

IAD

made  
easy

## Introduction

**Incontinence-associated dermatitis (IAD) describes skin damage associated with exposure to urine or faeces. It causes patients significant discomfort and can be difficult and time-consuming to treat (Doughty, 2012). It is a significant health challenge and a well-documented risk factor for pressure ulcer development (Beckman et al, 2014).**

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The current lack of standard terminology and definitions is hampering clinicians as they attempt to deliver evidence-based practice. There are a number of definitions used to describe IAD, they include: perineal dermatitis, perineal rash, nappy rash/dermatitis, irritant dermatitis, moisture ulcers and moisture lesions. Establishing consistent terminology for IAD is crucial in facilitating research and improving education for healthcare professionals and standardising care.

### OVERCOMING THE CHALLENGES

IAD presents a significant challenge to HCPs and patients. The exact size of the challenge is hard to define. This is due partly to inconsistencies in terminology, and difficulties in recognising the condition and distinguishing it from Category I/II pressure ulcers in diagnosis: all of which have subsequently resulted in less than robust data collection. This is compounded by the lack of a nationally recognised, validated and accepted method for IAD data collection, which adds to the wide variation in prevalence and incidence figures.

Studies have estimated prevalence of IAD at 5.6% to 50% (Bliss et al, 2006; Peterson et al, 2006; Junkin & Selekof, 2007; Gray et al, 2012; Campbell et al, 2014) while incidence is 3.4% to 25% (Bliss et al, 2007; Long et al, 2014; Borchert et al, 2010).

Patients with IAD may experience discomfort, pain, burning, itching and tingling in affected areas, even when the dermis is intact. In addition, patients may feel loss of independence, disruption to activities and/or sleep and reduced quality of life that becomes worse as the frequency and quantity of soiling increases. They may also feel/believe they are a burden on family and friends.

### Cost concerns and constraints

#### **What is the cost of treating IAD?**

Accurate costs related to IAD are difficult to present, as there are little data that distinguishes these from pressure ulcer costs. However, Bale et al (2004) published economic considerations in terms of nursing time and consumables in relation to managing and treating IAD. Following the introduction of structured

### Box 1. Classification

In the World Health Organization (WHO) International Classification of Diseases, which has been in use since 1994, there is no coding for IAD, although there is a code for nappy dermatitis.

skin care regimens in two nursing homes, the presence of IAD and Category I pressure damage after three months was reduced, with a reduction in time taken to deliver skin care, saving just over 34 minutes of staff time per patient per day.

The average saving per day per patient in staff costs was £8.83 (US \$13.75) for qualified staff and £3.43 (US \$5.33) for unqualified staff (based on 2004 costs). Guest et al (2011) evaluated the economics of four different skin care regimens in over 900 nursing home residents, it showed no significant difference in IAD rates between the four regimens, however the total cost (including product, labour and other supplies) per incontinence episode was significantly lower when a barrier film was used.

#### **What is the impact on outcomes and human cost of not managing and treating IAD effectively?**

The impact of suffering with IAD on an individual can be undignified and painful. A number of patients who suffer from IAD tend to be vulnerable and reliant on others to help manage their continence issues. Unfortunately there is limited empirical evidence to support this. It can only be assumed from anecdotal evidence and working within clinical practice that the trauma experienced by individuals has a negative impact on their life. This is usually demonstrated by the pain and discomfort they express when they undergo treatment.

#### **What are the other associated costs — psychosocial, wider healthcare organisation costs?**

Clinicians are aware that IAD causes pain and discomfort to patients; a stance supported by research from Fader et al (2008). This highlights that both urinary and faecal incontinence have a profound and devastating effect on a person's social, physical and financial and psychological wellbeing. Yet patients still experience pain, discomfort and effects on their dignity because of the poor management of IAD.

Dorman et al (2004) reported that faecal incontinence in hospital patients is often overlooked with management of the problem being given low priority. At a time when the health service needs to be aware of expenditure, it is difficult to assess the expense of barrier products and continence aids.

Within the NHS, cost of products is often calculated by reviewing price per unit and amount of products purchased. However, these costs can be unreliable due to insufficient monitoring of incidence and prevalence of IAD making it difficult to understand fully the financial costs associated with this issue. Regular audit of practice, appropriate use of products and their effectiveness would allow for estimates of the true cost of managing IAD and the impact on the NHS.

