Moisture-associated Skin Damage

This BPR Brief is an abridged version of the **Best Practice Recommendations for the Prevention and Management of Moisture-associated Skin Damage.** In alignment with a global health-care perspective, Wounds Canada is committed to provide support to patients to help them adapt to and self-manage their condition in the face of social, physical and emotional challenges. This document uses the Wound Prevention and Management Cycle (WPMC) (Figure 1) as the basis for clinical decision making. For clinicians, this document is meant as a cue for treatment; it provides non-inclusive examples listed below each recommendation. For policy makers, it highlights (in ***bold italics***) actions and policies that support best practice.

Wounds Canada follows a population health strategy for wound care that enables us to address the entire range of individual and collective factors that determine health, including:

- Better health: health of the general population improved; behavioral, social, economic and environmental determinants addressed; preventative care rewarded
- Better health care: patient-centred, reliable, safe, evidence-based treatment; care managers co-ordinate total health-care delivery; evidence-based treatment with outcome tracking
- Better value: costs and cost improvements monitored; readmissions to hospital reduced; early interventions to reduce per patient cosst implemented; unnecessary or duplicate procedures eliminated; information management technologies utilized

For more information on content, levels of evidence or tools related to a particular recommendation, click on the links provided.

We strongly recommend that before using this BPR Brief the user read the full best practice recommendation (BPR) document. To obtain a copy of the full document, go to: www.woundscanada.ca/docman/public/health-care-professional/bpr-workshop/1814-wc-bpr-prevention-and-management-of-moisture-associated-skin-damage-1949e-final/file.

Introduction

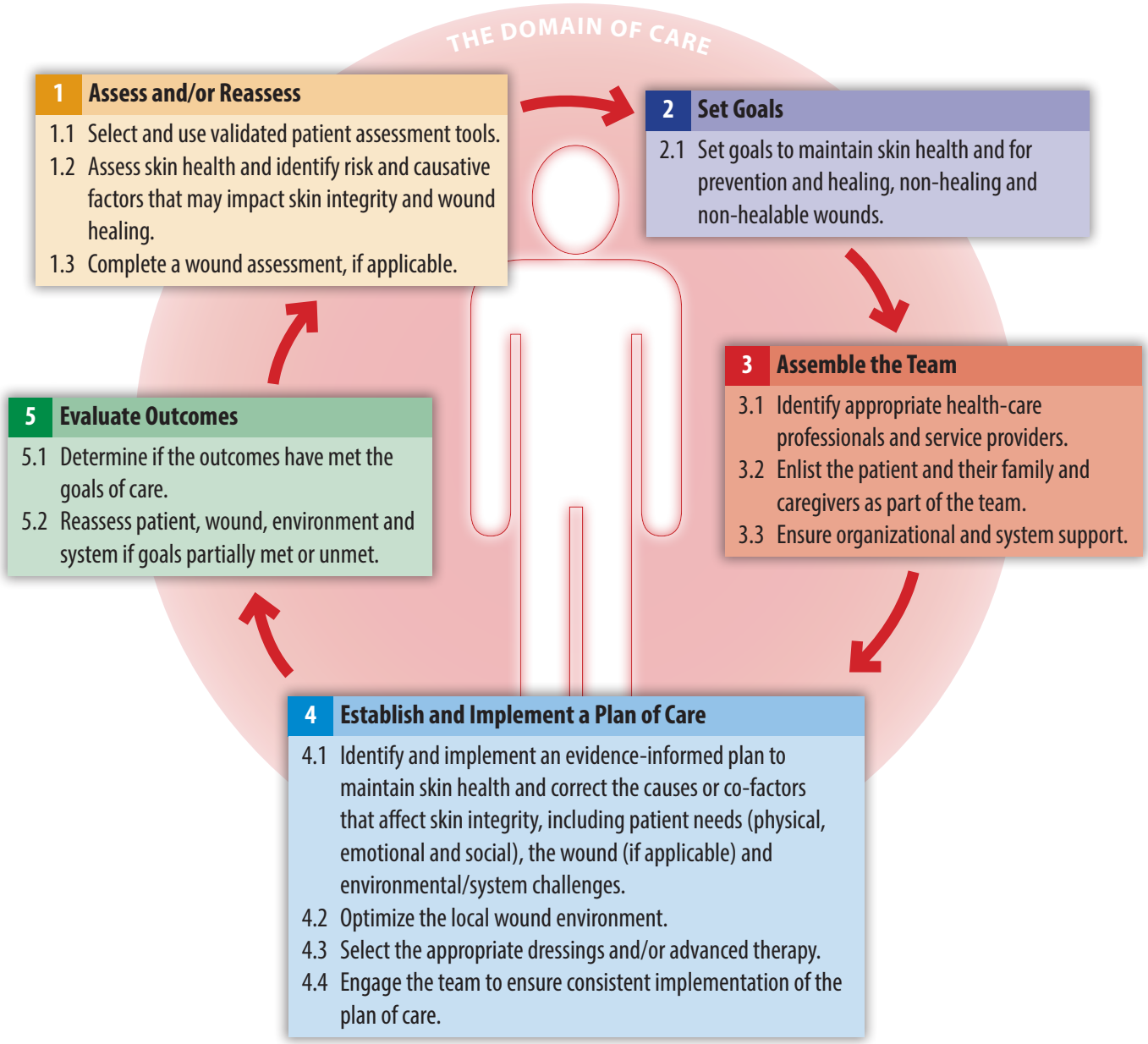
Moisture-associated skin damage (MASD) occurs when skin is exposed to moisture—such as water, perspiration, urine and/or feces, wound exudate, saliva and mucous—for prolonged periods of time. This can result in over-hydrated or eroded skin that causes a separation of the skin layers, also known as maceration. The key factors in the development of MASD include the length of time moisture is in contact with the skin, previous skin injury, and mechanical and/or chemical factors such as friction, shear and the composition of fluid.

