

Flexi-Seal® faecal management system for preventing and managing moisture lesions

The 'Your Skin Matters' section of the High Impact Actions (HIAs) for Nursing and Midwifery (2009) largely focuses on preventing pressure ulcers. However, moisture lesions or incontinence-associated dermatitis (IAD) can be of equal distress to the patient as a pressure ulcer. This condition often results in pain from breakdown of the skin, increased risk of infection and length of hospital inpatient stay, as well as affecting patient dignity from the embarrassment of faecal/urinary incontinence. Like pressure ulcers, moisture lesions can often be prevented. This paper describes an intervention for faecal incontinence that can help to prevent and manage this condition and, thus, has an impact on patient safety, clinical-effectiveness and patient experience.

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KEY WORDS

Moisture lesions
Pressure ulcers
Diarrhoea
Faecal management systems

Exposure of the skin to urine and faeces, or both, can result in moisture lesions or incontinence-associated dermatitis (IAD) (Rees and Pagnamenta, 2009). Recent studies have suggested prevalence rates from 3.4% (Zimmaro et al, 2006) to 5% (Iverson, 2009), but this could be higher depending on the clinical setting. This condition can have a considerable impact on the patient's physical and psychological well-being, therefore prevention is imperative. Prevention and treatment of moisture lesions often involves control of urinary and faecal incontinence. The condition is

often confused or classified as category 2 pressure damage, however, the management of both these conditions can vary significantly and therefore the lesions need to be differentiated. Despite the availability of best practice

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statements to enable dissimilarity (European Pressure Ulcer Advisory Panel [EPUAP], 2007), some trusts still fail to make that distinction, grouping pressure ulcers with moisture lesions, leading to inaccurate assessment and management of the conditions, as well as providing inaccurate metrics and statistics (Fletcher, 2010). Figures 1 and 2 show examples of moisture lesions.

Traditionally, urinary incontinence has been easier to manage than faecal incontinence (Beldon, 2007), with a variety of management options being available. Until recently, faecal incontinence presented greater challenges, particularly if the patient experienced this problem following the onset of *Clostridium difficile* or norovirus infections (Kingsley, 2007), or as a result of receiving enteral feeding (Wiesen

et al, 2006), all of which can lead to profuse diarrhoea. Faecal collection bags, incontinence pads and flatus tubes have been used to manage faecal incontinence, but their effectiveness has been constrained, particularly if the patient produces a high volume of faecal fluid. The latest faecal collection devices have attempted to address this issue, while promoting patient comfort and dignity and improving staff morale (Binks, 2007).

Effect of incontinence on skin integrity

The skin is the largest organ of the body which helps to regulate heat and water loss, and acts as a barrier to microorganisms and harmful chemicals (Butcher and White, 2005). Sebaceous glands, which are usually linked to hair follicles and located in the dermal layer, secrete sebum, a fatty substance comprising triglycerides, wax esters, squalene, cholesterol and cellular debris that moisten and protect the skin. The production of sebum also contributes to the acid pH of the skin (4.0–5.5), which helps to deter colonisation by non-resident bacteria and pathogens, as most bacteria survive in a pH range near neutral (Beldon, 2008). However, exposure to urine, faeces, and certain cleansing agents can increase the skin pH, reducing its acidic mantle and rendering it more alkaline. The former is brought about by bacteria in the faeces converting urea in urine to ammonia, which elevates the pH making the skin

more permeable (Le Lievre, 2002). The raised pH activates proteolytic and lipolytic enzymes in faeces which causes dermatitis (Nazarko, 2007). The skin's barrier function is then reduced and bacterial and fungal colonisation can subsequently occur. Bacteria further erode the epidermis causing ulceration and infection.

Friction from application of creams or from positioning of pads and clothing can exacerbate and further reduce skin integrity. Soap has an alkaline pH and frequent washing of the skin will reduce the acidic mantle (Le Lievre, 2002).

The elderly are more susceptible to this condition due to thinning of the epidermis and reduced sebum production affecting the skin's protective function (Beldon, 2008).