## Box 2. Clinical characteristics of IAD

- Blanchable erythema
- Glistening appearance of the skin due to serous exudate
- Partial thickness skin loss (denudation, erosion, abrasion or superficial ulceration of the injured skin)
- Vesicles (bullae) containing clear exudate

## DIAGNOSIS

### What is the cost of treating IAD?

IAD and pressure ulcers have a number of common risk factors; both are likely to occur in patients with underlying poor health and restricted mobility (Langemo et al, 2011; Demarre et al, 2014). However, there are distinct differences, see Table 1 and Box 3.

IAD has different aetiologies from pressure ulcers but the two can co-exist. IAD is 'top down' injury where damage is initiated on the surface of the skin; conversely pressure ulcers develop when damage is initiated by changes in the soft tissue below and within the skin and it is, therefore, coined a 'bottom up' injury (Figure 1). It is important that clinicians are aware of and recognise the differences that exist between IAD and pressure ulcers (Table 1).

### Grading of IAD

In 2011, Bianchi and Johnstone found that there was no consistency in the language used to describe the degree of IAD. To minimise inconsistency in accurately grading the degree of skin damage and to aid development of management strategies, the National Association of Tissue Viability Nurses Scotland (NATVNS) established an excoriation grading tool. It comprises clinical images, grades the level of excoriation and offers management solutions. It aims to encourage a consistent approach to IAD care (Bianchi, 2012) (Table 2).

## ASSESSMENT TOOLS

### What is available currently?

1. IAD Assessment Intervention Tool (IADIT) (Junkin, 2014)
2. Incontinence-associated dermatitis and its severity (IADS) (Borchert et al, 2010)
3. Skin Assessment Tool (Beeckman et al, 2011; Kennedy & Lutz, 1996)

## Box 3. Risk factors for IAD

### Type of continence

1. Faecal incontinence (diarrhoea/formed stool)
2. Double incontinence (faecal and urinary)
3. Urinary incontinence

### What to look out for

- Frequent episodes of incontinence (especially faecal)
- Use of occlusive containment products
- Poor skin condition
- Compromised mobility
- Diminished cognitive awareness
- Poor personal hygiene
- Pain
- Pyrexia
- Medication (antibiotics, immunosuppressants)
- Poor nutrition
- Critical illness

4. IAD Severity Classification Tool (currently being validated) (Beeckman et al, 2015)
5. Perineal Assessment Tool (Nix, 2002)
6. Perirectal Skin Assessment Tool (Brown 1993, Brown & Sears, 1993).

### Are there any other assessment tools available?

The All Wales Tissue Viability Nurse Forum and All Wales Continence Forum recommends using the All Wales Continence Bundle (acute settings)(2013) and the All Wales Bladder and Bowel Pathway (community) (Welsh Assembly Government, 2006). It suggests the initial patient assessment should include a complete clinical history, physical examination including visual examination of perineal areas to exclude other pathologies (such as allergies or atrophic vaginitis), an assessment of mobility, dexterity and cognitive function, urinalysis, a frequency volume chart and a bowel diary, a post-void residual urine test and a review of the patient's medication (The All Wales Tissue Viability Nurse Forum and All Wales Continence Forum, 2014).

It is essential that clinicians assess accurately the cause of skin damage allowing for correct diagnosis of IAD or pressure ulcers. All patients with urinary and/or faecal incontinence should be

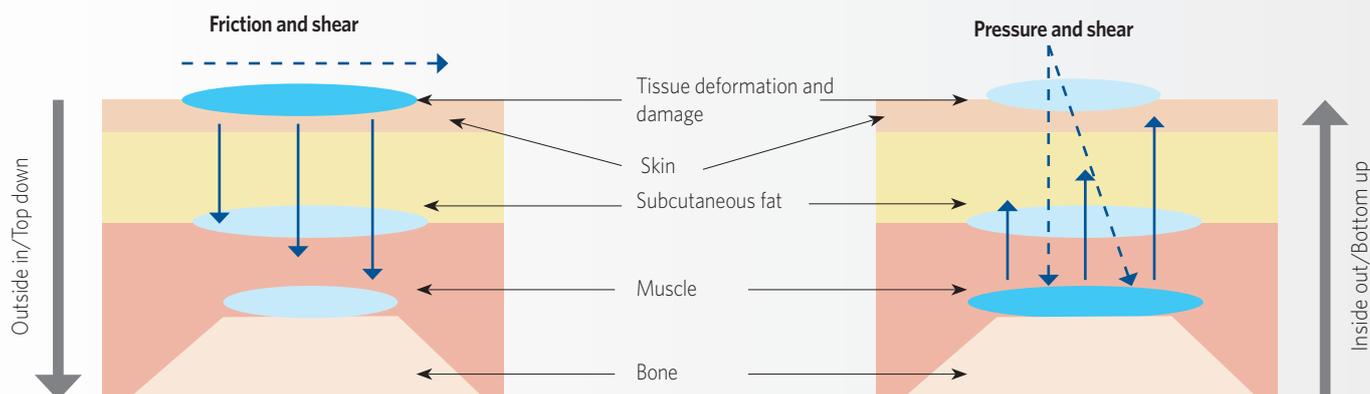


Figure 1. Possible mechanisms of action in IAD and pressure ulcer development (Wounds International, 2016)

