

Best Practice Recommendations

for the Prevention and Management of Incontinence-associated Dermatitis

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Abstract

While no Canadian guidelines exist for the prevention and management of incontinence-associated dermatitis (IAD), evidence to support its management can be extrapolated from the Registered Nurses' Association of Ontario (RNAO) Best Practice Guidelines for the Prevention and Treatment of Pressure Ulcers. Furthermore, Gray et al. have published a consensus document addressing the prevention and management of IAD, which can be used to support the evidence from the RNAO Guidelines.

The Wound, Ostomy and Continence Nurses Society (WOCNS) Clinical Practice guideline for Prevention and

Management of Pressure Ulcers and the CAWC Best Practice Recommendations for the Prevention and Treatment of Skin Tears provide additional support. The proposed pathway for the assessment and management of IAD in this article can guide clinical decision-making. The clinician is advised to identify and treat underlying causes; identify and manage patient-centred concerns; follow best practice; and consider adjunctive therapies when warranted. The best practice recommendations presented here also address the critical need for organizational and educational activities that support the implementation of such guidelines in clinical practice.

Introduction

Literature pertaining to the prevention and management of incontinence-associated dermatitis (IAD) is limited. Following a literature review, the authors found there to be no literature addressing the prevalence, incidence or economic impact of IAD in the Canadian population. MEDLINE and CINAHL databases were searched using the following key terms: IAD, diaper rash, moisture maceration injury, irritant dermatitis, perineal dermatitis and heat rash. The resulting articles focused on the causes, treatment and management of IAD. A total of 27 theory-based and research articles were found. These were used to support the recommendations found in this article.

Defining IAD

Incontinence-associated dermatitis presents a complex and challenging problem for healthcare professionals. IAD can be defined as an inflammation of the perineal

or peri-genital skin resulting from prolonged contact with urine or stool. Gray et al. described IAD as inflammation of the skin surface with redness and edema, in some cases including bullae-containing clear exudate.¹ More advanced or severe cases can include erosion or denudation of the skin.¹

IAD begins as simple maceration resulting from exposure to urine or stool and compounds, which worsens with prolonged exposure. Junkin and Seleko caution that in individuals with darker skin tones, the inflammation may be a different colour to the surrounding skin (i.e., yellow, white or dark red/purple).² In these cases, it is important to palpate the skin to identify areas of induration. The individual may complain of soreness, pain, itchiness, tingling or burning in the affected area.^{2,3} Figures 1 and 2 show IAD with and without skin breakdown.

continued on page 8

Question:

After treating the same wound for 7.5 years, what eventually healed it?

Answer:

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in just 6 weeks.



MMPs, Elastase, and wound surface area, in a 7.5 year old wound⁽¹⁾



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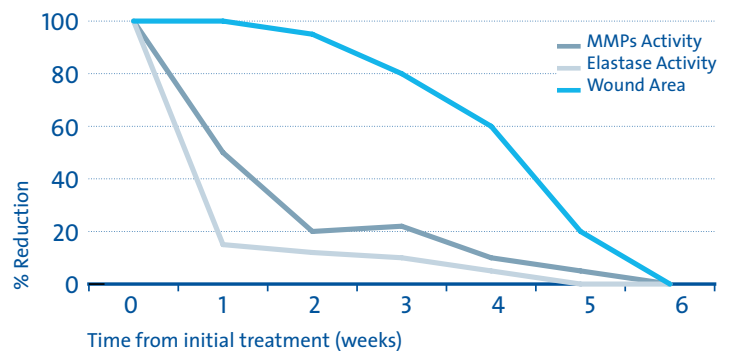


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References: 1. Cullen, B., Boyle, C., Webb, Y. Modulation of the chronic wound environment; an in vitro evaluation of advanced wound therapies, SAWC, Tampa FL, 2007. 2. Nisi G et al. Use of protease-modulating matrix in the treatment of pressure sores. Chir Ital 2005;57:465-8. 3. Vin F et al. The healing properties of PROMOGRAN* in venous leg ulcers. J Wound Care 2002;11:335-41. 4. Veves A et al. A randomized, controlled trial of PROMOGRAN* (a collagen/oxidized regenerated cellulose dressing) vs standard treatments in the management of diabetic foot ulcers. Arch Surg 2002;137:822-827. 5. Lazaro-Martinez et al. Estudio aleatorizado y comparativo de un apósito de colágeno y celulosa oxidada regenerada en el tratamiento de úlceras neuropáticas de pie diabético. Cir Esp. 2007;82(1):27-31. 6. Ghatenkar O, Willis, M, Persson U. Health Economics. 'Cost effectiveness of treating deep diabetic foot ulcers with PROMOGRAN* in four European countries'. J Wound Care, Vol 11, No. 2, Feb 2002. 7. Snyder. Sequential therapies and advanced wound care products as a standard practice in the home care setting. Home health abstract for SAWC, San Diego, April 2008 (presentation at the J&J satellite symposium)



FIGURE 1
A 78-year-old female with skin breakdown related to IAD.



