

## What is the most effective method of preventing and treating incontinence associated dermatitis?

Skin breakdown can often occur in patients with faecal or urinary incontinence. A systematic review assessed the effectiveness of different skin care regimens

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**Abstract** Beeckman D et al (2010) What is the most effective method of preventing and treating incontinence associated dermatitis? *Nursing Times*; 106: 38, 22-25.

**Background** Skin breakdown is a common problem in patients with faecal or urinary incontinence and can have a considerable impact on their physical and mental health.

**Aim** To assess the effectiveness of interventions for the prevention and treatment of IAD.

**Method** Data from clinical trials and studies focusing on the prevention and treatment of IAD was used to assess the effectiveness of different methods.

**Results** The study found that using soap and water is inadequate for the prevention and treatment of IAD. Implementing a structured skin care protocol significantly reduces the incidence of IAD.

**Conclusion** Optimal skin care should be provided according to a structured perineal skin care programme, including a skin cleanser, moisturiser and skin protectant. More research is needed to evaluate the effectiveness of the different products and procedures available.

### PRACTICE POINTS

- Soap and water applied with a wash cloth is not the most appropriate method of skin care for patients with incontinence associated dermatitis.
- Structured perineal skin care, including cleansing with a product with a pH near to that of normal skin, is recommended to prevent and treat IAD.
- Body worn pads with a higher absorbent capacity and a greater ability to keep the skin dry should be used.
- Polymer products, nappies or underpads are more effective in preventing skin breakdown than non polymer products.

### INTRODUCTION

Incontinence associated dermatitis (IAD) is a clinical manifestation of moisture associated skin damage and is a common problem in patients with faecal or urinary incontinence (Gray et al, 2007).

IAD presents clinically as skin redness with or without blistering, skin erosion or loss of skin barrier function (Junkin and Selekof, 2007). Skin lesions are characterised by erosion of the epidermis and a macerated appearance of the skin (Gray et al, 2007). Fig 1 illustrates the clinical appearance of incontinence dermatitis.

Older patients, especially those in long term care facilities, are at increased risk of developing IAD (Newman et al, 2007).

Its prevalence varies between different studies from 5.6% to 50% and the incidence rates are between 3.4% and 25%, depending on the type of setting and population studied. Gray et al (2007) reported that around 50% of patients with urinary or faecal incontinence are affected by IAD. Faecal incontinence appears to be more strongly associated with the condition than urinary incontinence (Gray et al, 2007; Junkin and Selekof, 2007).

Skin breakdown related to incontinence has a considerable effect on patients' physical and psychological wellbeing (Sibbald et al, 2003).

### IAD DEVELOPMENT

The aetiology of IAD is complex and multifactorial (Beeckman et al, 2009; Lekan-Rutledge, 2006; Jeter and Lutz, 1996).

When the skin is exposed to urine, faeces, double incontinence or frequent cleansing, its permeability increases and its barrier function is reduced.

Increased skin pH (when it becomes more alkaline) increases the risk of bacterial and fungal colonisation. This can lead to bacterial overgrowth which can cause cutaneous infections. The most common organisms are *Candida albicans* (from the gastrointestinal tract) and staphylococcal bacteria (from the perineal skin).

In addition, friction increases significantly when perineal skin rubs over containment materials such as absorbent pads, or clothing and bed and chair surfaces.

The combination of chemical irritation and friction results in weakened skin. If these mechanisms continually affect the integrity of the skin, IAD and further skin breakdown will develop (Lekan-Rutledge, 2006).

Traditionally, IAD has received little attention as a distinct skin disorder and is sometimes confused with superficial pressure ulcers (Beeckman et al, 2007). Fig 2 summarises the development of IAD.

### IAD AND PRESSURE ULCERS

IAD is often combined with skin damage caused by pressure and shear – a force parallel to the skin caused by two opposing surfaces sliding and displacing against each other (Bouten et al, 2003). This can lead to confusion among clinicians about the aetiology and diagnosis of IAD (Defloor et al, 2005).

It is important to distinguish correctly between pressure ulcers and IAD in clinical practice because preventive measures are different for the two conditions (Beeckman et al, 2008; Defloor and Schoonhoven, 2004).

Confusion between IAD and pressure ulcers can lead to the inappropriate use of limited resources and suboptimal care. Expensive and labour intensive measures to

prevent pressure ulcers will often be used with patients who have IAD. As a result, those needing pressure ulcer prevention may not receive optimal care because limited resources have been wrongly diverted.

Making unambiguous clinical descriptors to help distinguish between IAD and pressure ulcers available could help avoid confusion and inadequate preventive interventions.

Efforts to clarify the difference between IAD and pressure ulcers are being made. The Pressure Ulcer CLASsification (PUCLAS) workgroup of the European Pressure Ulcer Advisory Panel (EPUAP) ([www.epuap.org/epuap](http://www.epuap.org/epuap)) has developed an educational tool to teach and learn about IAD differentiation.