There are five specific types of MASD, and it is imperative that clinicians are able to identify the type to provide proper prevention activities, diagnosis and management interventions. The five different types of MASD are:

- Incontinence-associated dermatitis (IAD): a type of irritant contact dermatitis (inflammation of the skin) found in patients with fecal and/or urinary incontinence.
- Intertriginous dermatitis (intertrigo or ITD): the result of friction in the presence of moisture. Susceptible areas are those where the skin is warm, where moisture can accumulate, and where the skin is prone to friction. May include the axilla, inframammary, abdominal, skin and inguinal folds.

Disclaimer: *This document provides a brief clinical enabler for the content provided in the relevant chapter(s) of Best Practice Recommendations for Skin Health and Wound Management 2025. It is not intended to provide comprehensive information on the given topic(s). For more complete information on specific best practice recommendations, refer to the full publication at: https://www.woundscanada.ca/news/752-bpr-new*

Figure 1: Wound Prevention and Management Cycle (WPMC)



- Periwound (including peri-tube/drain and peri-fistula) MASD: multifactorial and often associated with irritant or allergenic contact dermatitis of the surrounding wound skin secondary to moisture, usually related to wound exudate
- Peristomal MASD: damage around a stoma resulting from enzyme-containing effluent or other contributory factors such as mechanical trauma or medical-adhesive-related skin injury from appliances, bacteria, underlying skin disorders such as psoriasis or eczema, and the possibility of allergies to chemicals or fabrics
- Frostbite injury will not be discussed in this brief (See Chapter 8: Prevention and Management of Burns).
- Immersion Foot (IF): a syndrome secondary to prolonged foot exposure to moisture; occurring only with prolonged exposure to water (IF)

For the complete version of Best Practice Recommendations for the Prevention and Management of Moisture-associated Skin Damage, visit here.

1 Assess and/or Reassess

1.1 Select and use validated patient assessment tools.
1.2 Assess skin health and identify risk and causative factors that may impact skin integrity and wound healing.
1.3 Complete a wound assessment, if applicable.

Assessment must occur to determine the causes and factors that may impact skin integrity and wound healing. Patient assessment includes history and current health status; skin status (and wound status, if applicable); environmental factors and system factors. If, after the WPMC has been completed, the goals of care have not been fully met, reassessment must take place, followed by the rest of the recommendations in the WPMC steps. ***Assessment tools need to be available and in use in all care settings, supported by staff education and policy.***

1.1 Select and use validated patient assessment tools

Recent validated assessment tools pertaining to MASD have been identified in the literature.

Table 1: Categorization and Assessment Tools for the Different Types of MASD

	Categorization Tool	Assessment Tool	Tool validation
Incontinence Associated Dermatitis (IAD)	Ghent Global IAD Monitoring Tool Perineal Assessment Tool (PAT)	Ghent Global IAD Monitoring Tool	Yes Yes (valid, reliable)
Intertriginous dermatitis (ITD)	None available	None available	
Periwound Moisture-Associated Dermatitis (MASD)	None available	None available	
Peristomal MASD	The SACS™ Instrument DET Score AIM (Ostomy Skin Tool)	The SACS™ Instrument DET Score AIM (Ostomy Skin Tool)	Yes Yes Yes
Immersion Foot (IF)	None available	None available	

1.2 Set goals to maintain skin health and for prevention and healing, non-healing and non-healable wounds

Obtaining a detailed history in all areas of the biopsychosocial spectrum, in combination with a comprehensive physical examination, is essential in discovering all causative intrinsic and extrinsic factors of MASD.

1.2.1. Patient: Physical, emotional and lifestyle

Physical Assessment

A physical assessment should include a focused skin assessment (skin tone) that takes into consideration the level of nutrition and hydration, redness, areas of denudement, number of lesions, symmetry, location of changes, odour, periwound skin and skin colour changes and the patient's ability to perform head-to-toe skin care. It is important to assess and identify the source of moisture to determine the correct type of MASD, as the plan of care to prevent and treat MASD depends on the source of moisture. For those experiencing peristomal or periwound MASD, removal of any dressings or appliances and thorough cleansing of the area will be required prior to inspection of the skin.