FIGURE 2
A 70-year-old female with severe IAD without skin breakdown.

IAD is often confused with National Pressure Ulcer Advisory Panel (NPUAP) stage I pressure ulcers or other partial thickness wounds such as skin tears.⁴ The initial presentation may, to the untrained eye, appear the same. A “tell-tale” indicator to differentiate IAD from pressure ulcers is that IAD is not normally limited to an area over a bony prominence. Instead, the area will present with more irregular, diffuse margins in areas affected by exposure to moisture. Unlike pressure ulcers, IAD will not progress to full-thickness skin damage unless the erosion is extensive and prolonged and/or associated with infection.⁵ It is crucial that IAD is distinguished from other wound types, including pressure ulcers and skin tears, in order to properly treat and manage this condition (Table 1).^{5,6}

It is important to note that IAD can lead to a greater susceptibility of the skin to the forces of shear, friction and pressure. Therefore, pressure ulcers, skin tears and IAD can all occur in the same individual.^{7,8}

Prevalence

In 2007, Junkin and Seleko reported the prevalence of incontinence in the acute care population in the US to be 19.7 per cent (120/608 patients aged four years or over).³ A total of 107 patients (17.6 per cent) were found to be incontinent of stool. The highest prevalence was found in the oldest age group (>80 years). Of those identified with incontinence, 42.5 per cent were found to have associated skin injury. Hypoalbuminemia and poor nutritional status were commonly found in those individuals identified with IAD. It should be noted that fecal incontinence is the second leading cause of admission to long term care facilities in the US.⁹

In the US, increased attention is being paid to the economic outcomes associated with incontinence prevention strategies, but there has been very little research focused on the management of IAD and the effectiveness of interventions.^{1,2,5} The authors were unable to find any publications pertaining to the economic impact of IAD on the Canadian healthcare system, although there has been increased interest in the impact of urinary incontinence.¹⁰ Research presented by Swanson et al. addressed the impact of urinary incontinence on patients and healthcare providers, but a link was not made to IAD or the economic impact.¹⁰

While IAD is most prevalent in the elderly population,³ it should be noted that it is not limited to that population and can be found in any age group suffering from fecal or urinary incontinence.¹¹

