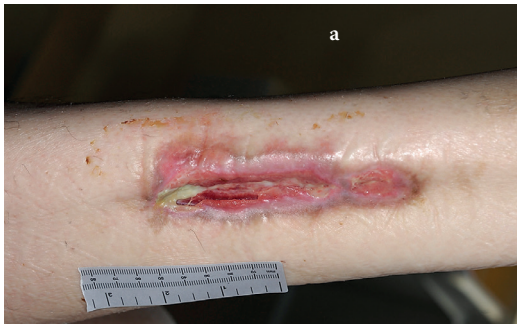
Ms MB is a 79-year-old female who lives at home with her son and grandson, but is independent and able to do the housework and gardening. She underwent a hernia repair and was discharged from hospital 4 days postoperatively. Three days later — 1 week from the date of surgery — Ms MB contacted the out-of-hours GP service due to vomiting and a lump that had developed at the incision site, which was exuding.

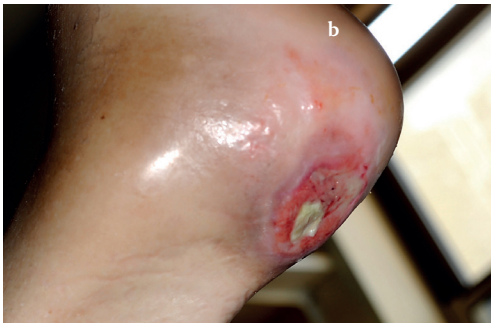
The wound dehisced and she was referred to the integrated care team. The patient was started on flucloxacilin 250mg four times a day, and the wound was initially dressed daily with an absorbent alginate dressing and a barrier film applied to the periwound skin. At review 3 days later, the wound measured 3.2cm (length) x 3cm (depth) x 1.6cm (width), was heavily exuding, and the wound bed comprised 75% yellow slough and 25% granulating tissue. There was undermining in each direction of 1.8cm, 1.6cm, 4.2cm and 3.1cm. The periwound area appeared healthy (*Figure 3*).

DURAFIBER ribbon was chosen as the primary dressing due to undermining. Heavy exudate levels and a difficult anatomical position made it difficult to maintain a seal. ALLEVYN Life was chosen to ameliorate these issues and allow for monitoring of exudate levels using the change indicator. Daily dressing changes were scheduled.

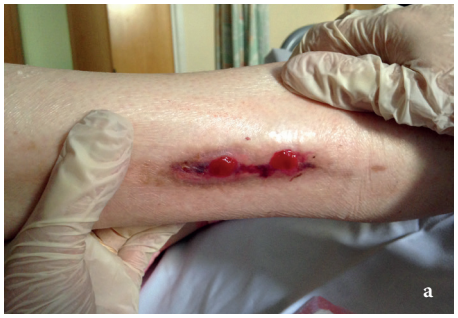
Review 1: Ten days later, exudate levels were well controlled. DURAFIBER had remained in place, and ALLEVYN Life minimised strikethrough. There had been a good reduction in slough and the wound bed now comprised 60% granulating tissue and 40% slough. The wound measured 2.8cm x 2.2cm x 1.4cm; undermining had reduced to 1.8cm, 1.6cm, 3.2cm and 2.5cm.

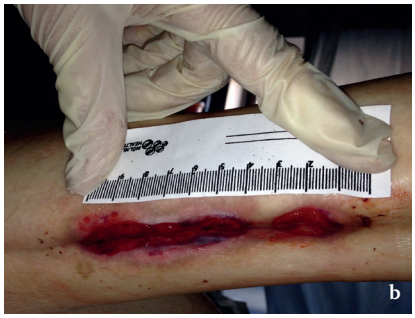
The patient reported that she liked the dressing because it was comfortable (no reported pain during wear or at dressing change) and she felt secure with it in place. She was 'delighted' to be able to shower daily, as it meant she felt clean and could 'get on with her "normal" life'. The dressing combination was continued.