Table 2: Modifiable, Non-modifiable and Causative Factors for MASD

Type of MASD	Modifiable Risk/Causative Factors
IAD	▪ Urine and or feces are the two primary sources of moisture ▪ Urinary and/or fecal incontinence combined with friction between the skin and an absorbent product ▪ Urinary incontinence ▪ Fecal incontinence provides greater risk of exposure to digestive enzymes present in feces that accelerates skin breakdown ▪ Aged skin, altered skin oxygenation, fever, air flow restriction, decreased mobility ▪ Prolonged use of steroids, antibiotics or promotility agents ▪ Impaired functional, emotional or cognitive status and/or mobility
ITD	▪ Perspiration is the most associated source of moisture ▪ Often the result of moisture combined with areas of high friction ▪ Risk factors include high body mass index, lymphedema, multiple skin folds, pendulous breasts ▪ Those who are malnourished, immobile, have poor hygiene or diabetes mellitus ▪ Hyperhidrosis, or profuse perspiration ▪ Hot and humid climates
Periwound MASD	▪ Wound exudate is the most common source ▪ Chronic wounds contain higher amounts of proteolytic enzymes ▪ Occlusive wound care dressings or products that increase the level of moisture to an excessive amount ▪ Individuals at higher risk include the elderly, the immunocompromised, or those with previous environmental skin damage (radiation, sun exposure), skin disorders (eczema, psoriasis), underlying pathology and congenital disorders (epidermolysis bullosa)
Peristomal MASD	▪ Primary source of moisture is stoma effluent: urine, feces or mucus ▪ Saliva and respiratory secretions in those with tracheostomies ▪ Ill-fitting or leaking appliance ▪ Stoma placement embedded within skin folds, flat or retracted stomas ▪ Fluctuation in weight, change in abdominal circumference6 ▪ Untrained clinicians and new ostomates applying appliances ▪ Gastric leakage from gastrostomies ▪ Peri-drain/tube drainage

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IF	▪ Wearing wet footwear and or socks for prolonged periods of time ▪ Leg edema, skin filds, higher body mass index (obesity) ▪ Urine and/or feces (both) accumulating on legs and in footwear ▪ Reduced mobility ▪ Lack of support to perform foot hygiene ▪ Excessive foot perspiration ▪ Insecure housing and experiencing homelessness ▪ Plaster casts ▪ Long wear time of combat, construction, fishing, or rubber boots

Emotional and Lifestyle Assessment

MASD can have an effect on psychological and social functioning of the patient, which can result in social isolation and loss of independence, leading to depression. Psychological assessment should be performed to assess the level of impact of MASD on quality of life (QoL) of the patient, the family, and the care partner(s). MASD can result in severe limitations on activities of daily living as well as various other social activities such as dining out, travelling or engaging in intimate and/or sexual activity. Including the patient in identifying risk factors can help them move towards better overall health.

1.2.2. Environmental: Socio-economic, care setting, potential for self-management

In Canada, populations at higher risk for MASD are those who have decreased access to their health-care system (e.g., accessing home care in remote and rural regions), those new to Canada, undocumented immigrants, those of low socio-economic status, uninsured or underinsured persons, and individuals with low literacy. It is critical to provide a culturally sensitive environment for care.

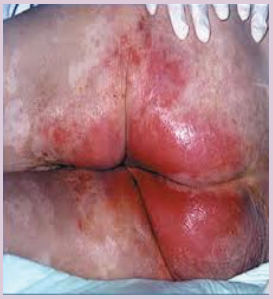
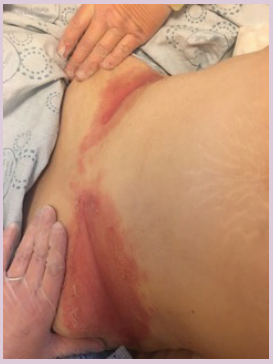
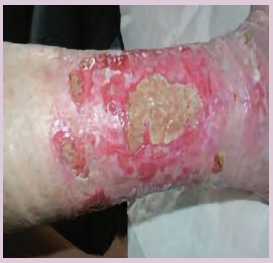
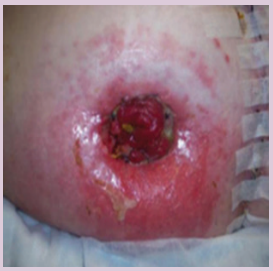
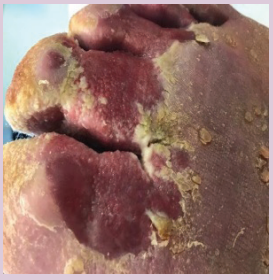
1.2.3. Systems: Health-care support and communication

Support from all levels of health care is imperative for effective prevention and management strategies related to all forms of MASD. Currently, provincial legislation mandates organizations report on the incidence and prevalence of PIs, but not for other nosocomial-acquired injuries such as skin tears or MASD. Although guidelines exist in some provinces, it is not mandated that organizations report metrics. Standardized language is a critical component of effective communication between clinicians. Clinicians require education and tools to be able to differentiate not only among pressure injuries, skin tears and MASD, but also among the types of MASD.