**Table 1. Differentiation between IAD and a pressure ulcer [adapted from Back et al, 2011 and Beeckman et al, 2011; published by Wounds International 2015]**

Parameter	IAD	Pressure ulcer
<b>History</b>	Urinary and/or faecal incontinence	Exposure to pressure/shear
<b>Symptoms</b>	Pain, burning, itching, tingling	Pain
<b>Location</b>	Affects perineum, perigenital area; buttocks; gluteal fold; medial and posterior aspects of upper thighs; lower back; may extend over bony prominence	Usually over bony prominence or associated with location of a medical device
<b>Shape/edges</b>	Affected area is diffuse with poorly-defined edges/ may be blotchy	Distinct edges or margins
<b>Presentation/depth</b>	Intact skin with erythema (blanchable/non-blanchable), with/without superficial/partial-thickness skin loss	<ol style="list-style-type: none"> <li>1. Presentation varies from intact skin with non-blanchable erythema to full-thickness skin loss</li> <li>2. Base of wound may contain non-viable tissue</li> </ol>
<b>Other</b>	Secondary superficial skin infection (e.g. candidiasis) may be present	Secondary soft tissue infection may be present



assessed regularly to check, monitor and document signs of IAD. Clinicians should check for signs at least once daily, increasing the number of checks based on the number of episodes of incontinence. During checks special attention should be given to skin folds or areas where soilage or moisture may be trapped (Box 4, page 4). Regular assessment results in timely and appropriate skin cleansing and protection, which can prevent and heal IAD.

## TREATMENT

Ultimately the goal of a clinician treating a patient with IAD is to manage incontinence (Cooper 2011). However, while progress towards this goal is being achieved it is crucial to follow a structured cleansing and protection routine.

### Managing incontinence

To assist clinicians in managing incontinence the cause needs

**Table 2. IAD Severity Categorisation Tool**

Clinical presentation	Severity of IAD	Signs**
	No redness and skin intact (at risk)	Skins is normal as compared to rest of body (no signs of IAD)
	Category 1 - Red* but skin intact (mild)	Erythema +/- oedema
	Category 2 - Red* with skin breakdown (moderate—severe)	As above for Category 1 +/- vesicles/bullae/skin erosion +/- denudation of skin +/- skin infection

\*Or paler, darker, purple, dark red or yellow in patients with darker skin tones

\*\* If the patient is not incontinent, the condition is not IAD

to be identified and a plan of care implemented. The European Association of Urology (EAU) Working Panel on Urinary Incontinence (UI) (2016) agrees that a clear patient history should be taken when assessing a patient with incontinence.

This assessment should include details of type, timing and severity of UI, which will allow for the clinician to categorise into stress urinary incontinence, urgency urinary incontinence or mixed urinary incontinence. For the older person the EAU advises that physiological changes with ageing lead to UI becoming more common and co-existent with comorbid conditions, reduced mobility and impaired cognition

For reversible causes Gray (2014) suggests non-invasive interventions including toileting techniques or nutritional and fluid management with Palese & Carniel (2011) recommending incontinence management products that can manage fluids. Morris (2011) identifies invasive interventions including indwelling catheters, faecal management systems and faecal pouches (Gray, 2014). A structured skin care protocol should be implemented for every patient.

#### A structured skin care regimen

##### Skin cleansing

As part of the prevention and management of IAD it is important that skin cleansing takes place. Cleansing of the skin should occur following every episode of incontinence to ensure that the natural function of the skin is maintained. This is supported by a Wounds UK 2012 Best Practice Statement which states that when the skin is exposed to urine and faeces the pH around the perinatal changes,

#### Box 4. Skin assessment for incontinence patient at risk of IAD (adapted from Wounds International, 2015)

- Areas of skin that may be affected include:
  - Perinium
  - Perigenital areas
  - Buttocks
  - Gluteal fold
  - Thighs
  - Lower back
  - Lower abdomen and skin folds (groin, under large abdominal pannus etc...)
- These areas should be checked for:
  - Maceration
  - Erythema
  - Presence of lesions (vesicles, papules, pustules etc...)
  - Erosion or denudation
  - Signs of fungal or bacterial skin infection

increasing lipase and protease activity, causing an increase in skin permeability and reducing the skin's natural barrier function.