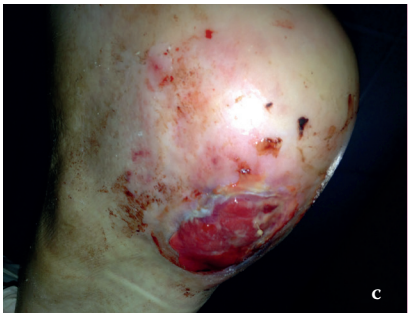




Figures 6a–b. Left calf (a)and heel (b) upon presentation







Figures 7a–c. Left calf (a), right calf (b) and heel (c) at second review.

Review 2: Eight days later the wound had reduced further in size, to 2.8cm x 2.0cm x 1.4cm. Undermining now measured 1.6cm, 1.5cm, 2.6cm and 1.9cm. Although the wound bed was cleaner, the exudate had changed in colour, to dark brown. There was slight malodour, but no pain or pyrexia. While awaiting results of a swab, it was decided to apply DURAFIBER Ag due to the change in exudate and odour. Daily dressing changes plus use of a barrier film were continued.

Review 3: Malodour had resolved 6 days later, although wound exudate was still dark brown. The swab showed that there were multiple bacteria and anaerobic organisms present; antibiotics had been commenced between reviews. Wound size had reduced slightly (by 0.1cm in depth) and granulation tissue now made up 90% of the wound bed. Undermining had also continued to improve, now measuring 1.6cm, 1.5cm, 2.2cm and 1.8cm (*Figure 4*).

The patient remained pleased with the security and comfort the dressing offered, allowing her to do more of her usual activities around the home. As the exudate colour indicated the continued presence of bacteria (localised infection) and the patient was anxious about new malodour, it was agreed with the patient that the dressing combination of DURAFIBER Ag and ALLEVYN Life be continued for a further 7 days. Dressing changes were performed by staff daily due to heavy exudate levels.

Review 4/conclusion: Exudate levels remained heavy 1 week later, but the dressing combination was effective in preventing strikethrough and had remained in place. Wound size had reduced to 2.4cm x 1.4cm x 1.4cm (70% reduction in wound volume from baseline), as had undermining, to 1.4cm (22% reduction from baseline), 1.2cm (25%), 1.6cm (62%) and 1.2cm (61%) (*Figure 5*). The dressing performed well over the course of the case study, and the patient was 'delighted' with the security and comfort it.

Case 3: Two trauma wounds and a chronic heel ulcer

Mr KC is a 51-year-old male with a progressive multiple sclerosis, type 1 diabetes, ischaemic heart disease and chronic loose stools with weight loss. He was bed/chair bound and was cared for by his wife who was having a difficult time coping. He was admitted to the acute neurological unit, presenting with three wounds:

- Wound 1: a trauma injury of 4 months' duration, on the right calf, that measured 100mm (length) x 25mm (width), with a depth ranging from 7mm to 12mm. The wound bed was 10% epithelialising and 80% granulating with 10% sloughy tissue
- Wound 2: a trauma injury of 4 months' duration, on

the left calf, that measured 60mm x 25mm; it was 60% granulation tissue and 40% slough (*Figure 6a*)

- Wound 3: a chronic heel ulcer of 2 years' duration that measured 53mm x 44mm and was composed of 90% granulating and 10% sloughy tissue. The heel ulcer was moderately exuding (*Figure 6b*).