1.3 Complete a skin/wound assessment, if applicable

It is important to complete a comprehensive and focused skin assessment to determine the specific subtype of MASD and etiology. This should include, but may not be limited to, maceration, erythema and level of erosion. Thorough cleansing of the area prior to a focused wound assessment will improve accuracy in identifying the level of tissue involvement and drainage type. A skin biopsy can be an important tool in the diagnosis of a wide array of inflammatory skin conditions and irritant dermatitis such as IAD and ITD; however, it cannot reliably discriminate between the two. Diagnosis should be based on clinical features with judicious use of percutaneous skin testing for contact dermatitis related to irritants and allergies.

Table 3: Comparison of MASD Clinical Subtypes

MASD Type	Appearance	Clinical Features
IAD		▪ Location: perineum, labial folds in women, scrotum in men, buttocks, gluteal fold, medial and posterior aspects of upper thigh, lower back ▪ Erythema and inflammation of the affected area(s) with or without skin breakdown ▪ Discomfort, pain, itching, burning. Prone to secondary infections ▪ Extreme cases: swelling and blister formation may occur
ITD		▪ Location: axilla, inframammary, abdominal and inguinal folds, pubic panniculus, gluteal cleft and areas prone to harbour moisture ▪ Less common locations include interdigital, eyelids, antecubital, retroauricular ▪ Starts as mild erythema and can progress to severe swelling with maceration, denudation, weeping and crusting with potential secondaryinfection ▪ Centralized erythema with satellite lesions often associated with candida albicans ▪ Itching, burning, pain and odour ▪ Chronic subtle onset of pruritus, burning, tingling and pain in the skin folds
Periwound MASD		▪ Erythema and inflammation of the skin surrounding the wound up to ▪ 4 cm from the wound edge ▪ Maceration appears as reversible pallor secondary to excessive moisture and wrinkled skin ▪ Edge migration may be diminished ▪ Hypergranulation tissue may be present within the wound edges ▪ Hyper- or hypo-pigmentation of the surrounding intact skin
Peristomal MASD		▪ Location begins at the stoma-skin junction and may extend outward by up to 10 cm around the stoma ▪ Includes urinary and fecal diversions, tracheostomies and other stomas ▪ Erythema and inflammation of the peristomal skin with or without skinbreakdown
IF *Photo compliments of LM Parsons*		▪ Begins as tingling, itching and/or numbing feeling ▪ Erythema or cyanosis with appearance ▪ Feet may appear doubled in size as a result of edema ▪ Burning, pain ▪ Mild to moderate to severe blistering ▪ Petechiae ▪ Numbness

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2 Set Goals

2.1 Set goals to maintain skin health and for prevention and healing, non-healing and non-healable wounds.

Goals of care need to revolve around the patient. Achieving goals will depend on the interplay of the patients' health status and lifestyle, the availability of resources and the knowledge and ability of care partners to provide optimal interventions. If these factors are not taken into consideration the goals of care may be unrealistic and unrealizable. The team should aim to set goals according to the SMART principle: **S**pecific, **M**easureable, **A**ttainable, **R**elevant and **T**imely.

2.1 Set goals to maintain skin health and for prevention healing, non-healing, and non-healable wounds

Although patients experiencing any subtype of MASD may face intrinsic and extrinsic barriers to healing, clinicians should always recognize the opportunity to promote healing despite these factors, with adequate barrier protection and further skin barrier maintenance. Goals should always include prevention and support regular application of a distinct skin care routine in conjunction with methods of reducing friction and moisture within the affected areas.

Table 4: Examples of SMART Goals

Type of MASD	Goals
IAD	▪ Prevent skin breakdown related to IAD ▪ Manage incontinence within 1 week ▪ Restore skin integrity within 2 weeks
ITD	▪ Prevent skin breakdown related to ITD ▪ Keep skin folds dry within 1 day ▪ Reduce the amount of friction in intertriginous areas within 1 day ▪ Resolve secondary infection if appropriate within 5 days
Periwound MASD	▪ Prevent periwound skin maceration ▪ Manage periwound skin maceration ▪ Resolve secondary infection if appropriate within 5 days
Peristomal MASD	▪ Prevent peristomal skin maceration ▪ Restore healthy peristomal skin ▪ Resolve secondary infection if appropriate within 5 days
Immersion Foot (IF)	▪ Prevent further damage related to IF ▪ Restore skin barrier function ▪ Ensure wearing of appropriate footwear and socks within 2 days

2.1.1 Identify goals based on prevention or healability of wounds

All types of MASD should be considered healable, as the underlying factor is moisture secondary to a variety of mainly controllable factors, and the primary goal should be the prevention of future episodes of skin breakdown through methods of moisture control. ***In settings where licensed health-care professionals are present, all new cases of MASD should be given independent consideration and be considered nosocomial injury to the patient.*** Prevention of all categories of incontinence-associated dermatitis begins with a continence assessment, including a functional assessment of the patient's ability to toilet and regain or maintain their ability to toilet.