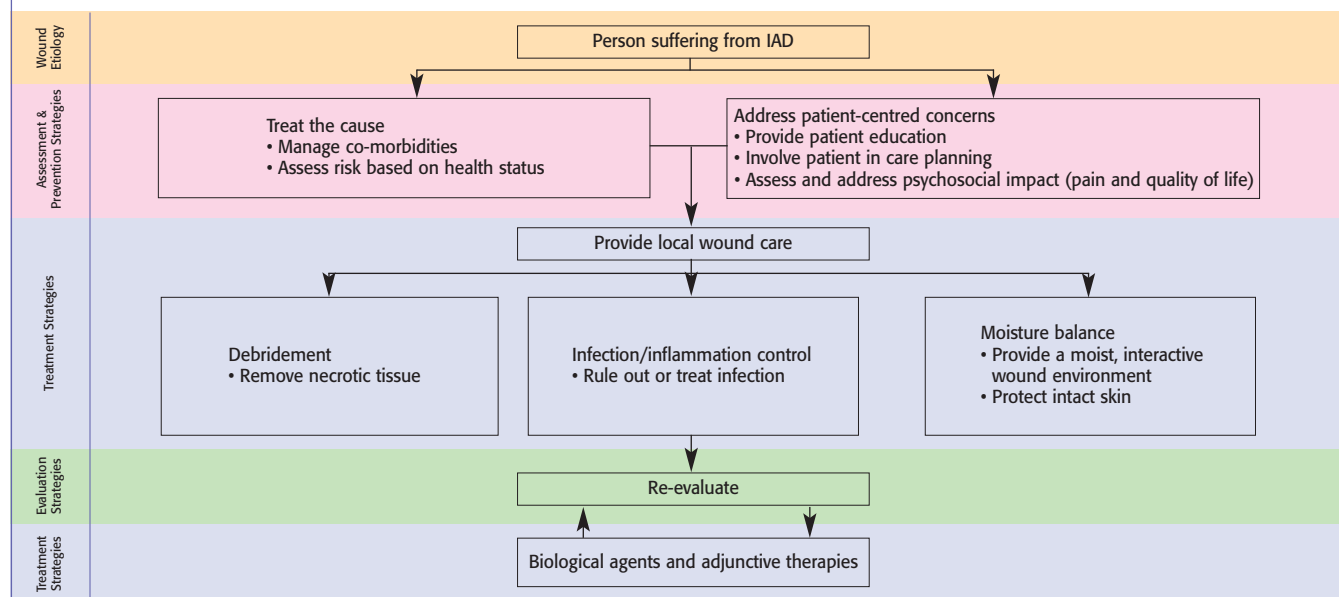
TABLE 1

Comparison of Pressure Ulcers and IAD

Factor	Pressure ulcer	IAD
Cause	Friction, shear or direct pressure	Incontinence, contact irritant
Depth of injury	Superficial to deep	Superficial
Direction of injury	Generally from the bottom up	Generally from the top down
Location	Usually over a bony prominence with well-demarcated edges	Diffuse, often in skin folds, not usually over bone
Necrosis	May be present	Rarely present

FIGURE 3

Pathway to the prevention and management of IAD



Recommendation 1 (Level of Evidence: IV)

Obtain a complete patient history, including general health status and identify factors that may put the patient at risk for IAD.

Discussion

The risk of IAD is not equal among individuals. Urinary or fecal incontinence, aged skin, prolonged use of steroids, antibiotics or promotility agents, pain, altered skin oxygenation, fever, constant exposure to moisture, use of incontinence products that restrict air flow, decreased mobility and nosocomial or iatrogenic causes of diarrhea (*Clostridium difficile* intestinal infection and tube feedings) all put individuals at higher risk for IAD.^{1,7,12} Of these intrinsic and extrinsic factors, fecal incontinence has the strongest correlation to IAD.^{3,5}

It is important to note that urinary and fecal incontinence are not a normal part of aging and can be avoided or controlled through proper assessment, diagnosis and treatment.^{11,13}

By identifying those at risk for IAD, an appropriate prevention program can be implemented before an injury occurs.¹⁴ Issues that should be included in this risk assessment include: the cause, duration and history of alterations in skin integrity; other co-existing health issues; medications; and level of mobility.¹ When all of these issues are taken into account, a solid

prevention plan can be developed. Individuals should be assessed for risk factors upon admission to health-care services and whenever their condition changes.^{4,15}

Relationship to and Differentiation from Pressure Ulcers

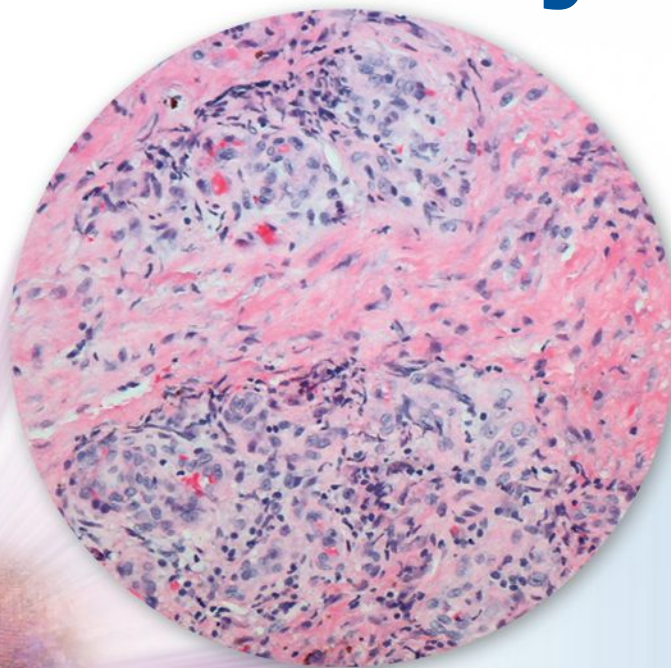
IAD is often mistaken for pressure ulcers, specifically NPUAP stage I and II ulcers.^{4,7} It is important that IAD is recognized as a completely different category and differentiated from pressure-related wounds. Deep-tissue injury and wounds extending into subcutaneous and muscle tissue are normally caused by compression of those tissues between a bony prominence and another surface, and by a combination of shearing forces and pressure. Wounds that tend to be limited to partial thickness are more likely to be caused by external factors alone.¹⁶ Differentiation of IAD from pressure ulcers can be very challenging, especially in the individual who suffers from both incontinence and immobility.