This is based on the EPUAP position statement on pressure ulcer classification and IAD differentiation outlined in Table 1. It provides an overview of causative factors and of typical wound related characteristics, including location, shape, depth, necrosis, edges, and colour (Beeckman et al, 2008; Defloor et al, 2005).

**PREVENTION AND TREATMENT**

IAD prevention strategies include cleansing, moisturising and the application of skin protectants or moisture barriers (Gray et al, 2002). Treatment includes protecting the skin from further exposure to irritants, establishing a healing environment and eradicating cutaneous infections (Gray et al, 2002).

Many skin care protocols, cleansers, moisturisers, moisture barriers, skin protectants and absorbents are available to support prevention and treatment but little is known about their efficacy and effectiveness (Gray et al, 2007).



**AIM**

The aim of this review was to assess the effectiveness of the different interventions for the prevention and treatment of IAD.

**METHOD**

A literature review of studies focusing on the prevention and treatment of IAD was carried out to assess the effectiveness of different methods.

The incidence of IAD and skin condition were identified as the main outcome measures to assess the effectiveness of IAD preventive interventions.

The effectiveness of IAD treatment methods was assessed using healing rate and skin condition.

**LITERATURE REVIEW**

The study reviewed clinical trials, meta analyses and comparative, evaluation and validation studies.

The Cochrane Library Central Register

of Controlled Trials (CENTRAL), the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Embase and PubMed were used, along with a number of conference proceedings from the last five years.

Only studies published in English, Dutch, French and German with patients aged over 18 were included.

The literature review was performed up to September 2008 and there were no limitations on the year of publication, authors or participating institutions.

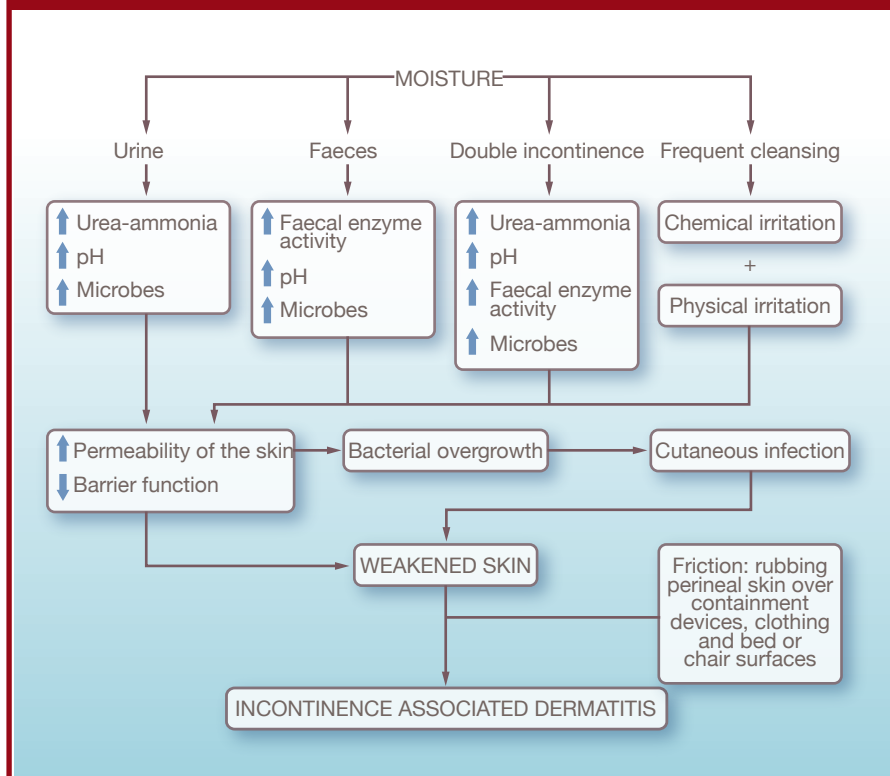
Study design was not used as a selection criteria because of the explorative nature of the literature review and the scarce literature available on this issue.

Thirty six publications were included in the final analysis, of which 25 studies were reported. Thirteen studies focused on treatment, eight focused on prevention and four focused on the treatment and prevention of IAD.

**TABLE 1. SUMMARY OF EPUAP POSITION STATEMENT ON PRESSURE ULCER CLASSIFICATION AND IAD DIFFERENTIATION**

	Pressure ulcer	Incontinence associated dermatitis
Cause	Pressure and/or shear must be present	Moisture must be present (for example, look for shining, wet skin, caused by urinary incontinence or diarrhoea)
Location	A wound over a bony prominence is likely to be a pressure ulcer	IAD may occur over a bony prominence. However, pressure and shear should be excluded as causes, and moisture should be present
Shape	If the lesion is limited to one spot, it is likely to be a pressure ulcer	Diffuse, different superficial spots are more likely to be IAD
Depth	Partial thickness skin loss and full thickness skin loss	Superficial (partial thickness skin loss)
Necrosis	A black necrotic scab on a bony prominence is a pressure ulcer grade 3 or 4. If there is no or limited muscular mass underlying the necrosis, the lesion is a pressure ulcer grade 4	No necrosis
Edges	Distinct edges	Diffuse or irregular edges
Colour	If redness is non blanchable, this is most likely a pressure ulcer grade 1	Blanchable or non blanchable erythema Pink or white surrounding skin due to maceration

FIG 2. DEVELOPMENT OF INCONTINENCE ASSOCIATED DERMATITIS



health outcomes of incontinence training. Patients who received training had significantly better urinary and faecal incontinence and skin wetness outcome measures than those not given training.