Recognition of moisture lesions

In an attempt to prompt accurate recognition and subsequently treatment of moisture lesions, the EPUAP launched a position statement (EPUAP, 2007) to enable differentiation between pressure ulcers and moisture lesions. The statement denotes:

- ▶▶ Superficial lesions or spots comprising partial-thickness skin loss with diffuse or irregular edges
- ▶▶ Lesions may extend either side of the anal area and present as a kissing or copy lesion
- ▶▶ There will be moisture present and the skin will appear shiny or wet
- ▶▶ The surrounding skin often has blanchable or non-blanchable erythema, as well as pink or white macerated tissue
- ▶▶ There is generally no necrosis present with these lesions although if they get infected they will enlarge and deepen.

Pressure ulcers are identified by:

- ▶▶ Pressure and/or shear forces will have caused the lesion
- ▶▶ They are located over bony prominences. Moisture lesions can occur over bony prominences but moisture will have been present and will be directly attributable to causing the condition
- ▶▶ Pressure ulcers are often isolated to



Figure 1. Moisture lesion with diffuse irregular edges.



Figure 2. Moisture lesion with diffuse superficial spots.

one spot, whereas moisture lesions often have numerous lesions

- ▶▶ Pressure ulcers often are circular in shape with distinct edges
- ▶▶ Pressure ulcers may extend from partial-thickness to full-thickness skin loss and necrosis may be present
- ▶▶ If redness of the surrounding skin is non-blanchable, this is more likely to be a pressure ulcer.

However, more recent literature indicates that recognition and differentiation of moisture lesions still remains problematic (Beeckman et al, 2008).

Houwing et al (2007) undertook an observational study of histopathological samples from patients with category 2 pressure ulcers and with moisture lesions. Punch biopsies were taken from 14 patients with superficial sacro-gluteal lesions and with a history of incontinence. The study was conducted in one hospital. Patients presented with a variety of signs, 13 having blanching hyperaemia, 11 having superficial tissue loss with diffuse or irregular edges and not situated over bony prominences, and seven had skin ridges adjacent to the natal cleft. The histological samples taken from the affected skin areas demonstrated two dissimilar patterns.

One was an ischaemic presentation whereby there were localised degenerative changes in the epidermis and dermis, including oedema, engorgement and extravasation of erythrocytes and polymorphonuclear leukocytes infiltration. The other pattern was the presence of an irritation, with epidermal loss, lengthened epidermal rete pegs, oedema, dilated vessels and mononuclear phagocytic leukocyte infiltration. However, the authors found this not to be conclusive in all cases, as some patients with signs of irritation also demonstrated ischaemic processes. They subsequently advocated that moisture lesions should not be separated from pressure ulcers, as attempts to do so could prevent some patients from receiving appropriate pressure ulcer preventative care.

While most patients with moisture lesions will have similar intrinsic needs to those patients with pressure damage, in the author's opinion this conclusion does seem slightly unfounded as the authors did not fully expound the possibility of patients with both ischaemic and irritation characteristics having combined lesions. These are lesions that ensue when pressure/shear and moisture are concurrent (EPUAP, 2007). One of the significant aspects to practice is that the cause of any wound must be investigated to prevent recurrence or exacerbation (Fletcher, 2010).

Beekman et al (2008) undertook a randomised control trial (RCT) involving 1217 nurses from across Europe. Data was collected over a period of 15 months between 2005 and 2006. The study aimed to test the accuracy of the Pressure Ulcer Classification education tool (PUCLAS). A large wound management conference was used as a basis for contacting the nurses involved in the study. This may have influenced the outcomes of the study, as these nurses already had an interest in wound care, but the authors acknowledged this potential limitation. Furthermore, the nurses in the study were already familiar with the use of the EPUAP classification system, which may again

have provided more optimistic results had other nurses less involved in wound care been included. Pre and post-testing was undertaken in both control and experimental groups. The experimental group received specific training using the PUCLAS education after the pre-test. Both pre-test results were quite low for recognition of moisture lesions, however, there was significant improvement in the experimental group in the post-test, indicating effectiveness of the PUCLAS

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training for identification of moisture lesions as well as categorising pressure ulcers.

Kottner and Halfens (2010) undertook an observational study to examine the interrater reliability between trained nurses in correctly identifying moisture lesions in 339 care home patients. The authors found there was a low interrater reliability as, although nurses differentiated between those patients with moisture lesions and those without, there was a high degree of measurement error in the assessment results. They concluded by inferring that delivery of specific care for patients with moisture lesions may be erroneous because of poor reliability in identification, and that the EPUAP needed to address existing training to improve recognition.