Those suffering from both factors have a 37.5 per cent greater risk of developing a pressure ulcer.² Therefore, urinary and fecal incontinence are incorporated into many pressure ulcer risk assessment tools. The literature does not support a conclusion that incontinence causes pressure ulcers, but rather that

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CLINICAL PHARMACOLOGY: Santyl[®] (collagenase) possesses the ability to digest insoluble collagen, undenatured and denatured, by peptide bond cleavage, under physiological conditions of pH and temperature. This ability makes it particularly effective in the removal of detritus from dermal lesions, contributing towards the more rapid formation of granulation tissue and subsequent epithelization of dermal ulcers and severely burned areas. Collagen in healthy tissue or in newly formed granulation tissue is not digested.

INDICATIONS: Santyl[®] (collagenase) is a sterile ointment indicated for the debridement of dermal ulcers or severely burned areas.

CONTRAINDICATIONS: Application is contraindicated in patients who have shown local or systemic hypersensitivity to collagenase.

WARNINGS: Debilitated patients should be closely monitored for systemic bacterial infections because of the theoretical possibility that debriding enzymes may increase the risk of bacteremia.

PRECAUTIONS: The enzyme's optimal pH range is 6 to 8. Significantly lower pH conditions have a definitive adverse effect on the enzyme's activity, and appropriate precautions should be carefully taken. The enzymatic activity is also adversely effected by detergents, hexachlorophene and heavy metal ions such as mercury and silver that are used in some antiseptics and by cobalt, magnesium and manganese. When it is suspected such materials have been used, the site should be carefully cleansed by repeated washings with normal saline before Santyl[®] (collagenase) ointment is applied. Soaks containing metal ions or acidic solutions such as Burrow's solution should be avoided because of the metal ion and low pH. Cleansing materials such as hydrogen peroxide or Dakin's solution followed by sterile normal saline do not interfere with the activity of the enzyme. The ointment should be confined to the area of the lesion in order to avoid the possible risk of irritation or maceration of normal skin; however, the enzyme does not damage newly forming granular tissue. A slight erythema has been noted occasionally in the surrounding tissue particularly when the enzyme ointment was not confined to the lesion. This can be readily controlled by protecting the healthy skin with a material such as zinc oxide paste. Since the enzyme is a protein, sensitization may develop with prolonged use.

ADVERSE REACTIONS: Although no allergic sensitivity or toxic reactions have been noted in the recorded clinical investigations to date, one case of systemic manifestations of hypersensitivity has been reported in a patient treated for more than one year with a combination of collagenase and cortisone. Irritation, maceration or erythema has been noted where prolonged contact of normal skin with Santyl[®] (collagenase) ointment has been allowed, either by

application of the ointment to areas of normal skin or excessive application of the ointment to the wound crater with subsequent spread to normal skin when dressings are applied. The reported incidence for this type of reaction was 1.8%.

SYMPTOMS AND TREATMENT OF OVERDOSE: **Symptoms:** To date, the irritation, maceration or erythema reported on prolonged contact of normal skin with Santyl[®] (collagenase) ointment constitute the only symptoms of overdosage reported. **Treatment:** Santyl[®] (collagenase) ointment can be rendered inert by the application of Burow's solution USP (pH 3.6 - 4.4) to the treatment site. If this should be necessary, reapplication should be made only with caution.

DOSAGE AND ADMINISTRATION: For external use only. Santyl[®] (collagenase) ointment should be applied once daily, or more frequently if the dressing becomes soiled (as from incontinence) in the following manner: **(1)** Prior to application the lesions should be gently cleansed with a gauze pad saturated with sterile normal saline, to remove any film and digested material. If a stronger cleansing solution is required, hydrogen peroxide or Dakin's solution may be used, followed by sterile normal saline. **(2)** Whenever infection is present, as evidenced by positive cultures, pus, inflammation or odor, it is desirable to use an appropriate antibacterial agent. Should the infection not respond, therapy with Santyl[®] (collagenase) ointment should be discontinued until remission of the infection. **(3)** Santyl[®] (collagenase) ointment should be applied (using a tongue depressor or spatula) directly to deep wounds, or when dealing with shallow wounds, to a non-adherent dressing or film dressing which is then applied to the wound. The wound is covered with an appropriate dressing such as a sterile gauze pad and properly secured. **(4)** Use of an occlusive or semi-occlusive dressing may promote softening of eschar, if present. Alternatively, crosshatching thick eschar with a #11 blade is helpful in speeding up debridement then cleanse with sterile saline. It is also desirable to remove as much loosened detritus as can be done readily with forceps and scissors. **(5)** All excess ointment should be removed each time the dressing is changed. **(6)** Use of Santyl[®] (collagenase) ointment should be terminated when debridement of necrotic tissue is complete and granulation is well under way.