2.1.2 Identify quality-of-life and symptom-control goals

Clinicians must acknowledge patient values and develop an individualized plan of care that always considers the patient's quality of life, values and wishes for treatment. ***Organizations investing in evidence-based skin care protocols are more likely to improve patient experience, increase the number of positive clinical outcomes and drastically increase the quality of life for those suffering from MASD.***

3 Assemble the Team

3.1 Identify appropriate health-care professionals and service providers.
3.2 Enlist the patient and their family and caregivers as part of the team.
3.3 Ensure organizational and system support.

An integrated team ***is necessary to implement, adjust and sustain a plan to meet the patient-specific goals.*** The team should include the relevant health-care professionals and other service providers as required as well as the patient, family and their support system.

3.1 Identify appropriate health-care professionals and service providers

Respectful and trusting partnerships between patients and health-care professionals are crucial in obtaining patient buy-in and agreement to engage in self-care strategies. ***It is essential for clinicians to know their community and the resources available within their catchment area to better facilitate seamless transition across sectors (e.g., from hospital to home or home to respite).*** Potential team members include a nurse specialized in wound, ostomy and continence care (NSWOC), clinician with advanced wound education, physician or nurse practitioner, registered dietitian, personal support worker, physical therapist, occupational therapist, pharmacist, social worker, psychologist.

3.2 Enlist the patient and their family and caregivers as part of the team

Patient participation is shown to increase positive patient outcomes and experience within health-care systems. As well, including the patient in their own plan of care can empower them, resulting in better overall health and building relationships with the health-care providers. Clinicians must therefore initiate the conversation about self-managed MASD care at the initial interaction to promote independence and encourage patients to actively participate in their care. The team must then define roles for each member. Next, the team should collaboratively establish expectations from each member to ensure engagement and co-ordination of all activities related to MASD prevention or management. To be a contributing member and

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to optimize outcomes, the patient and their care partners must fully understand their health-related conditions and all components of the plan of care.

3.3 Ensure organizational and system support

Wounds Canada's resources and education align with a population health management model. This model encourages the proactive management of a total population at risk for adverse outcomes through a variety of individual, organizational and cultural interventions to improve patient, clinical and financial outcomes. The interventions are based on a risk-stratified needs assessment of the population, supported by a comprehensive governance infrastructure.

Organizational acknowledgement of risk factors and implementation of prevention strategies for the various types of MASD are crucial to prevent occurrence. Access to and implementation of products and evidence-based protocols are necessary to control the sources of moisture for any type of MASD and reduce negative outcomes in any health organization—public or private. System support also requires organizations to provide adequate staffing to ensure such vital prevention strategies are not missed. To support this model and secure successful outcomes, decision makers must:

- ***Use globally recognized risk classifications to identify risk, support prevention and develop management strategies by allocating appropriate resources for products such as appropriate dressings, incontinence supplies and footwear, patient education and clinical visits.***
- ***Develop policies (federal, provincial/territorial, regional and institutional) based on current evidence that acknowledge and designate human, material and financial resources to support the team in the development of an MASD prevention program.***
- ***Establish a pathway for referral of people with skin problems to a multidisciplinary service.***
- ***Work with community and other partners to develop a process to facilitate patient referral and access to local health professionals with specialized knowledge in skin and wound management.***
- ***Work with community and other partners to advocate for strategies and funding for all aspects of preventative skin care.***
- ***Ensure services and programs exist for the assessment and continuing surveillance of those defined as being at increased risk in order to prevent skin breakdown, and to support management in their health-care or community setting.***
- ***Establish, train and support an integrated team composed of interested, skilled and knowledgeable persons to address and monitor quality improvements in the prevention and management of skin complications.***
- ***Establish and sustain a communication network between the person with or at risk for skin complications and the necessary health-care and community systems.***
- ***Audit all aspects of the service to ensure that local practice meets accepted national and international standards of care.***

In order to achieve these steps and improve patient outcomes, establish or adopt a system-wide care pathway.

4 Establish and Implement a Plan of Care

4.1 Identify and implement an evidence-informed plan to maintain skin health and correct the causes or co-factors that affect skin integrity, including patient needs (physical, emotional and social), the wound (if applicable) and environmental/system challenges.
4.2 Optimize the local wound environment.
4.3 Select the appropriate dressings and/or advanced therapy.
4.4 Engage the team to ensure consistent implementation of the plan of care.

Ensure that care addresses the goals and considers patient needs, factors relating to the skin and wound (if applicable), as well as the environment and the system in which the team is situated.

