

# Moisture-associated skin damage

# made easy

## Introduction

Terms such as moisture lesions, perineal dermatitis, diaper dermatitis or incontinence-associated dermatitis describe some of the conditions traditionally considered to be a specific problem of continence care. The term moisture-associated skin damage has been introduced to cover the range of skin problems that occur due to prolonged exposure to wound exudate, faecal and/or urinary incontinence and perspiration. It is important for clinicians to assess, correctly diagnose and to treat the cause of the skin damage locally, as well as promote appropriate skin care and continence regimens to keep the patient's skin clean and dry. This Made Easy will help clinicians identify the causes of skin damage and determine the appropriate treatment path.

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## EFFECTS OF MOISTURE ON THE SKIN

The harmful effects of excessive moisture on the skin are well documented. When exposed to excessive amounts of moisture, the skin will soften, swell, and become wrinkled, all of which make the skin more susceptible to damage. Although traditionally this has been considered as being a specific problem of continence care, it is a common problem encountered in many patient groups. As a consequence, the umbrella term moisture-associated skin damage (MASD) has been introduced to describe the spectrum of damage that occurs in response to the prolonged exposure of a patient's skin to perspiration, urine, faeces or wound exudate (Grey et al, 2011).

The skin performs a variety of important physiological roles, including protection from environmental exposure, preservation of internal homeostasis, thermoregulation, immune function, and vitamin D metabolism (Wounds UK, 2012). The moisture barrier of the skin is an essential element of this function. It contributes to the maintenance of internal homeostasis by slowing the movement of water from the body's interior, while protecting the body from excessive absorption of water and solutes from the environment. MASD occurs when moisture remains in constant contact with the body for prolonged periods of time, when the effluent contains irritating substances, when the effluent contains potential bacterial or fungal pathogens, and when moisture exposure increases friction at the skin surface.

## CAUSES OF MOISTURE-ASSOCIATED SKIN DAMAGE

It is generally accepted that MASD consists of four distinct conditions, each having slightly different aetiologies, namely: incontinence-associated dermatitis; intertriginous dermatitis; periwound moisture-associated dermatitis and peristomal moisture-associated dermatitis. The conditions are outlined in Figure 1 (page 2). Identifying the cause through a detailed patient assessment can help distinguish between the four conditions and ensure appropriate prevention and management interventions are implemented.

### Incontinence-associated dermatitis

Incontinence-associated dermatitis (IAD) is predominantly a chemical irritation that occurs when urine or stool comes into contact with the skin. Ammonia from urine and enzymes from stool can disrupt the acid mantle of the skin and eventually cause the skin to break down (Rees and Pagnamenta, 2009). Maceration also plays a key role in the formation of IAD, and can make the skin more susceptible to friction damage (White and Cutting, 2003). Although urinary incontinence may lead to IAD, it is much more common in individuals with faecal incontinence or mixed urinary and faecal incontinence (Voegeli, 2012). The affected area will present with erythema, as well as maceration. The area may progress to painful partial-thickness erosions with weepy serous exudate. If left untreated, pressure and friction may increase stress on the affected area, leading to skin breakdown.