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the resulting alteration in skin integrity associated with IAD makes the skin more susceptible to pressure, shear and friction.⁵

Recommendation 2 (Level of Evidence: IV)

Identify persons at high risk for IAD.

Discussion

The pathophysiology of IAD is not fully understood⁵; however, a number of factors that contribute to IAD have been identified. Gray et al. have highlighted earlier findings that indicated tissue tolerance, perineal environment and toileting ability as key contributing factors.¹

Tissue tolerance is associated with age, health

status, nutritional status, oxygenation, perfusion and core body temperature.³ The perineal environment is affected by the type of incontinence (urinary, fecal or mixed urinary/fecal), the amount and frequency of incontinence, shearing and the presence of irritants or allergens that may compromise skin integrity.³ Gray et al., citing earlier reports, indicate that fecal incontinence, frequency of incontinence, altered skin integrity, pain, reduced skin oxygenation, fever and compromised mobility are strongly correlated with IAD.¹

Bliss et al. have also expanded upon earlier work and addressed individuals living in long-term care facilities.⁷ They concluded that the strongest risk for IAD

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Quick Reference Guide for the Prevention and Management of IAD

Best practice recommendation

Level of evidence (RNAO/WOCNS)

Treat the cause

1. Obtain a complete patient history, including general health status and identify factors that may put the patient at risk for IAD
2. Identify persons at high risk for IAD
3. Support the prevention of IAD

IV

IV

IV

Address patient-centred concerns

4. Assess and assist with psychological needs in the development of a patient-centred plan (pain and quality of life)

IV

Provide local wound care

5. Classify and document IAD according to the degree of trauma using a validated assessment tool
6. Provide and support an optimal wound-healing environment