The use of soaps to cleanse the skin should be avoided as these can dehydrate the skin and cause irritation (Bale et al, 2004). The use of cleansing/moisturising products is preferable. The products can be foam cleansers, wipes or emollients that will cleanse the skin and moisturise at the same time thus reducing skin irritation and dehydration. Manufacturers' instructions should be followed at all times when using products to ensure effective use.

**Table 3. Characteristics of the main types of skin protectant ingredients (taken from Wounds International Best Practice Principles: Incontinence-associated dermatitis — moving prevention forward, 2015)**

Principal skin protectant ingredient	Description	Notes
<b>Petrolatum (petroleum jelly)</b>	<ul style="list-style-type: none"> <li>■ Derived from petroleum processing</li> <li>■ Common base for ointments</li> </ul>	<ul style="list-style-type: none"> <li>■ Forms an occlusive layer, increasing skin hydration</li> <li>■ May affect fluid uptake of absorbent incontinence products</li> <li>■ Transparent when applied thinly</li> </ul>
<b>Zinc oxide</b>	<ul style="list-style-type: none"> <li>■ White powder mixed with a carrier to form an opaque cream, ointment or paste</li> </ul>	<ul style="list-style-type: none"> <li>■ Can be difficult and uncomfortable to remove (e.g. thick, viscous pastes)</li> <li>■ Opaque, needs to be removed for skin inspection</li> </ul>
<b>Dimethicone</b>	<ul style="list-style-type: none"> <li>■ Silicone-based; also known as siloxane</li> </ul>	<ul style="list-style-type: none"> <li>■ Non-occlusive, does not affect absorbency of incontinence products when used sparingly</li> <li>■ Opaque or becomes transparent after application</li> <li>■ Available products include Remedy Moisturising Barrier Cream</li> </ul>
<b>Acrylate terpolymer</b>	<ul style="list-style-type: none"> <li>■ Polymer forms a transparent film on the skin</li> </ul>	<ul style="list-style-type: none"> <li>■ Does not require removal</li> <li>■ Transparent, allows skin inspection</li> <li>■ Available products include Sureprep Barrier Film</li> </ul>
<b>Cyanoacrylate skin bonding polymer</b>	<ul style="list-style-type: none"> <li>■ Monomer liquid chemically bonds to stratum corneum, forming <i>in situ</i> polymer film</li> </ul>	<ul style="list-style-type: none"> <li>■ Does not require removal</li> <li>■ Transparent, allows skin inspection</li> <li>■ Available products include Marathon</li> </ul>