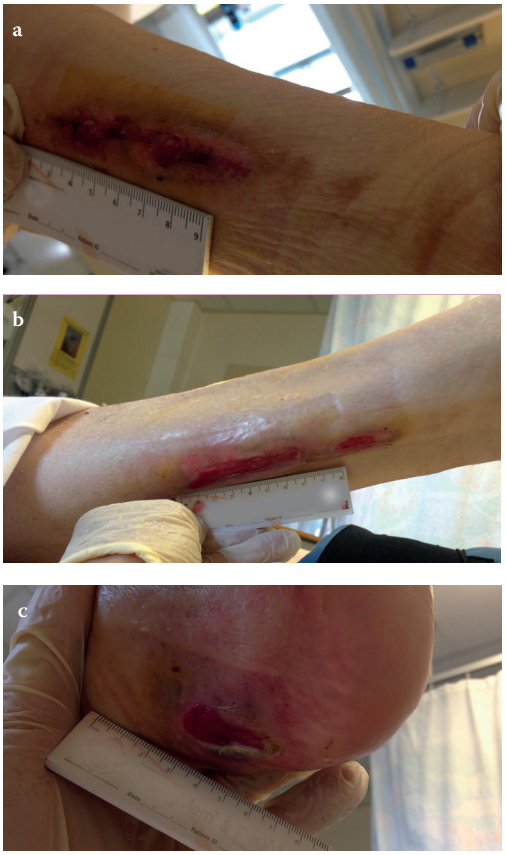
The patient spent long periods in his chair and had dependant oedema. His previous dressings had not managed his exudate well, which was complicated by lymphorrea. His skin condition was poor and he had significant neuropathy. The patient was unsuitable for compression therapy and the decision was made to use DURAFIBER and ALLEVYN Gentle Border to provide increased fluid handling and to protect the skin under his offloading boot. Dressing changes were scheduled for twice weekly and elevation was used to manage the oedema.

Review 1: One week later, the patient reported that although the ward nurses had been asked to leave the dressing in place until the change indicator dictated the need for changing, dressing changes had been performed every 48 hours (this was due to a misinterpretation of the care plan). The wound sizes and appearances were unchanged from baseline. Exudate continued to be moderate, and the patient reported no pain related to dressing wear. Oedema had reduced. The dressing regimen was continued, and nurses were instructed to let the indicator dictate dressing changes while the patient remained in hospital.

Review 2: Four weeks later, exudate levels had reduced to low and dressings had remained in place for 7 days. Overall, the three wounds had improved, although there was some overgranulation in the wound bed (*Figure 7*). The decision was made to use only ALLEVYN Gentle Border, with changes as needed, until the next review 10 days later.

Review 3/conclusion: ALLEVYN Gentle Border had been in place for 6 days, with no pain reported during wear or at dressing change. Overgranulation had resolved. All wounds had reduced in size and were epithelialising (*Figure 8*). Exudate levels continued to be moderate. Although the case study period had ended, the decision was made to continue using ALLEVYN Gentle Border, along with offloading of the heel, as the wounds had improved substantially and were moving towards healing.

The patient felt confident that when using these dressings he would not develop any further skin damage or trauma, and the nurses reported that his engagement in rehabilitation improved. The patient went on to achieve full wound healing in all three areas. He has continued to use ALLEVYN Gentle Border over the heel area to prevent the skin from breaking down again.



Figures 8a–c.
Left calf (a), right calf (b) and heel (c) at third review.

CONCLUSION

ALLEVYN Life has the capacity to contain exudate. Clinicians involved in the case studies rated the dressing's performance highly and stated that it was better than previously used absorbent adhesive dressings available on formulary. The indicator gives the option of monitoring without removing the dressing unnecessarily and the wide adhesive border ensures it is secure, even in awkward-to-dress sites. This decreases the need for extra nurse visits as the exudate is contained and there is potential for the patient to use the indicator to understand when their dressings need changing.

ALLEVYN Life and ALLEVYN Gentle

Border can be combined with DURAFIBER for improved fluid handling, conformability and increased protection of the periwound skin area. DURAFIBER conforms closely to the wound bed and stays intact, while the greater capacity of ALLEVYN optimises the containment of exudate, can reduce the frequency of dressing changes and prevents trauma to the periwound skin and surrounding area. WUK

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