

The dangers of faecal incontinence in the at-risk patient

Faecal incontinence can have serious consequences for a patient's skin, quality of life and dignity. Clinicians and support workers need to be aware of the impact faecal incontinence can have on individual patients. This article identifies the negative effects of faecal incontinence in relation to morbidity, quality of life and health economics.

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INTRODUCTION

When faecal incontinence occurs tissue can deteriorate rapidly. Bliss et al^[1] reported onset of incontinence-associated dermatitis (IAD) at between six and 42 days after onset (median 13 days).

All clinicians and support workers need to be aware of the impact faecal incontinence can have on individual patients. Early recognition of at-risk patients, prevention strategies and treatment may prevent tissue breakdown. It is, therefore, important for clinicians to be aware of the possible causes of faecal incontinence and to understand the physiological changes that may occur.

THE CAUSES OF FAECAL INCONTINENCE

Clostridium difficile is the most significant cause of hospital-acquired diarrhoea and is responsible for considerable morbidity and mortality. Patients with *C. difficile*-associated diarrhoea may also experience faecal

incontinence^[2]. Other important causes of faecal incontinence are outlined in *Table 1*.

WHO IS AT RISK

Faecal incontinence is a common and debilitating condition with prevalence varying between care settings. The reported prevalence of faecal incontinence is 18% to 37% in patients in acute/critical care settings^[3,4]. In long-term care hospitals a prevalence of 46% was reported^[5] with prevalence of between 40% and 79% in residential and nursing homes^[1,6]. Faecal incontinence can occur as an acute episode, eg after commencing antibiotic therapy or during an exacerbation of inflammatory bowel disease, or as part of a chronic condition, eg in the presence of anal sphincter damage or a neurological condition. It affects all age groups but is most commonly seen in the elderly population^[7] and in patients managed in critical care settings^[8].

Anal sphincter damage or weakness: obstetric trauma to anal sphincter muscles; surgery, eg lateral sphincterotomy; haemorrhoidectomy; anal stretch
Neurological conditions: spinal cord injury; multiple sclerosis; Parkinson's disease; spina bifida; stroke
Impaction with overflow: frail or immobile patients; cognitive impairment, eg dementia; immobility/physical disability
Ano-rectal pathology: rectal prolapse; congenital abnormalities; anal/recto-vaginal fistula
Diarrhoea/intestinal hurry: Chron's disease; ulcerative colitis
Drugs, eg antibiotics

Table 1. Causes of faecal incontinence.

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Excoriation: erythema (redness) skin not broken. Caused by irritant fluids, urine and/or sweat. Skin is shiny and wet in appearance. Most commonly occurs in skin folds, natal cleft and peri-anal area. Likely to have irregular edges



Moisture lesions: superficial lesions caused by irritant fluids, ie urine, faeces and wound exudate. Found in skin folds natal cleft, and the peri-anal area — may present as diffuse spots, kissing ulcers and are likely to have irregular edges. Superficial or partial thickness skin loss is common and infection may be present. The wound may also be macerated. White colouration may be due to fungal infection and green areas could be caused by bacterial infection



Pressure ulcers: tissue damage caused by pressure, shearing and friction or a combination of these factors. Damage can be superficial or deep, often present over bony prominences. Tissue types may vary from erythema to black necrosis. Edges are more distinct than in moisture lesions



Combined lesions: one or more wounds/skin lesions caused by a combination of pressure, shear, friction and moisture. May occur over bony prominences and there may also be skin damage in the perineal area, the natal cleft and between the thighs. The lesions may be partial or full thickness in appearance and may range from non-blanching erythema to necrotic and sloughy wounds. These wounds are at risk of infection so may appear green in colour depending on the types of bacteria present



Table 2. Different lesion types caused by faecal incontinence (taken from Bianchi, J. 'The use of faecal management systems to combat skin damage.' *Wounds UK* 8[2] Supplement).

THE CONSEQUENCES OF FAECAL INCONTINENCE

The physiological changes that occur due to faecal incontinence are thought to be a result of an increase in the pH of the skin. The normal pH of the skin varies from person to person but, in the normal state, the skin is acidic with a mean pH of 5.5–5.9. Changes in the external pH of the skin affect the fatty acid content of the skin and impair the barrier formed by the skin cells^[9,10].

Normal stool is alkaline, with a typical pH of 7.0–7.5. Exposure to faeces contributes to an abnormally high skin pH. In addition to damaging the barrier function of the skin cells, an increased pH encourages bacterial colonisation, most often by *Candida albicans* and *Staphylococcus* from the perineal skin and the gastrointestinal tract^[11]. Overgrowth of these or other microorganisms can lead to skin irritation or infection, which can further weaken the skin's defence mechanisms.

