Exit site management in the community using Kendall™ AMD Antimicrobial Foam Dressing with PHMB

Julie Evans

Exit sites are commonly encountered in the community setting as a result of a shift in clinical practice that means more patients with complex conditions are being managed at home. The management of exit sites varies according to indication, but there are principles of practice that are common to all sites, and these are outlined in this article. Kendall™ AMD Antimicrobial Foam Dressing with PHMB has been used to successfully prevent and manage infection of exit sites, and to manage overgranulation, a common complication of these wounds.

KEYWORDS:
Exit site management  Percutaneous devices  Overgranulation
Kendall™ AMD Antimicrobial Foam Dressing with PHMB

In recent years a high volume of patient care has shifted into the community setting, with the needs of this patient group becoming increasingly more complex as medical advances enable patients with multiple comorbidities to live for longer (Royal College of Nursing [RCN], 2012).

Percutaneous devices, defined as medical devices that pass through the skin, are increasingly encountered in the community, and, depending on their indication, may require either long- or short-term management. The care of percutaneous sites is relatively straightforward, however, mismanagement exposes the patient to complications ranging from pain and discomfort to life-threatening illness...

for all percutaneous sites (Spruce et al, 2012). This article discusses these, and the role that Kendall™ AMD Antimicrobial Foam Dressing with PHMB (Covidien) plays in the management of this patient group.

PERCUTANEOUS DEVICES

Percutaneous devices are positioned through a surgically created wound in the skin to provide a link with underlying tissues, structures and organs, for the therapeutic benefit of the patient (Spruce et al, 2012). The place at which the device exits the skin is known as the exit site. The device may be held in position using internal and/or external fixators to prevent movement of the device and damage to the surrounding skin through friction, pressure or fluid leakage (Best, 2009; Warriner and Spruce, 2012).

The aim with exit sites is to prevent complications before they occur by keeping them open and healthy. By minimising exudate production and its detrimental effects on the skin, and reducing the risk of infection, other associated complications, such as overgranulation, can be prevented.

Principles of management that are common to all exit sites include:
- Maintaining the device
- Maintaining integrity of the surrounding skin
- Prevention or management of infection and other complications, especially overgranulation.

Maintaining the device

All percutaneous devices should be routinely checked during cleansing of the exit site to ensure that they are fit for purpose and not damaged (McClave and Neff, 2006), which, in some patients, e.g. those with supra-pubic catheters, could result in leakage of fluid, such as urine, onto the skin.

Although exit sites have specific guidelines on management depending upon their indication, there are basic common management principles
All devices need to be positioned, immobilised and secured. Dressings can be used to hold the device in position in some therapies (RCN, 2010). When used, dressings should not cause any additional trauma to the site, and as soon as they become wet or soiled, they should be changed to reduce the risk of infection.

**Maintaining integrity of the surrounding skin**

The wound and device should be cleansed regularly to prevent bacterial growth. Mild soap and warm water, rather than shower gels or shampoo which might irritate the exit site (Wood, 2001), can be used to remove exudate, blood and wound debris from the site and device. Povidone-iodine has also been suggested as a cleansing agent (Piraino et al, 2005), although there is no uniform consensus on which solution is best to use to reduce the risk of infection (Twardowski and Nichols, 2009) and so the most appropriate agent for the patient’s situation should be chosen (Wild and Ansell, 2010), in accordance with the manufacturer’s guidance.

Cleansing also gives the patient or carer the opportunity to monitor the site, so that any complications can be identified and treated early. It is important to thoroughly dry the exit site and device using a soft clean cloth, as this will help to prevent maceration to the surrounding skin (Wild and Ansell, 2010). Materials, such as gauze or cotton wool, that might leave fibres in the area, and increase the risk of irritation or inflammation, should not be used.

It may be more appropriate for patients to shower before or on the day of dressing changes rather than having a bath, depending on the device *in situ* (RCN, 2010).

If a barrier cream is needed to treat the surrounding skin, it is important to ensure that it does not damage the device or become runny, thereby leaking into the opening of the exit site.

**Complications**

A breach in the skin’s integrity puts patients with exit sites at an increased risk of wound infection (*Table 1*).

Furthermore, the presence of any comorbidities will also increase the infection risk (WWUHMS, 2008) and so must be considered in vulnerable patient groups, such as those with renal disease undergoing dialysis.

The signs and symptoms of exit site infections include:

- Pain
- Increased volumes of exudate
- Erythema
- Heat.