III–IV

III

Re-evaluate

7. Determine the effectiveness of interventions

III–IV

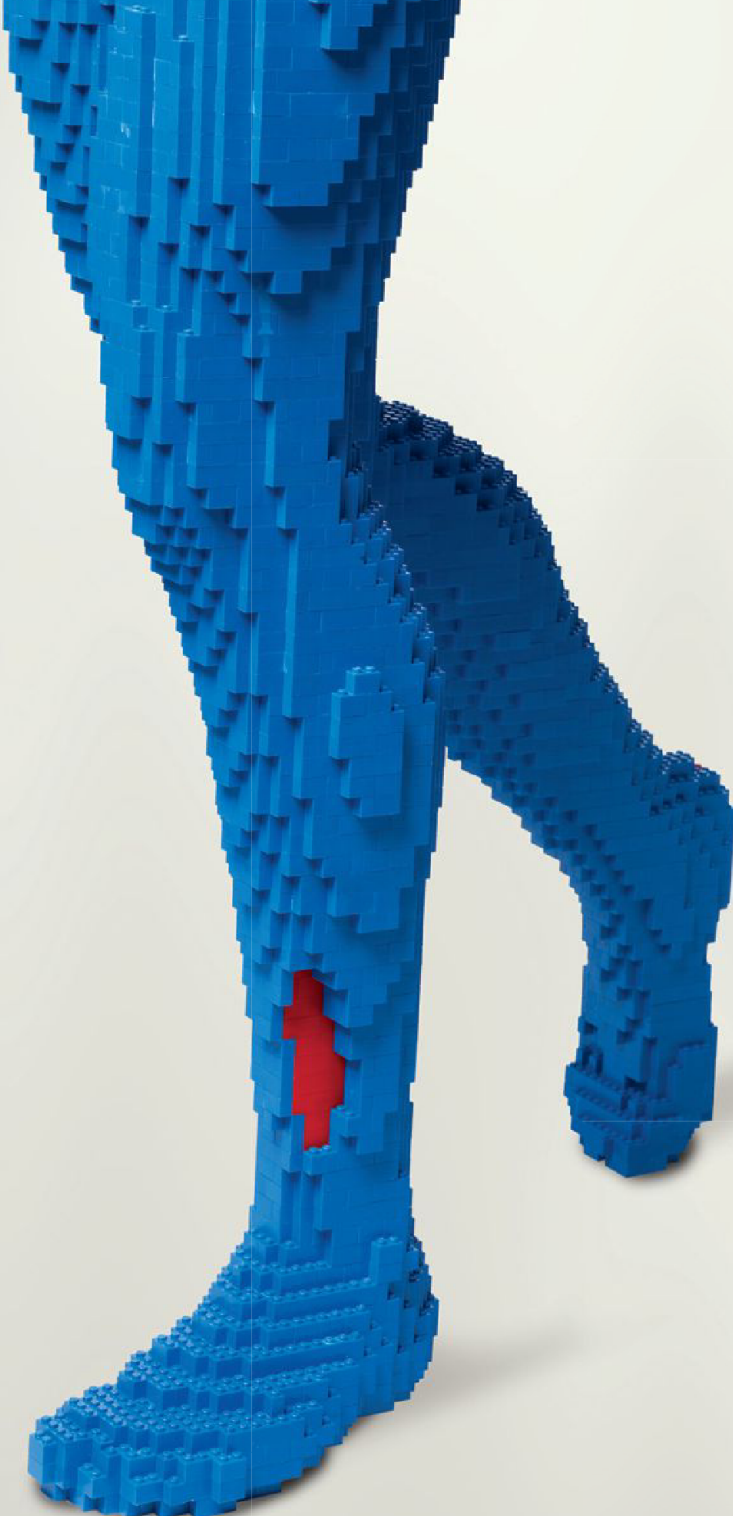
Provide organizational support

8. Develop an interprofessional team with flexibility to meet the patient's needs
9. Educate patients, caregivers and healthcare professionals on the prevention and treatment of IAD

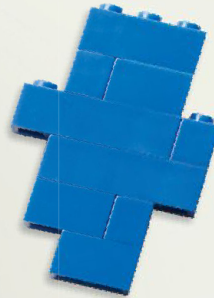
IV

IV

RNAO = Registered Nurses' Association of Ontario
WOCNS = Wound, Ostomy and Continence Nurses Society



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TABLE 2

Perineal Assessment Tool¹⁹

Score			
	3	2	1
Intensity of irritant			
Type and intensity of irritant	Liquid stool with or without urine	Soft stool with or without urine	Formed stool and/or urine
Duration of irritant			
Amount of time that skin is exposed to irritant	Linen/pad changes at least every 2 hours	Linen/pad changes at least every 4 hours	Linen/pad changes at least every 8 hours
Perineal skin condition			
Skin integrity	Denuded/eroded with or without dermatitis	Erythema/dermatitis with or without candidiasis	Clear and intact
Contributing factors			
Low albumin, antibiotics, tube feeding, <i>Clostridium difficile</i> , other	Three or more contributing factors	Two contributing factors	No or one contributing factor

Score 4–6 = low risk
 Score 7–12 = high risk

was in individuals suffering from fecal incontinence alone, and that suffering solely from urinary incontinence held no increased risk for IAD.

The RNAO pressure ulcer guidelines¹⁵ and the WOCNS guidelines¹⁷ recommend a risk assessment that includes a comprehensive head-to-toe assessment upon admission and thereafter as per the individual facility's policies. The RNAO supports the use of validated risk-assessment tools.^{15,18}

Validated risk-assessment tools are available to predict pressure ulcers⁶ and are well utilized. Nix has described the Perineal Assessment Tool (PAT) (Table 2).¹⁹ PAT is a four-item tool that assesses risks leading to IAD. These risks include exposure to an irritant such as urine or feces, intensity of the irritant, the perineal skin condition and extrinsic contributing factors. Each of these four items is evaluated and rated with a score from one to three. A total score of four represents the lowest risk, while 12 represents the highest risk (a score of four to six is considered low risk, while a score of seven to 12 is considered high risk). PAT has undergone validation by the WOCNS; an inter-rater reliability of 87 per cent was reported.¹⁹

Despite the existence of tools specifically designed to measure the risk of IAD, Gray et al. have reported that the most common instrument used for moisture-related skin damage is the NPUAP staging system.¹ As the NPUAP system is designed to measure the extent of tissue damage related to pressure injury, Gray et al. do not recommend its use for the classification of IAD.

Recommendation 3 (Level of Evidence: IV)

Support the prevention of IAD.

Discussion

The RNAO and WOCNS guidelines^{17,18} recommend the implementation of systematic prevention protocols. Prevention of IAD can at times be challenging and costly for healthcare professionals and caregivers.⁵ Gray et al. recommends that the best prevention strategy begins with a structured skin care regimen.¹

IAD prevention programs should involve the following: assessment and treatment of incontinence; a cleansing routine; use of moisturizers and moisture barriers; monitoring and treatment of skin infections; optimization of nutritional and fluid status; use of

containment products; and use of adjunctive devices.¹ These factors are described below, while prevention and management strategies are summarized in Table 3.