**Body worn pads v underpads**  
Brown (1994) found no statistical differences in the incidence of skin alteration – colour, integrity or symptoms – between patients wearing body worn pads and those managed with underpads or waterproof mattress protectors.

Significantly more patients in a non polymer body worn pads and underpads group experienced alterations, such as skin colour change, tingling, itching, burning and pain, than those in a polymer group (Brown, 1994).

Leiby and Shanahan (1994) observed improvements in skin condition when underpads with a more absorbent capacity and greater ability to keep the skin dry were used.

#### Treatment

##### Skin protectants

Anthony et al (1987) found that a topical zinc oxide preparation with added antiseptic properties was superior to traditional zinc cream for the treatment of IAD.

Campbell et al (2000) and Hampton (1998) observed less erythema, skin maceration and skin stripping when a no sting barrier film was used for patients with IAD than when a petrolatum based ointment was applied.

##### Moisturisers

One study observed less erythema, roughness and desquamation of the skin when hydrogel barrier repair cream was used to treat IAD rather than petrolatum based moisturising cream was used (Draelos, 2000).

##### Perineal skin cleansers

Reduced skin erythema was observed in four studies which looked at the effect of combining different formulas of perineal

## RESULTS

### Prevention

#### Skin protectants

One study reported a significant reduction of IAD incidence when a skin protectant incorporated into a thick disposable washcloth – active ingredient dimeticone 3% – was used to clean and moisturise the skin of patients with continence problems (Clever et al, 2002).

#### Perineal skin cleansers

Two studies found skin cleansers to be more effective than soap and water for the prevention of incontinence related skin problems (Cooper and Gray, 2001; Byers et al, 1995). Reduced skin erythema was

observed in four studies that looked at the effect of combining a perineal skin cleanser and a skin protectant (Dieter et al, 2006; Hunter et al, 2003; Warshaw et al, 2002; Whittingham et al, 1998).

#### Structured skin care and incontinence care regimens

One study found implementing a structured skin care protocol resulted in significantly lower incidence of IAD (4.7% v 25.3%). When product costs were calculated together with staff time, using this newly implemented skin care protocol also significantly reduced costs (Bale et al, 2004).

Bates-Jensen et al (2003) conducted a randomised controlled trial to examine the

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skin cleansers and skin protectants (Dieter et al, 2006; Hunter et al, 2003; Warshaw et al, 2002; Whittingham and May 1998).

## DISCUSSION AND RECOMMENDATIONS

The number of patients included in the reviewed studies was small, with an average of 64 in each study.

The length of the study periods was also rather short – in some studies, patients were observed for only seven days. A wide range of instruments was used to observe incontinence associated skin problems but these instruments were not validated, or were only validated to a small extent. This resulted in difficulties in comparing the outcomes of the different studies.

Soap and water applied with a washcloth has traditionally been considered the gold standard for skin hygiene and management. However, this review found it was not the most appropriate method for skin care of patients with incontinence. Soap can strip the skin of natural oils and puts it at risk of secondary infection from fungus and bacteria (Junkin et al, 2007). The use of perineal skin cleansers was found to be more

effective for the prevention and treatment of IAD. Another option is the use of a no rinse cleansing foam.

Researchers in the reviewed studies recommend a routine perineal skin care programme. This includes cleansing with a product with a pH as near as possible to that of normal skin and applying a moisturiser incorporated into a specially designed cleanser or cleansing system.

The use of a skin protectant is recommended for patients experiencing high volume or frequent incontinence or double urinary and faecal incontinence.

IAD is more strongly associated with faecal incontinence than urinary incontinence. Optimal skin care following each incontinent episode – especially if faeces are present – is important because of the significant contribution of faeces in the development of IAD.

Optimal skin care should be provided according to a structured skin care regimen involving a skin cleanser and a skin protectant. A skin protectant should be applied more frequently in patients with a high volume or frequent episodes of incontinence.

Combined products can be used to optimise time efficiency and to encourage adherence to the skin care regimen. Combined products include moisturising cleansers, moisturising skin protectant creams and disposable washcloths that incorporate cleansers, moisturisers and skin protectants into a single product.

Polymer products appear to be more effective in preventing skin breakdown than non polymer products.

## CONCLUSION

Incontinence associated dermatitis is an important problem in nursing care.

However, this study showed there is limited evidence on the effectiveness of various skin regimens available to prevent and treat the condition. Additional research is needed to identify and evaluate the efficacy and effectiveness of various interventions for IAD and larger sample studies are needed to determine the safety and effectiveness of commonly used products and procedures.

In view of the limited validation of observation instruments used in these studies, additional research in this area is also recommended. ●

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