In addition, infection may result in the exit wound becoming enlarged, as a result of the surrounding skin breaking down (McCleave and Neff, 2006). The longer the breach in the skin is present, the greater the risk of infection, with the most common causative organisms being *Staphylococcus aureus*, *Candida* species and *Pseudomonas aeruginosa* (Rolston et al, 2011).

Biofilm formation is a particular risk for patients with exit sites, and is recognised as a major factor in contributing to bacterial infection and chronic inflammation (Best Practice Statement, 2013). Biofilms develop when bacteria multiply at a very slow rate and colonise the exit site (Edward-Jones, 2012). Certain bacteria commonly found on the skin can adhere to percutaneous devices, particularly those made from latex or silicone, where they establish a biofilm. If left untreated, this can result in a prolonged inflammatory process that can lead to overgranulation (Edward-Jones, 2012).

**Overgranulation**

Repeated infection and friction between the skin and poorly-fitting or badly-secured devices can also lead to overgranulation (Warriner and Spruce, 2012; Edward-Jones and Leahy-Gilmartin, 2013).

Overgranulation, also known as hypergranulation, exuberant granulation tissue, or proud flesh, is caused by an excess of granulation tissue, and presents as friable red, often shiny and soft tissue that is above the level of the surrounding skin. Although it is not a life-threatening condition, it can cause bleeding, exudate and odour, all of which negatively affect patient quality of life (Johnson, 2007; McGrath, 2011), so measures to prevent its development will improve patient comfort and wellbeing.

If overgranulation is not managed appropriately, complications may develop around the exit site that result in the device having to be replaced or removed. Indeed, if overgranulation occurs in wounds around or near devices, raised tissue can physically obstruct device placement. For example, if there is overgranulation around a stoma wound, this will prevent stoma flanges, gastrostomy tubes and tracheostomy tubes from fitting closely, resulting in exudate and effluent being able to come into intimate contact with the peristomal skin and leading it to breakdown (McGrath, 2011).

Thus, using dressings that protect the moist tissue around exit sites can help both to prevent and manage complications such as infection and overgranulation. Such dressings include antimicrobial agents such as silver, iodine, polyhexamethylene biguanide (PHMB), chlorhexidine and honey.

Foam dressings, in particular, offer a non-traumatic way to reduce overgranulation, as they apply local pressure to the wound, helping to reduce oedema and flatten any raised affected tissue (Harris and Rolsd, 1994; Stephen-Haynes and Hampton, 2010).

**The role of Kendall™ AMD Antimicrobial Foam Dressing with PHMB**

A product that has been shown to effectively manage the complications of moisture and infection around exit

### Table 1: Increased risks associated with exit sites

<table>
<thead>
<tr>
<th>Device</th>
<th>Risks</th>
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<tbody>
<tr>
<td>Central venous catheters (CVC)</td>
<td>Bloodstream infections (Altman, 2006)</td>
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<tr>
<td>Peritoneal dialysis</td>
<td>Peritonitis (Johnson et al, 2009)</td>
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<tr>
<td>Fixations</td>
<td>Pin tract infections (Temple and Santy, 2004)</td>
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<tr>
<td>Percutaneous endoscopic gastrostomy (PEG) sites</td>
<td>Local infection (Zopf et al, 2008)</td>
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A recent audit of 24 patients with overgranulation who were referred to a home enteral nursing service over a 6-week period evaluated the use of Kendall AMD Antimicrobial Foam Dressing within a care pathway (Warriner and Spruce, 2012). The dressing was chosen as a result of a thorough literature search which provided evidence of its clinical efficacy. From reviewing the evidence, PHMB was also the preferred choice of antimicrobial agent, due to its safety profile (Hubner and Kramer, 2010) and effectiveness (Moore and Gray, 2007; Sibbald et al, 2011). In addition, as PHMB is not deactivated in the presence of organic substances, such as exudate or blood (Hubner and Kramer, 2010), it is appropriate for highly-exuding gastrostomy sites with overgranulation tissue.

During the six-week evaluation the dressing was applied and covered with a standard polyurethane dressing to apply pressure to the overgranulation tissue. Daily cleansing, dressing changes and inspection of the device was carried out, with a review at week two and at the end of the six-week treatment period. At week two it was found that the overgranulation tissue had resolved in 33% of patients, but by the six-week review overgranulation had completely resolved in 16 out of the 24 patients. The authors concluded that adopting a strategic approach to managing overgranulation by following a care pathway and using a foam dressing with PHMB improved both patient outcomes and clinical practice (Warriner and Spruce, 2012).