4.1 Identify and implement an evidence-informed plan to maintain skin health and correct the causes or co-factors that affect skin integrity, including patient needs (physical, emotional and social), the wound (if applicable) and environmental/system challenges

Once the origin of risk or actual MASD has been identified, implement steps to reduce the presence of moisture to protect skin integrity, and support the wound healing process. Preventing and correcting the cause for all types of MASDincludes removing the moisture source or, at a minimum, reducing the length of exposure time of the epidermis to themoisture source. Repairing the epidermal barrier with emollients and humectants and using appropriate products such as skin barriers and dressings to manage the moisture source are essential evidence-based strategies to include in each plan of care. In cases of recalcitrant MASD, percutaneous testing may be necessary to look for potential allergic contact dermatitis. Sources of contact allergens include topical antibiotics, preservatives, antioxidants and fragrances in skin cleansers, emollients and barrier creams. Components of the dressings themselves may act as allergens. Testing for contact allergy may require a referral to a specialized clinic/service (i.e., dermatology). Clinicians should always assess and manage emotional, social and psychological factors associated with MASD. (See Table 5).

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Table 5: Prevention and Treatment Strategies

Type of MASD	Prevention and Treatment Strategies
IAD	▪ Assess and treat reversible causes of incontinence ▪ Put in place a skin care regimen and ensure all team members are diligent with the plan ▪ Optimize nutrition/fluid management ▪ Provide appropriate containment devices/products and ensure they are applied correctly ▪ Check containment products on a regular basis ▪ Ensure prompt and frequent changes of soiled products and cleanse and protect the skin adequately ▪ Facilitate purchase of highly breathable and absorbent product, ensuring correct fit ▪ Introduce toileting techniques as able, including appropriate equipment, devices and education.
ITD	▪ Apply moisture-wicking product impregnated with silver or PHMB-impregnated gauze between the folds to wick away or absorb moisture (follow manufacturers product supply information) ▪ Select clothing that is loose-fitting and breathable, such as cotton ▪ Make sure antifungal cream or oral antifungal treatment is continued for 7 days after the dis-appearance of clinical signs to prevent recurrence. ▪ Administer pain and antihistamine medication according to pain and discomfort assessment ▪ Reduce or eliminate skin-on-skin contact ▪ Encourage, where able, weight reduction in case of obesity. ▪ Instruct patient and care partners on the importance of bathing, showering (especially after exercise) and carefully drying skin folds.
Periwound MASD	▪ Use appropriate dressing types to manage moisture balance (See Wounds Canada's Wound Dressing Selection Guide) ▪ Apply a skin protectant (no-sting film barrier, petrolatum-based or zinc-based skin protectant) to the periwound skin to reduce the risk of periwound skin maceration.

Peristomal MASD	▪ GI/GU Ostomy:
	  ▪ Maintaining skin integrity relies on proper selection, application and function of ostomy products and skin barrier appliances, for adequate protection
	  ▪ Use appropriate technique and ostomy devices to provide a good seal
	▪ Tracheostomy:
	  ▪ Keep peristomal skin dry, and apply absorbent products that will keep the humidity away from the skin and absorb any leakage
	  ▪ Apply a moisture-wicking product impregnated with silver or PHMB-impregnated gauze
	  ▪ Consider referral to a respiratory therapist and consider non-product-based treatment such as increasing frequency of upper airway suction
	▪ Gastrostomy:
	  ▪ Identify and correct the cause of leakage
	  ▪ Keep peristomal skin dry and apply absorbent products that will keep the humidity away from the skin and to absorb any leakage
	  ▪ Consider referral to NSWOC, stoma or gastroenterology nurse

IF	▪ For acute events address physical and mental status and consider social assessment.
	▪ Warm and dry the affected area.
	▪ Dispose of wet footwear and provide warm, dry clothing.
	▪ Once the initial treatment phase has passed an assessment of quantitative peripheral sensory testing, such as Semmes-Weinstein should be considered in severely affected or symptomatic individuals or those at risk for re-injury.
	▪ For FI:
	  ▪ Re-warm actively and rapidly in a water bath (40–42°C). Passive rewarming is only acceptable when the first option is unavailable.
	  ▪ Have patient avoid nicotine or other vasoconstrictors during the period of rewarming.
	  ▪ Provide thrombolytic therapy to identified candidate patients but only in an appropriate medical setting.
	  ▪ Debride necrotic tissue, if necessary, at a later stage and only after completion of the rewarming cycle and assessment of arterial status.
	  ▪ Provide supportive care of post-injury nerve and skin damage.
	  ▪ Educate patients to prevent repeat injury.

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In cases of recalcitrant MASD, percutaneous testing to look for potential allergic contact dermatitis may be necessary. Sources of contact allergens include topical antibiotics, preservatives, antioxidants and fragrances in skin cleansers, emollients and barrier creams. Components of the dressings themselves may act as allergens. Testing for contact allergy may require a referral to a specialized centre.