Management of incontinence

Although there is limited evidence on the effectiveness of various skin regimens used to prevent and manage moisture lesions, the following tend to be used and often in combination:

- ▶▶ pH balanced cleansers are often recommended, particularly if they contain an emollient as they leave

the skin in better condition

- ▶▶ Emollients are used for protection, but certain types can block the action of incontinence pads and render them ineffective. Furthermore, many emollients have no evidence for use with adult incontinence
- ▶▶ Barrier films and skin protectants have been found effective if the patient is very incontinent or experiencing double incontinence, and some may assist in resolving excoriated lesions
- ▶▶ Draw sheets and plastics are never used now as they are impervious to body fluids
- ▶▶ Incontinence pads have super absorbent polymers to lock away fluid, but need to be worn with pants otherwise they can move and cause friction, or, if layered under the patient, can reduce the effectiveness of the pressure redistributing support surfaces.

Faecal management system

Flexi-Seal™ faecal management system (ConvaTec) is a temporary containment device, indicated for bedridden or immobilised, incontinent patients with liquid or semi-liquid stools. It is designed to safely and effectively contain and divert faecal matter; protect patients' wounds from faecal contamination and reduce both the risk of skin breakdown and spread of infection.

There are a number of contraindications where it cannot be used, namely:

- ▶▶ Large bowel (colon) surgery or rectal surgery within the last year.
- ▶▶ Rectal or anal injury
- ▶▶ Haemorrhoids of significant size
- ▶▶ Severe rectal or anal stricture/stenosis
- ▶▶ Suspected or confirmed rectal mucosa impairment
- ▶▶ Confirmed rectal/anal tumour
- ▶▶ Faecal impaction
- ▶▶ Flexi-Seal faecal management system is not intended for use beyond 29 days, or for paediatric patients.

Service improvement

Concerned about confusion over

the recognition of moisture lesions and subsequent under reporting, Worcestershire Acute Hospitals have made a number of endeavours to improve prevention, identification and management. Initially, the trust incorporated a section in the pressure ulcer prevalence audit, undertaken every quarter, in a bid to ascertain a representative number of patients who experienced this condition. However, there was general agreement that these figures were not absolutely accurate, based on comparison between this data and the number of referrals seen by the tissue viability team. The numbers did not correlate and tissue viability were seeing a higher number of patients with moisture lesions compared to the percentage denoted in the prevalence. This suggested that staff were failing to recognise these lesions and indicated a training need. Therefore, an audit was arranged via tissue viability and infection prevention and control, supported by the company who distribute Flexi-Seal faecal management system.

The company visited all wards within the trust to identify:

- ▶▶ The number of patients with diarrhoea
- ▶▶ The cause of the condition
- ▶▶ The numbers of patients with this condition that were ambulant and non-ambulant
- ▶▶ Products being used to manage the condition
- ▶▶ Numbers of patients with moisture lesions.

The audit revealed that it often takes at least two nurses up to 20 minutes to clean a patient, and, if the patient has liquid stools, they often need cleaning up to six times per day. The cost implications associated with the management of this condition were also analysed. Ninety patients were found to have diarrhoea, of which 37 had related moisture lesions. The latter group's direct care costs were estimated at £93,417.69 per year, based on the frequency of being cleaned and changed, the cost of linen, the cost of nursing time to undertake this procedure, the cost of incontinence and barrier products and the cost of

dressings being used. Had those same patients been using Flexi-Seal faecal management system, the trust could potentially have saved £73,617.69.

On the basis of these findings, it was decided that an improved service was needed. Although Flexi-Seal faecal management system was available within the trust, improved awareness, competence and access to the product were required. Education on prevention, recognition and management of moisture lesions was also needed.

The faecal management system can contribute to preventing cross-infection for those patients with infective diarrhoea conditions.

To achieve an improvement in service delivery, the infection prevention and control and tissue viability teams identified that the success of the strategy depended on a multidisciplinary approach, hence subsequent involvement of the medical devices trainer, procurement and industry. The former two have links into trust-wide groups and educational programmes, and the latter has been able to support various education initiatives.