The excess moisture also makes the skin susceptible to mechanical damage, friction and shearing forces^[9]. In liquid stool, lipolytic and proteolytic enzymes also damage the skin by breaking down the epidermis^[11].

In addition to the local damage caused by faecal incontinence, there is an increased risk of systemic infection such as urinary tract infection and microbial skin infection^[12].

Pressure ulcer development is associated with increased morbidity and mortality. Other consequences include a higher risk of nosocomial infections and other hospital complications, and increased length of stay^[13].

Moisture lesions, moisture ulcers, perineal dermatitis, diaper dermatitis and IAD all refer to skin damage caused by excessive moisture^[14] and are potential consequences of faecal incontinence.

Nix^[7] suggested that IAD develops in one-third of patients who are faecally incontinent — this correlates with a study carried out by Bliss et al^[11] who found that, in a study population of elderly residents in nursing homes, all of the patients who developed IAD also had faecal incontinence. Bliss et al^[11] defined the different levels of IAD as:

- **Mild:** light redness, intact skin, slight discomfort
- **Moderate:** medium redness, presence of skin peeling or flaking, small areas of shallow broken skin or small blisters
- **Severe:** dark or intense redness, presence of rash, deeper skin peeling or erosion, large blisters or weeping skin and pain.

Table 2 describes the different types of lesions that can occur as a consequence of faecal incontinence.

FAECAL INCONTINENCE AND QUALITY OF LIFE

The psychological impact of both faecal incontinence and the resultant skin damage should not be underestimated and can negatively impact patients' dignity, causing embarrassment and stigma^[15]. Lack of bowel control and subsequent odour can also impact on both social and physical functioning. Additionally, skin excoriation caused by faecal incontinence is an extremely debilitating and often very painful

condition^[16] and as such can significantly impact on the patient's quality of life.

FINANCIAL COST

In addition to the physical and psychological impact of faecal incontinence, there are significant cost implications in terms of increased length of hospital stay and the subsequent effect on employment. In these times of limited economic resources, all clinicians must be aware of safe and effective methods of reducing healthcare costs.

Gray et al^[17] suggest that pressure ulcer treatment data should include costs associated with skin injury caused by incontinence. Any financial analysis also has to account for the

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Name of instrument	Authors	Scoring	Notes
Perineal assessment tool	Nix ^[7]	Cumulative scoring — the higher the score the higher the risk of IAD	Validated tool. Assesses risk based on: type of irritant; duration of contact; condition of perineal skin; total number of contribution factors
IAD skin condition assessment tool	Kennedy and Lutz ^[24]	Cumulative score with higher numbers indicating more severe IAD	Score based on area of skin affected, degree of redness and depth of erosion
N/A	NATVNS (2008 ^[25])	Descriptive with 1–3 score	Designed to assess severity of excoriation and offers advice on skin care regimens. Clinical images used to aid assessment
Skin integrity: A clinical guide to 'best practice'	Mathison et al ^[26]	Descriptive — differentiating between excoriation, moisture lesions, pressure ulcers and combined lesions	Designed to assess skin changes including excoriation, moisture lesions, pressure ulcers and combined lesions; and management options including skin care regime, faecal management systems and pressure-redistributing surfaces, where relevant. Clinical images to aid assessment
The Incontinence-associated Dermatitis and its Severity Instrument	Borchert et al ^[27]	Assesses 13 body locations including peri-anal skin, genitals, buttocks, inner thighs, lower abdomen and suprapubic area	Validated tool. Requires clinician to determine degree of redness, magnitude of skin loss and presence of rash

Table 3. The available skin assessment tools.

cost of linen changes, including clinicians' and carers' time and laundry costs, as well as other factors such as aprons, gloves, skin cleansers and disposing of soiled items.

Economic considerations for healthcare

providers, in terms of staff and consumables, were studied by Bale et al^[6]. The researchers found the introduction of a structured skin care protocol, along with an educational programme, resulted in a significant reduction

Case study

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Introduction

This 84-year-old woman was admitted to the department of Internal Medicine because of a water-electrolyte imbalance caused by acute gastroenteritis and abdominal pain. She was previously a resident in a Medical and Social Services Centre.

On admission to the hospital, we were informed that for the previous two days she had passed an average of 12 liquid stools per day. However, there was no vomiting. Erythema was present on both buttocks and the perianal area. A stool sample was taken, which tested positive for Clostridium difficile. An intravenous infusion was established for the administration of saline solution and electrolytes. Antibiotics were administered intravenously, diuretics were given (scheduled diuresis was monitored through the use of a catheter) and anti-platelet drugs provided. The patient continued to receive her normal medication and three days after being admitted she was passing semi-liquid stools.

Relevant medical history

The patient had a history of arterial hypertension, heart failure, cognitive deterioration and dependence in daily activities — she required help for mobilisation and when using the toilet.