Assessment and Treatment of Incontinence

Prevention should include assessment and treatment of urinary and fecal incontinence for those at risk of developing IAD.^{2,3} Assessment and treatment of incontinence is beyond the scope of these best practice recommendations, but the Canadian Continence Foundation has published clinical practice guidelines for adults addressing urinary incontinence²⁰ and the RNAO has also published guidelines for promoting continence using prompted voiding.²¹ Incontinence can often be treated effectively through behavioural interventions that are within the scope of practice of health professionals in Canada such as nurses (specifically enterostomal therapy nurses and

nurse continence advisors) and physiotherapists.²⁰ However, for individuals in whom conservative interventions are ineffective, referral to a medical specialist (i.e., urologist, uro-gynecologist, gastroenterologist) can be invaluable.²⁰

Cleansing Routine

Another aspect of an IAD prevention program is the establishment of a gentle cleansing routine, including the use of moisturizers to replace lost lipids and moisture barriers to maintain a layer between the skin and the urine or stool.¹⁴ Gray has described the ideal skin cleanser as one that gently removes urine and stool from the skin without compromising the acid mantle.¹⁴ Non-rinse cleansers are ideal because they reduce the steps involved in care and limit the risk of shearing and friction during skin care. In addition, they are generally pH-balanced, unlike alkaline soaps.^{14,19}

TABLE 3	
Prevention and Management Strategies for IAD ^{1–3,5,8}	
Strategy	
1	Identify and address the cause of the incontinence, if possible (fecal and/or urine).
2	Assess for risk of IAD using a validated risk assessment tool designed to address IAD. Once an increased risk had been established, monitor the individual closely for altered skin integrity.
3	For incontinent individuals, gently cleanse the skin with a product that has an acidic pH (close to the pH 5.5 of normal skin). Do not scrub or rub the skin; avoid friction.
4	After cleansing, moisturize the skin and apply a skin barrier to protect the skin. If zinc-based products are used, do not scrub to remove excess zinc—it is not necessary to remove all of the zinc with each change. Apply product more frequently in individuals with frequent loose stools.
5	Minimize the use of containment products. If unavoidable, change containment devices immediately after soiling.
6	Monitor and treat infection. Individuals suffering from IAD are especially susceptible to fungal infections.
7	Consider adjunctive devices such as fecal collectors, retention drainage devices, indwelling urinary catheters or fecal/bowel-management systems in individuals with severe risk for or existing IAD who are not responding to other methods of containment and prevention.
8	Maximize nutritional intake and hydration.
9	Educate support staff and personal care givers regarding prevention and management strategies.

Moisturizers and Moisture Barriers

An effective IAD prevention program differentiates between moisturizers and moisture barriers. Each plays a vital yet different role in the prevention of IAD, but they are not interchangeable. Moisturizers are intended to restore moisture to the skin and retain it. Typically, moisturizers contain a humectant such as glycerin, lanolin or mineral oil. Humectants play a key role in restoring the skin's barrier function, and emollients are designed to replace lost lipids. Moisturizers can be used on their own or in combination with barriers.^{14,19}

Moisture barriers serve the purpose of protecting the skin from urine, stool or excessive moisture from perspiration. They are available in the form of a cream or ointment and the active ingredients are normally petrolatum, dimethicone, zinc oxide or a combination of these products.^{9,14}

- Petrolatum is a semi-solid product derived from petroleum. It is an excellent barrier against urine, but less effective against stool.
- Dimethicone-based barriers are derived from silicone. They are easier to apply and remove than zinc or petrolatum, but offer a less effective barrier.
- Zinc oxide provides an effective skin barrier, but it can be difficult to remove. Caregivers should be educated that it is not necessary to remove all of the zinc oxide with each cleaning.
- Liquid skin barriers are also available as an alternative to a cream or ointment-based barrier. Care should be taken to use alcohol-free liquid sealants, especially with pre-existing IAD, as the alcohol component can increase patient pain.

Monitoring and Treatment of Skin Infections: Cutaneous Candidiasis

The moist environment associated with IAD puts the individual at a greater risk of developing a concurrent cutaneous candidiasis. These fungal infections should be treated with an antifungal cream or powder. Ideally, a product is selected that incorporates a skin protectant. Alternatively, an antifungal powder can be applied as a thin layer and then covered with a skin protectant or BCT (balsam of Peru, castor oil and trypsin) ointment to maximize healing.⁵

Nutrition and Fluid Status

Nutrition and hydration status are closely linked to skin integrity. Nutritional support plays a vital role in skin healing. Without adequate nutritional intake, the body is unable to repair damaged tissue or mount an offensive against the microbial invasion and infection.^{4,22} Each step of the skin healing process is dependent upon circulating amino acids, lipids and carbohydrates. An optimal nutritional intake will improve skin health, assist with the healing of the current skin alteration and help with the prevention of IAD. Individuals with low serum albumin have been found to be at higher risk for the development of IAD than those with normal serum albumin levels.^{3,4}