Infection prevention and control, tissue viability teams and the medical devices trainer have promoted increased awareness of Flexi-Seal faecal management system, including training on link nurse study days and in the medical devices training programme. Industry have provided some of this training. Training on prevention and management of moisture lesions is included in the mandatory tissue viability training. Specific guidelines on the use of Flexi-Seal faecal management system have been developed and guidelines on moisture lesions are included in the pressure ulcer prevention and management policy. One of the companies who supplies and distributes barrier protection products have provided the trust

with laminated posters to help staff differentiate between moisture lesions and pressure ulcers. The clinical governance team have updated the electronic clinical incident reporting system (Datix) to include disclosure of moisture lesions. Procurement and infection prevention and control have negotiated a process to ensure ready access, even during out-of-hours. Procurement have also negotiated a contract to enable the trust to get the system at a reduced cost.

Case report

One particular patient who benefited from Flexi-Seal faecal management system was an 84-year-old lady admitted with an infected hip arthroplasty. While in hospital she developed profuse faecal incontinence (Bristol score 7), which resulted in skin breakdown. It was thought her antibiotic regimen had precipitated the faecal incontinence. The lady was in severe discomfort, to the extent that staff were distraught by her distress when they attempted to clean her. Numerous barrier products had been used in an attempt to resolve the skin condition, but with minimal effect. Skin breakdown had extended from around her anal area and natal cleft to bilateral mid gluteal tissue, posterior thigh and gluteal folds. The patient was referred to tissue viability, who advised use of Flexi-Seal faecal management system. Within six days the patient's skin condition improved and her pain reduced significantly. Although there were still some open wounds, most of the lesions had re-epithelialised.

Discussion

Although the service is still in its embryonic stages, there seems to be a number of benefits that reflect the Department of Health (DH) quality initiatives and agenda, including enhanced patient safety, clinical-effectiveness and patient experience.

From patient safety, the key issues brought about by this product are preventing the breakdown of the skin and infection of existing sacro-gluteal lesions. The faecal management system can contribute to preventing

cross-infection for those patients with infective diarrhoea conditions. The design of Flexi-Seal faecal management system has an advantage in that the water-filled balloon that holds the system in position is soft and prevents tissue necrosis

From the clinical-effectiveness perspective, the system can bring about cost-savings. In relation to reducing nursing costs, the audit undertaken at the author's trust highlighted that it took at least two nurses up to 20 minutes to clean a patient and this process could be repeated at least six times per day. The use of Flexi-Seal faecal management system would reduce this nursing time as faecal matter is contained. Other associated costs including use of barrier creams, dressings, bed linen, pads and antibiotics could be reduced. By preventing infection and cross-infection, the risk of ward closures, delayed discharges, excess bed days and lost opportunity costs might be reduced.

From patient experience, no one can imagine the pain and discomfort patients experience from having moisture lesions. Preventing this condition and any subsequent infection ensures no avoidable skin breakdown. Patient dignity is also preserved, as the embarrassment from soiling sheets and the need to be constantly cleaned is eliminated.

From the staff experience, there is a possibility that the impact of the product can aid in improving staff morale by addressing patient safety, comfort and dignity.

Conclusion

Moisture lesions or incontinence-associated dermatitis affect people who are incontinent, producing inflamed, excoriated infected damaged skin and resulting in pain and discomfort. Inaccurate recognition of moisture lesions can lead to staff having difficulties with accurate assessment and adopting unnecessary interventions, or reporting falsely high pressure ulcer incidence rates. Flexi-Seal faecal management system has been found by

the author to be effective in preventing skin breakdown and/or improving moisture lesions. **WUK**

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Key points

- ▶▶ Urinary and faecal incontinence can damage the skin causing moisture lesions.
- ▶▶ Moisture lesions are often confused with category 2 pressure ulcers.
- ▶▶ The treatment of moisture lesions can differ to the treatment of category 2 pressure ulcers.
- ▶▶ Moisture lesions are painful and can increase the risk of infection and length of hospital inpatient stay.
- ▶▶ Faecal incontinence can affect patient dignity.
- ▶▶ Flexi-Seal® faecal management system can help prevent and manage moisture lesions and has been found to improve aspects of patient safety, clinical-effectiveness and patient experience.