4.2 Optimize the local wound environment: Cleansing, debriding, managing bacterial balance and managing moisture balance.

Table 6: Local Wound Environment

	IAD	ITD	Periwound MASD	Peristomal MASD	IF
4.2.1 Cleansing	▪ Wash with a gentle cleanser* (avoid soap or alkaline products) ▪ Cleanse the surrounding intact skin well ▪ Pat dry; do not rub ▪ Single-use wash cloths are preferred ▪ Use no-rinse skin cleansers.	▪ Use a noncytotoxic agent* (typically potable water, normal saline irrigating solution or an appropriate wound-cleaning agent). ▪ Cleanse the surrounding intact skin well. ▪ Pat dry; do not rub.	▪ Use a non-cytotoxic agent* (typically potable water, normal saline irrigating solution or an appropriate wound- cleaning agent, neutral pH between 6.5 to 7.5). ▪ Cleanse the surrounding intact skin well, 10-20 cm outward from the damaged skin edge. ▪ Pat dry; do not rub.	▪ Wash with potable water. ▪ Use a soft or disposable cloth. ▪ Gently but thoroughly pat dry. ▪ Avoid soaps (especially oily soaps) and other alkaline products.	▪ Use a noncytotoxic agent* (typically potable water, normal saline irrigating solution or an appropriate wound-cleaning agent). ▪ Cleanse the surrounding intact skin. ▪ Pat dry, do not rub.
4.2.2 Debriding	▪ No	▪ No	▪ No	▪ No	▪ Yes, indicated by by the presence of necrotic tissue and adequate blood flow
4.2.3 Managing bacterial balance	▪ Category 1B, where fungal (link to note below) infection is evident, apply a miconazole-containing paste 1–2 times daily. ▪ Category 2B, where signs for increased bioburden is evident, a swab should be done.	▪ Place silver-impregnated fabric between the folds to wick away moisture. ▪ Use PHMB-impregnated gauze. ▪ Antiperspirant, loose clothing, good air flow.	▪ Ensure peri-wound hygiene and protection.	▪ Apply antifungal cream or powder in case of fungal infection. Apply for 7 days after the disappearance of the clinical signs of fungal infection When applying cream, ensure the cream is well penetrated before applying the ostomy pouching system.	▪ Prophylactic antibiotics have no benefit; however, if infection is suspected, target *streptococcal*, *staphylococcal* and *Pseudomonas aeruginosa*.

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4.2.4 Managing moisture balance	▪ Use polymer-based incontinence products or under pads instead of non-polymer. ▪ In the case of extensive diarrhea, it is preferable to apply pads instead of briefs. ▪ When applied, briefs should not be closed tightly. ▪ Use containment devices when appropriate.	▪ Place silver-impregnated fabric between the folds to wick away moisture. ▪ Apply PHMB impregnated gauze.	▪ Use a cover dressing** designed to absorb the exudate vertically to protect the periwound skin or absorbent enough to avoid any leaking on intact skin. ▪ Use absorbent dressings such as alginate, gelling fibre, polymers and foam. ▪ Protect the skin with no-sting barrier film or ointment-based skin protectant. ▪ Explore the form and function of various products to ensure maximal absorption and skin protection (e.g., not all foam dressings will absorb and lock exudate away from periwound skin)	▪ Ensure the ostomy skin barrier is protecting the peristomal skin Assess pouching device to ensure proper fit and prevention of leakage.	

**See Wounds Canada's Product Pickers, below, for more information.*

Note: Fungal infections: When a fungal infection is diagnosed, apply an antifungal cream/product as prescribed (usually 2–3 times a day). However, in the case of IAD, it is important to apply a skin barrier cream over the antifungal product to protect the skin from stools and urine. The skin barrier should be applied as many times as needed.

4.3 Select the appropriate dressings and/or advanced therapy

The first steps in treating any form of MASD are to control the moisture on the affected skin and prevent the moisture from accumulation.

Table 7: Dressing/Therapy Selection

IAD	ITD	Periwound MASD	Peristomal MASD	IF
▪ Hydrophillic paste dressings Petrolatum, zinc or dimethicone-based barrier ointments or creams. ▪ No-sting film barrier or ointment. ▪ In the case of fungal infection, avoid use of no-sting film barrier until the infection is resolved. ▪ Implement a personalized toileting schedule. ▪ If using containment products, ensure that barrier products are compatible with the containment device.	▪ Moisture-reduction products (4.2.3). ▪ Treat infection by lightly dusting skin with antifungal powder. ▪ Use of anti-inflammatory topical steroids when needed (in case of major inflammation), for a limited period. ▪ Consider referral to a dermatologist for recalcitrant dermatitis.	▪ Apply a non-alcohol-based (or no sting) liquid skin protectant to the periwound skin. ▪ Apply barrier creams. ▪ Control moisture with appropriate absorptive dressings, ideally providing vertical absorption. ▪ In some cases, excessive moisture may be due to edema, which must be controlled (such as using compression in venous leg ulcers and lymphedema).	▪ Refer to a wound care clinician or a stoma care nurse Consider referral to a dermatologist for recalcitrant dermatitis. ▪ Provide adequate oral analgesia (e.g., amitriptyline; however, this is still not well supported).	▪ Provide adequate oral analgesia (e.g., amitriptyline; however, this is still not well supported). ▪ Elevate affected extremity. ▪ Hypothermic cooling. ▪ Slow rewarming. ▪ Pain relief.