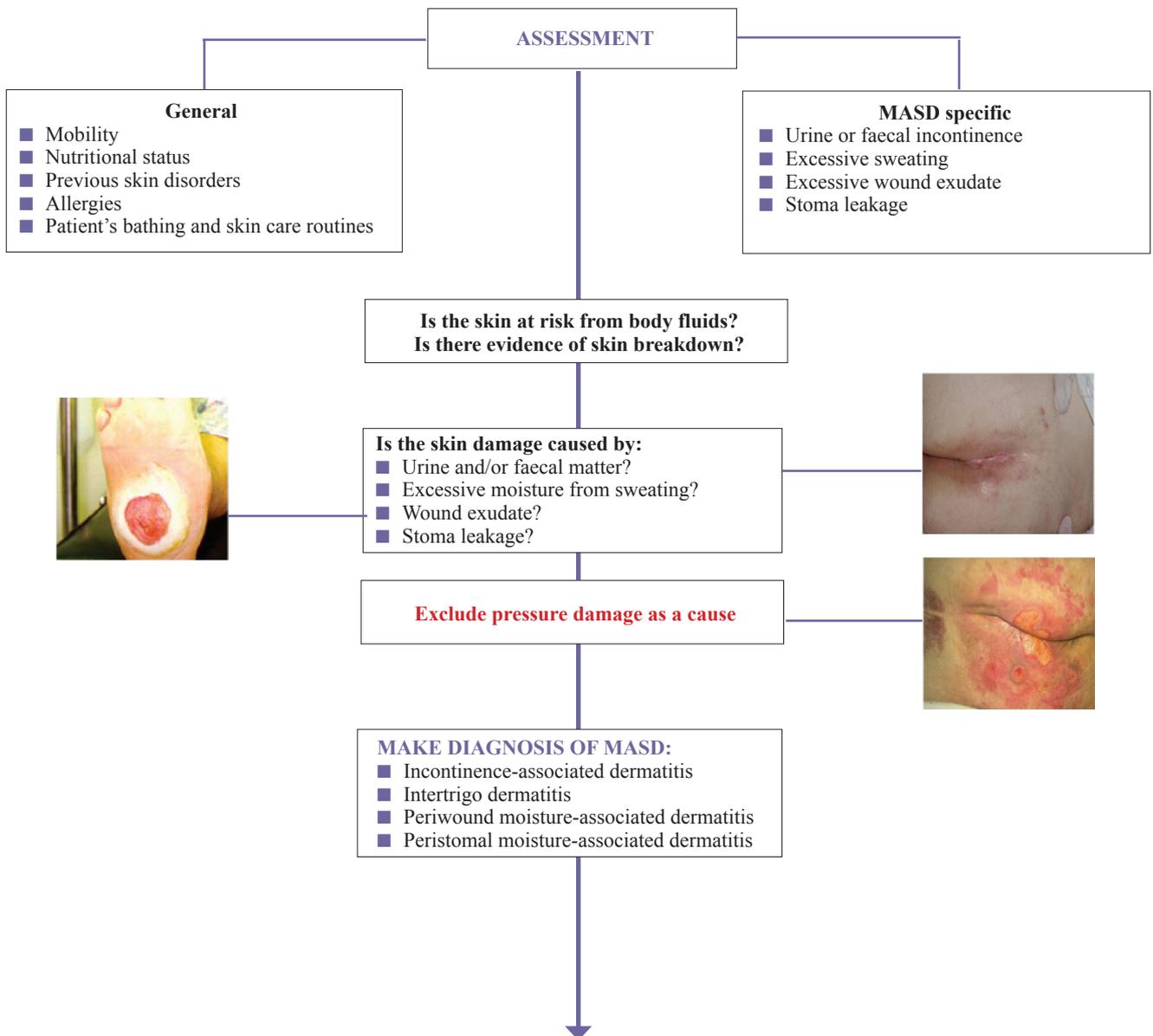
### Intertriginous dermatitis

Intertriginous dermatitis (ITD), also referred to as intertrigo, occurs when sweat is trapped in skin folds with minimal air circulation. When the sweat cannot evaporate, the stratum corneum becomes overly hydrated and macerated, facilitating friction damage that is often mirrored on both sides of the fold. This in turn leads to inflammation and denudation of the skin, making the area more prone to infection (Black et al, 2011). Obese people are more at risk of ITD due to excessive skin folds, increased perspiration to regulate body temperature, and higher skin surface pH (which makes the acid mantle less effective as a natural barrier to infection).

### Periwound moisture-associated dermatitis

The production of exudate is a normal response during the inflammatory stage of wound healing. Excessive amounts of wound exudate can cause the periwound (within 4cm of wound edge) skin to become macerated and even break down (White and Cutting, 2003). The presence of bacteria, specific proteins, or proteolytic enzymes, and the volume of wound exudate greatly reduce the skin barrier function and

Figure 1: A care pathway for the management of moisture-associated skin damage: four distinct conditions



Types of MASD				
<b>Diagnosis</b>	<b>Incontinence-associated dermatitis</b>	<b>Intertriginous dermatitis</b>	<b>Periwound moisture-associated dermatitis</b>	<b>Peristomal irritant contact dermatitis</b>
<b>Source</b>	Urine Liquid stool	Perspiration	Exudate	Urine or faecal effluent
<b>Description</b>	Erythema and inflammation of the skin, sometimes with erosion or denudation	Erythema and inflammation of the skin inside and adjacent to skin folds, sometimes accompanied by erosions or denudation	Erythema and inflammation of the skin within 4cm of the wound edge, sometimes accompanied by erosions or denudation	Erythema and inflammation of the skin around the stoma, at times accompanied by denudation

**Implement consistent use of an interventional, structured skin care regimen:**

- Remove irritants from the skin and protect from further exposure
- Use devices or products that wick moisture away from affected or at-risk skin
- Cleanse perineal skin after each episode of incontinence with a cleanser/wipe close to pH 5.5
- Use disposable wash basins for cleansing the skin to reduce cross infection risk
- Check closely in skin folds for residual faeces and urine, and remove as above
- Moisturise and protect using skin barrier products
- Educate all care providers on preferred method of skin care



**IMPLEMENT STRUCTURED TREATMENT PLAN BASED ON DIAGNOSIS**

**Incontinence-associated dermatitis:**

- Complete an assessment and care plan
- Keep skin clean and dry
- Apply barrier film
- Treat areas of cutaneous candidiasis (thrush) with appropriate antifungal treatments
- Consider the use of appropriate products or devices to divert urine or stool
- Ensure correct fitting and use of all products and devices
- Involve/educate carers on use of products and devices
- Complete relevant documentation
- Include patients in decisions about their treatment