Risk factors for skin involvement

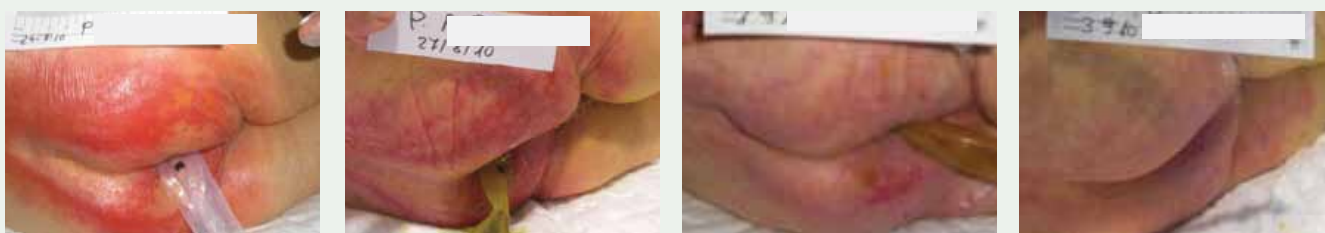
The patient presented with faecal incontinence, cognitive deterioration (which increased due to the water-electrolyte imbalance), a frequent rate of bowel movements and immobilisation. She presented with erythema on both buttocks, the peri-anal area and the sacrum. She was anxious regarding the itching and stinging sensation on her buttocks, despite at times finding it difficult to vocalise this.

Use of faecal management system

The patient's skin integrity was assessed and significant erythema noted (see Figure 1 below). Because the patient presented with frequent liquid stools, skin changes and C. difficile infection, a Flexi-Seal™ (ConvaTec) faecal management system (FMS) was administered, as well as the hydrating cream for the erythema. Three days later, the patient's skin had improved, with a decrease in the amount of erythema (Figure 2). Four days later, the bowel movements were less frequent and semi-liquid, and the FMS device was continued. On the eighth day, a very significant improvement was noted in the affected area, with the erythema practically having disappeared (Figure 3). The FMS continued to be used due to the fact that the semi-liquid stools persisted and the patient was immobilised. On day 10 the erythema had completely disappeared and the bowel movements were soft and occurred once or twice daily (Figure 4).

Conclusion

Worsening of the patient's skin on the buttocks and peri-anal area was avoided by using the FMS device, which allowed the skin to regenerate by ensuring the stools were not in contact with the skin. During the treatment period, no other cases of C. difficile were noted in the hospital department, which suggests that FMS may have helped to avoid the spread of infection. Despite the initial cost of acquiring the product, the team felt that this device was ultimately cost-effective due to reduced skin damage, the shortened period of recovery and the prevention of infection spreading to other patients.



Figures 1-4. The progression of the patient's buttocks and sacral area using a faecal management system.

in the number of patients developing grade 1 pressure ulcers ($p=0.042$) and incontinence-related dermatitis ($p=0.021$), as well as a time reduction in patient care associated with incontinence-related skin damage ($p<0.001$; mean reduction — 4 minutes 2 seconds per patient). In addition to a reduction in the amount of consumables used prior to implementation, this resulted in cost savings of £8.85 for qualified staff and £3.43 for unqualified staff. The researchers also noted patients' skin condition was maintained or improved following implementation.

Similarly, Durnal et al^[18] evaluated a faecal management system in a hospital intensive care unit and demonstrated a 45% reduction in costs compared to traditional methods (absorbent briefs, skin cleansers, moisturisers). The cost savings identified were mainly due to a reduction in nursing time, which was substantially reduced by using a faecal management system.

EVALUATING MOISTURE-RELATED SKIN DAMAGE

When skin damage has occurred, accurate skin assessment is essential. Clinicians should use a recognised assessment tool to aid grading and decision making for treatment of tissue damage. *Table 3* describes the tools available.

Despite the availability of these tools, which are specifically designed to assess IAD, the most common instruments used to assess moisture-related skin damage are pressure ulcer staging systems^[17].

Early identification of skin damage using a recognised tool, as well as timely intervention, can prevent an area of excoriation developing in to a pressure ulcer. Reduction in pressure ulcer incidence is a priority in many healthcare settings in the UK now, with services setting targets to eliminate all avoidable category 3 and 4 pressure ulcers and other regions attempting to prevent all category 2,3 and 4 pressure ulcers^[19]. In addition, the Declaration of Rio provides further evidence of the global recognition of the need to dramatically reduce the prevalence and incidence of pressure ulcers^[20]. The Declaration of Rio set out the rights of people not to experience pressure ulcers. In addition it suggests steps to implement and help protect patients.