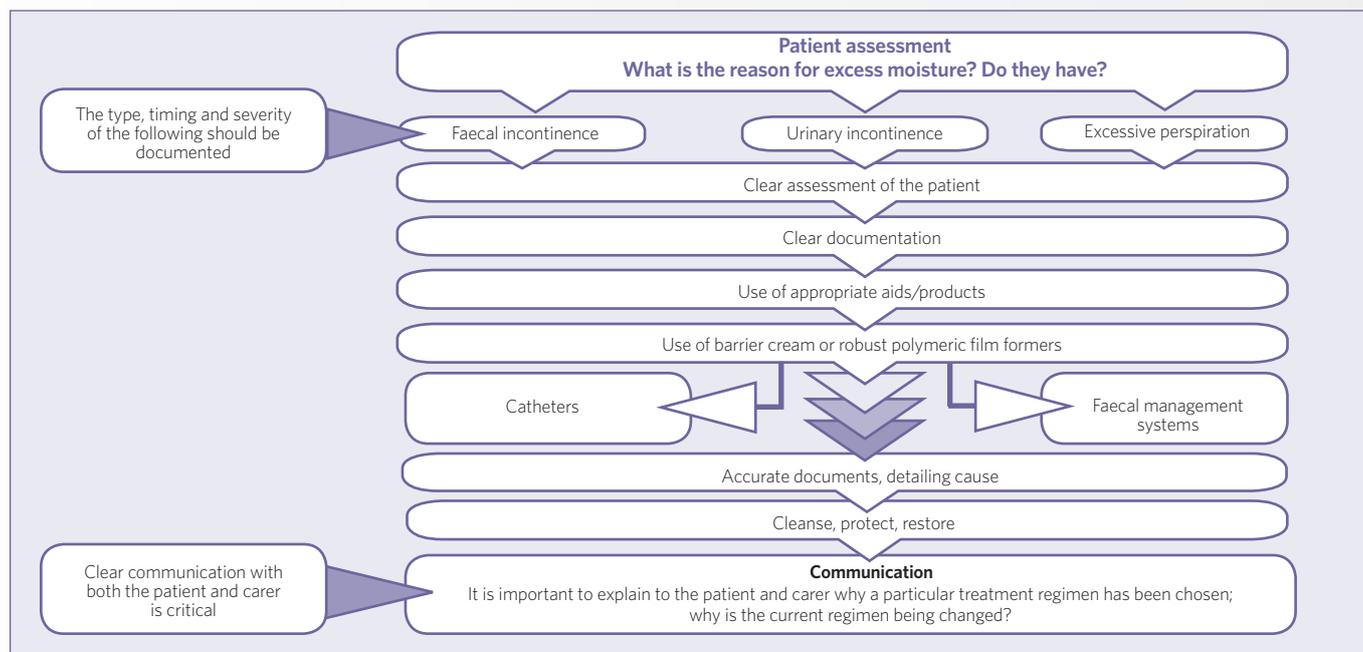


Figure 2. Treatment pathway algorithm

Following cleansing of the skin to avoid further irritation and skin damage, it is advisable to pat the skin dry rather than rub the skin, which can cause breakdown, pain and discomfort.

### Skin protection

The principle of applying skin barrier products is to avoid tissue breakdown. There are a number of products on the market that can be used. These help to maintain the natural barrier function of the skin and should be applied according to manufacturers' instructions.

Products are available in creams and wipes, spray and foam films. Cream products tend to need to be applied after every episode of incontinence; other preparations can provide up to 72 hours protection. Creams should be applied thinly to ensure they are absorbed into the skin, providing effective protection and preventing continence aids, such as pads, from clogging.

A new class of robust film formers that are solvent free, and bond directly to skin, is also available, these are cyanoacrylates, and are differentiated from more common acrylate films.

When considering an appropriate barrier product, clinicians need to be aware of functions of the product. Products tend to form either protective or moisturising barriers: protective barriers with silicone polymers contain dimethicone, which creates a dry water-repellent barrier, protecting against excess moisture; moisture barrier products lock in moisture to hydrate and protect the skin (All Wales Tissue Viability Forum and All Wales Continence Forum, 2014).

Remedy™ is a silicone blend barrier cream made by Medline — it is a barrier film that moisturises the skin, allows it to breathe and provides skin protection (Collier & Simon, 2016; Young et al, 2014).

Marathon® is a cyanoacrylate-based liquid skin protectant that sets up a robust barrier on skin in small, focused areas of high-risk skin (Singer et al, 2015; Woo, 2014).

## MOVING FORWARD

### Reducing knowledge gaps

There has been a range of campaigns to raise awareness of pressure ulcer prevention over the past decade, including Stop the Pressure Day, React to Red, Your Turn, zero pressure campaigns and the introduction of a range of care bundles, including SSKIN. These have resulted in a heightened awareness and understanding of prevention, management and treatment of pressure damage that has successfully reduced incidence. There now needs to be similar campaigns to raise awareness and understanding of IAD in healthcare with updates for pressure ulcer prevention including IAD.

Product selection remains a challenge for clinicians when preventing and managing IAD due to a lack of knowledge and clinical evidence (Beeckman et al, 2015).

Production of standard statements to promote best practice and agreed terminology for skin damage caused by excessive

moisture would also allow for practice to be measured and improved against national guidance.

**There is a need for standardisation of terminology, diagnosis and care — how could this be achieved and what improvement would it bring to patients, clinicians and payers?**

Beeckman et al (2015) highlighted the importance of agreeing and recognising consistent terminology for IAD, arguing that the World Health Organization's International Classification of diseases does not contain separate coding for IAD. Currently only diaper dermatitis is recognised.

Beeckham et al (2014) suggest that IAD should be clearly differentiated, defined and included in the International Classification of Diseases, which would facilitate research and improve education of healthcare providers. Consistent terminology relating to pressure ulcers has allowed organisations to benchmark internally, locally and nationally.

It is essential that healthcare organisations work together to provide clear assessment, treatment and evaluation strategies to recognise and manage IAD. This will allow for continuity of care by healthcare providers, and education for clinicians and patients.

It also is to be noted that there is a great deal of co-relation between the incidences of IAD and pressure ulceration. In particular, skin care regimens that are known to reduce pressure ulceration, are likely to have done so, at least in part, by the control of IAD.

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