**Intertriginous moisture-associated dermatitis:**

- Complete an assessment and care plan
- Examine entire area of skin folds, including the base
- Enlist assistance to gently lift the fold without creating/exacerbating traction and fissure formation
- Consider tissue type and treatment aim when selecting treatment
- Avoid products containing chlorhexidine gluconate, alcohol or perfumes, as these can be absorbed by damaged skin
- Ensure ongoing drying of the skin fold. This must be a primary treatment strategy
- Protect affected area from further breakdown or maceration (eg barrier film)
- Complete relevant documentation
- Include patients in decisions about their treatment

**Periwound moisture-associated dermatitis:**

- Complete an assessment and care plan
- Base dressing choice on exudate levels\*
- Use sacral and heel shaped dressings in areas challenging to dress
- Consider wound infection potential
- If the wound is not healing/progressing, reassess to establish co-morbidities
- Manage necrotic/sloughy tissue using autolytic dressings. Note: **These may be contraindicated in conditions (eg diabetes and arterial disease)**
- If bone is exposed consider the risk of osteomyelitis and refer to specialist
- Protect periwound area from further breakdown/maceration (eg barrier film)
- Complete relevant documentation
- Include patients in decisions about their treatment

**Peristomal moisture-associated dermatitis:**

- Complete an assessment and care plan
- Consult stoma nurse specialist for guidance on appliances
- Protect peri-stomal area from further breakdown and maceration (eg use barrier film)
- Complete relevant documentation
- Include patients in decisions about their treatment

**Re-assess and evaluate  
Record outcomes**



**If no improvement and/or deterioration in condition  
REFER TO TVN AND/OR CONTINENCE CNS**

\* Refer to 3M exudate management algorithm

can lead to maceration. Specifically, exudate from chronic wounds has been found to contain a higher concentration of proteolytic enzymes as compared to exudate from acute wounds (Romanelli et al, 2010). Another factor affecting the occurrence of periwound maceration is damage to skin caused by aggressive removal of adhesive wound dressings, which affects the integrity of the skin barrier by stripping away parts of the epidermis.

### Peristomal moisture-associated dermatitis

Peristomal moisture-associated dermatitis is defined as 'inflammation and erosion of skin related to moisture that begins at the stoma/skin junction and can extend outward in a 10cm radius' (Colwell et al, 2011). As part of the application of the stoma pouch, solid skin barriers are placed around the stoma to protect the underlying skin from detrimental components of the stoma output (urine or stool). These barriers work to keep the skin dry by absorbing effluent from the stoma and moisture from the underlying skin. If too much moisture is absorbed from the stoma, the barrier will cease to be effective, letting the effluent come in contact with the peristomal skin. Too much moisture beneath the barrier (sweat or exudate from an existing peristomal wound) can occlude the underlying skin and lead to maceration.

## ASSESSMENT OF MOISTURE-RELATED SKIN DAMAGE

### Patient assessment

A full and detailed patient review should include an assessment of the patient's continence status, mobility, nutrition, allergies and previous skin problems/wounds. Establish the patient's bathing routine and skin care regimen, including his/her ability to self-care and involvement of caregivers. A risk assessment for skin breakdown that includes pressure ulcer risk assessment should be performed using a recognised tool (NPUAP/EPUAP 2009). The effect of any identified skin problems on the patient's quality of life should be documented and explored.

### Skin assessment

Patient assessment should be followed by a detailed skin assessment that includes inspection and palpation of the skin, assessment of skin colour, temperature and moisture levels. Document the cause, location and type of lesion and ensure moisture lesions are differentiated from pressure ulcers (Defloor et al, 2005). The evidence suggests moisture lesions are often mistaken for pressure ulcers (Beeckman et al, 2007) and this can affect the patient's treatment and organisation's ability to achieve targets to reduce the incidence of pressure ulcers as part of the 'Safety Thermometer' and quality agenda (Wounds UK, 2013).

## IMPLEMENTING AN APPROPRIATE CARE PATHWAY

The approach to care will be similar in the first instance for all four types of moisture-associated skin damage and should focus on:

- Adopting a structured skin care regimen

- Use of products that absorb and/or keep moisture away from the skin
- Control the cause of excessive moisture
- Treatment of secondary infection (Grey et al, 2011).

The first steps to prevent skin breakdown are to cleanse the skin, apply a moisturiser and the use of skin protectants (Grey et al, 2011). Avoid soap and water as traditional soap is made up of alkalis and fatty acids that raise the pH of the skin, damaging the acid mantle, which is essential to skin integrity (Voegeli, 2012). Instead, liquid barrier films and moisture barrier creams or ointments are recommended. A focused intervention approach will be required based on the underlying cause of MASD as outlined in the pathway in Figure 1 (see pages 2–3).

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