GUIDE TO MANAGING FAECAL INCONTINENCE

It is essential to identify the underlying cause of faecal incontinence and, where

possible, take measures to correct it. An inter-professional approach is required. This may mean changing the drug regimen, for example, or working with continence advisors to re-establish normal bowel habits — possibly even corrective surgery. With some causes of faecal incontinence, restoring normal function may not be possible, for example, where there is anal sphincter damage or in neurological conditions. In all cases measures should be taken to minimise the risk of tissue breakdown.

If skin damage has occurred, early intervention using a structured approach is required to minimise the damage. Gray et al^[17] recommend using a structured skin care programme with active treatment for IAD, including the following measures for patients with mild to moderate IAD:

- **Routinely cleanse and moisturise the skin** — avoid the use of soap and water and use perineal skin cleansers, which combine detergents and surfactants to loosen and remove dirt and irritants. Many are pH-balanced and contain moisturising agents
- **Routinely apply a skin protectant** — these include acrylate polymer-based liquid film; petroleum ointment; zinc oxide in 1% dimethicone; and petroleum ointment
- **Treat cutaneous candidiasis when present** — this will present as a bright red rash with outlying satellite papules or pustules. The skin will be sore rather than itchy
- **Apply moisturiser after each episode of incontinence. If candidiasis is present, apply a moisture-barrier combination product with anti-fungal agent, eg azole or allylamine**
- **Educate carers to use a structured regimen, assessing skin frequently for resolution or progression of IAD, especially after each episode of incontinence**
- **Evaluate or begin management programme for underlying incontinence.**

Faecal management systems

Several products are available to clinicians for the containment of faecal matter. Anal bags may be used, however, the skin will require protection by other means if there is a chance of leakage around the device. Body worn pads are also useful but should be changed promptly after each episode of faecal incontinence to avoid or minimise skin damage.

However, where diarrhoea is severe and high volume, IAD and widespread skin

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breakdown can occur very rapidly. In this instance it is appropriate to consider the use of a faecal management system^[15].

In addition to cost savings described by Durnal et al^[18], one study found that, in patients with faecal incontinence and diarrhoea in a surgical intensive care unit, the use of faecal management systems reduced incidence of skin damage from 43% to 12.5%^[21].

Beldon^[22] identified that faecal management systems provide a 'closed system', which is useful if the patient has infective diarrhoea, containing infectious waste and helping to control infections like *C. difficile* from spreading^[23]. Closed systems also enable the monitoring of fluid balance, and help in maintaining skin integrity and preserving the patient's dignity.

Any FMS should be used in accordance with manufacturers' instructions to ensure proper use of the device and on appropriate patients.

The case study presented above demonstrates the effective use of a faecal management system in reducing skin damage.

CONCLUSION

Faecal incontinence can have a seriously deleterious affect on patients' wellbeing if not addressed, contributing to moisture lesions, pressure ulcers and combined lesions. If diarrhoea is caused by infectious bacteria such as *C. difficile*, the risk of cross infection may be high. Increased costs in terms of nursing time, consumables, and for some patients, increased length of stay may also be significant.

Prevention is paramount but if this is not possible, or if the patient is being seen at a late stage, adequate measures must be put in place to control faecal incontinence and minimise its effect on the skin of the patient.

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Expert Commentary

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In the past decade, incontinence-associated dermatitis (IAD) has become a 'buzzword' of sorts in the wound care arena. There has been an increased focus on identifying the true aetiology of wounds on or near the buttocks, for a variety of reasons, including the economic cost of care, financial reimbursement and not least, patient quality of life and comfort^[1-4]. Even though moisture has long been recognised as a risk factor for pressure ulcer development, the identification of IAD as a separate skin/wound phenomenon has only recently led to the development of treatment protocols and devices to specifically prevent the development of and/or treat IAD^[4]. As Bianchi discusses in this article, IAD may contribute to the development of pressure ulcers^[2,3]. The cost of care for patients with pressure ulcers in money, pain and suffering has been well-documented.

Frequent incontinence of loose or liquid stools and diminished cognition have been identified as independent risk factors for developing IAD in critically ill adults^[2]. Traditional management strategies for faecal incontinence in the critical care setting are themselves labour intensive and increase clinicians' exposure to potentially infectious biologic material. These risks to staff come from frequent changes of soiled incontinence briefs, reusable or disposable bed pads and bed linen, which may include rinsing the soiled pads, briefs and/or linen^[4]. This exposure to infectious material also places other patients at risk, as identified by the US Centers for Disease Control and Prevention^[5].

Segovia-Gómez's case study supports the intended use of an indwelling device designed for management of faecal incontinence, which can have a positive management outcome for patients, clinicians and hospitals. Before using these products, it is very important for clinicians to familiarise themselves with the manufacturer's recommendations for the product (save and read the packaging) and review the indications, contraindications, precautions and observations for use on the intended patient. Staff education before using the device and ongoing clinical support while the device is in use is necessary, especially if clinicians/carers are unfamiliar with the product. This will help identify and avoid complications^[4,6].

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