***See Wounds Canada's Product Pickers, below, for more information.*

Note: Products NOT recommended for MASD are those that donate moisture to the area such as hydrogels or dressings promoting an occlusive environment, thereby restricting the ability for moisture to evaporate.

Utilize the ACT mnemonic (Assess, Cleanse, Treat). Steps to preventing and treating the cause of IAD includes, as a method of prevention, assessing those not yet experiencing skin breakdown:

- Step 1: Assess the skin after each episode of incontinence to determine the irritant and note the condition of skin.
- Step 2: Cleanse using pH-balanced solution, protect the skin and contain the effluent.
- Step 3: Treat vulnerable, damaged, traumatized skin.

4.4 Engage the team to ensure consistent implementation of the plan of care

It is essential to engage all members of the team in care planning to optimize the outcome. ***Clinical staff education and awareness campaigns that report the outcomes of prevention strategies for MASD can help to change practice.*** Patients and care partners need to be kept engaged, as they will ultimately be the ones to control some of the underlying factors that caused the MASD.

Wounds Canada's Product Pickers

Skin and Wound Clean-up: helps users choose appropriate skin and wound cleansers as well as irrigating solutions

Wound Dressing Formulary: describes common wound dressings in generic categories and lists usage considerations

Wound Dressing Selection Guide: helps users choose appropriate primary and secondary dressings based on common clinical situations and wound care goals

For the complete version of Best Practice Recommendations for the Prevention and Management of Moisture-associated Skin Damage, visit here.

5 Evaluate Outcomes

5.1 Determine if the outcomes have met the goals of care.

5.2 Reassess patient, wound, environment and system if goals partially met or unmet.

Evaluation of the plan of care should be routine and ongoing to identify whether the plan is effective in meeting the goal(s). If, after the cycle has been completed, goals of care have not been fully met, reassessment (Step 1) must take place, followed by the rest of the Wound Prevention and Management Cycle steps. ***The plan of care needs to be revisited at discharge to ensure that self-management strategies are in place to support the patient to sustain the outcomes achieved after discharge.***

5.1 Determine if the outcomes have met the goals of care

Reassessment of MASD helps clinicians determine if prevention and treatment plans have resulted in achieving established goals. If a routine skin care regimen is implemented an improvement should be noted in a two-week period. If subtypes of MASD are not resolving and skin integrity is not maintained, reassessment of causative factors and barriers to healing, and revision of the care plan, are necessary.

5.2 Reassess patient, wound, environment and system if goals partially met or unmet

When goals of care are partially met or unmet, go back to Step 1 of the Wound Prevention and Management Cycle. Reassessment needs to consider gaps in care or the patient's ability to adapt to their condition and engage in self-management. Inclusion of the team members is important in reassessment and exploration of modifiable factors and patient involvement and ability to support the care plan. Timely referral and continued use of categorization and assessment tools can provide a foundation for further development of validated assessment tools able to reliably detect change.

5.3 Ensure sustainability to support prevention and reduce risk of recurrence

Identifying and managing the appropriate cause of MASD, type of MASD and patient barriers to healing are vital in reducing risk of recurrence. Incorporating prevention strategies into the plan of care can promote preventive behaviour throughout the management process.

- Frequent skin assessments are required, and a bundled approach to care should be implemented, including reassessing mobility, nutrition, continence and possible allergies.
  - Implementation of a consistent and structured skin care regimen is essential, including education to patients, families and care partners for sustainability and reduction of recurrence rates.
  - Ongoing evaluation and education of patients, care partners and families is important so psychosocial concerns can be appropriately averted or managed.
  - Assessment of the patient's environment is crucial to determine whether there is appropriate equipment, capacity to participate in self-care and if the home is conducive to good hygiene practices. Knowledge of community resources that support the patient remaining at home is critical.
  - If risk factors for MASD are not well managed, individuals, care partners and health-care systems will experience increased costs. Often, the focus is on the hard cost of products versus the larger picture of cost-effective care. For nosocomial-related MASD, organizations should not hold the patient accountable for funding their own products to manage situations caused by inadequate health-care resources.

Additional Wounds Canada resources, including a variety of Product Pickers and brochures, are available online at: www.woundscanada.ca/health-care-professional/resources-health-care-pros/boutique.

For the complete version of Best Practice Recommendations for the Prevention and Management of Moisture-associated Skin Damage, visit here.

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