The foam base of the dressing has been especially designed with a loose ‘honeycomb’ structure to absorb exudate from the wound with a vertical wicking effect (Spruce et al, 2012). At the foam’s core, the honeycomb structure is denser to retain fluid and give greater wear time. Its polyurethane back sheet prevents strikethrough when under compression and provides protection against bacteria. Also, being a double-sided dressing helps to prevent confusion during application.

The PHMB activity helps to reduce bioburden at the exit site, which reduces the risk of infection occurring.

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**Clinical efficacy**

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**Indications**

Kendall™ AMD Antimicrobial Foam Dressing with PHMB can be used to prevent and manage infection and overgranulation around a variety of exit sites, including:

- Catheter insertions (e.g. central venous catheters and peripherally inserted central catheters)
- Tracheostomy sites
- External fixator pin entry sites
- Penrose drains
- G-tubes or J-tubes
- Chest drains
- Nephrostomy sites
- Central venous lines
- Suprapubic catheters.

**Application**

The appropriate sized double-sided dressing should be opened and cut to fit (Figure 1), and applied to the exit site, ensuring that the device is correctly positioned (Figure 2). If overgranulation tissue is present, a secondary foam dressing can be used to increase localised pressure if appropriate for the device. It is important to observe the patient 72 hours after inserting the device for signs of:

- Prolonged or severe pain, e.g. associated with feeding
- External leakage
- Tube displacement.

**Figure 1.**

Opening and cutting Kendall™ AMD Antimicrobial Foam Dressing with PHMB.

**Figure 2.**

Kendall™ AMD Antimicrobial Foam Dressing with PHMB applied to exit site.

**Figure 2.**

Kendall™ AMD Antimicrobial Foam Dressing with PHMB applied to exit site.
Sibbald et al (2011) also found in a randomised controlled trial (RCT) involving 40 patients with leg and foot ulcers across two sites, that PHMB foam dressings helped to reduce pain and bacterial burden. Again, in this study, both the patients and healthcare professionals were very satisfied with the dressing’s performance.

CONCLUSIONS

By following basic principles that involve routine cleansing of the site and device, and using products that help to prevent infection from occurring, further complications around exit sites, such as overgranulation, can be prevented. This, in turn, results in clinical and cost-effectiveness, which can be further enhanced by educating patients and carers in how to look after their wound and device (Warriner and Spruce, 2012).

This is particularly true in the case of patients in the community, many of whom will have been discharged with an exit site wound from a tracheostomy or suprapubic catheter, for example, which needs to be maintained. Products that make it easier for patients and community staff to manage these wounds locally and with a minimum amount of training, are to be welcomed.

Kendall AMD Antimicrobial Foam Dressing with PHMB offers both clinical (Ciprandi, 2011; Warriner and Spruce, 2012) and cost-effectiveness (Spruce et al, 2012) and, being available in a variety of sizes and shapes, offer a versatile solution for managing exit sites.

REFERENCES


# WCAUK 4th Annual Conference

## Tissue Viability and Lymphoedema

### A Shared Goal

**Liberty Stadium, Swansea SA1 2FA**  
**Friday 11 April 2014**  
**9.00am– 4.00pm**

### Programme

**Friday 11 April 2014**

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<td>The Vision from Lymphoedema</td>
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<td>The Vision from Tissue Viability</td>
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<td>1230 – 1300</td>
<td>Managing Complexities in Tissue Viability</td>
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<td>1300 – 1350</td>
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**Chair for the afternoon, Jackie Griffin, Tissue Viability Clinical Nurse Specialist, Newtown Hospital**

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<td>1415 – 1500</td>
<td>Patients’ stories – Lymphoedema, Leg Ulceration and Pressure Ulcers</td>
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<td>1500 – 1515</td>
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| 1515 – 1545 | Expert panel with: Jackie Stephen-Haynes, Professor and Consultant Nurse in Tissue Viability, Birmingham City University and Worcestershire Health and Care Trust  
Karen Morgan, National Lymphoedema Education and Research Specialist  
Karen Kembery, Tissue Viability Nurse, Abertawe Bro Morgannwg University Health Board  
Rosie Callaghan, Tissue Viability Nurse, Worcestershire Health and Care Trust  
Delia Keen, Tissue Viability Clinical Nurse Specialist, North Powys Teaching Health Board/ Lymphoedema Clinical Lead, Powys |
| 1545 – 1600 | Quiz, prizes and close |

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