Hydration and nutritional health can be assessed through observation, history and blood-sample monitoring (e.g., for albumin and pre-albumin levels).^{2,4} An interdisciplinary team approach, including a dietitian, is crucial for patients with skin breakdown, including those at risk for IAD.²²

Containment Products

The need for containment of urinary and fecal incontinence should be balanced against the risk of damage to skin integrity through maceration.² Absorbent polymer incontinence products such as pads and briefs that wick leakage away from the skin should only be used when essential. When advising individuals about containment products, the clinician should obtain a careful history of the patient's mobility and manual dexterity, lifestyle, toileting pattern, frequency and volume of incontinence and history of skin problems or current skin problems.²³

In cases of severe IAD, short-term use of an indwelling urinary catheter can be considered. A combination of skin cleansing after each incontinence episode and use of skin protection products such as moisture barrier and skin barrier products is important.² The use of tight-fitting incontinence briefs is not recommended with fecal incontinence, as these products can trap fecal output against the skin. Instead, the use of incontinence pads for those who are immobile and toileting programs for patients who can respond to cues and are ambulatory with assistance are recommended to minimize contact between feces and perineal skin.²

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Adjunctive Devices

The use of adjunctive devices such as condom catheters and fecal collectors is an effective strategy to minimize contact between the skin and urine/feces.²³ External urinary catheters or condom catheters for men are effective if left in place by the patient and if there is at least one inch of penile protrusion during the day. Fecal collectors include external pouches and indwelling fecal tubes or bowel-management systems.²³

Fecal incontinence pouches are non-invasive. They consist of a self-adhering skin barrier that adheres to the peri-rectal area and an attached pouch that is often connected to a bedside collection device. The pouch adheres to the skin around the anus and keeps the stool off the skin. These devices work well for individuals who are relatively immobile and have liquid stool as long as the skin is properly prepared and step-by-step application techniques are followed. The advantages of external pouches are stool containment, accurate measurement of output, decreased supply use and caregiver time and increased patient comfort; moreover, they can be used indefinitely.^{2,23}

Indwelling rectal tubes or bowel-management systems (Figure 5) are medical devices designed to direct, collect and contain liquid stool from bed-bound patients. These closed systems of stool containment decrease staff exposure to possibly infectious body substances and protect the perineal skin effectively. After a digital rectal exam and removal of any impacted stool, a soft catheter tube is inserted into the rectum and the balloon is filled with saline or water.² Some systems allow for irrigation and medication instillation.¹²

These devices should be used with caution as the long-term effects and limitations of use are not known. If the stool is not completely liquid, tube blockage will occur and this can potentially result in a bowel perforation. The advantages include stool containment, a reduced risk of spread of infection and management of severe IAD. The disadvantages are that they are not designed for long-term use, they are difficult for a mobile patient to use and are not appropriate for the patient with chronic stool incontinence. These devices should be applied by experienced professionals.^{12,23}



FIGURE 4
An 85-year-old male patient with severe IAD.

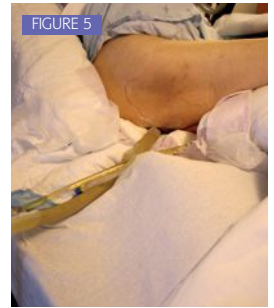


FIGURE 5
An 85-year-old male patient with IAD, managed with an indwelling bowel-management system.

Recommendation 4 (Level of Evidence: IV)

Assess and assist with psychological needs in the development of a patient-centred plan (pain and quality of life).

Discussion

The RNAO guidelines^{15,18} and the WOCNS guidelines¹⁷ provide support for Recommendation 4. A psychological assessment, including an assessment of quality of life, should be performed to determine the individual's motivation and ability to understand and adhere to a plan of care.²⁴ Individuals suffering from IAD experience pain, discomfort and possible embarrassment related to their incontinence.¹²

Quality of Life

Individuals suffering from IAD require not only physical support, but also psychological support.²⁴ As with any chronic illness, they must contend with alterations to their lifestyle and will require additional support to cope effectively with the impact of IAD on their quality of life.²⁵

Pain

The level or degree of pain experienced is unique to each individual and plays a vital role in quality of life and well-being.^{24–26} Pain is a symptom associated with actual or perceived injury and is defined by the patient's perception of the pain. For the individual suffering from IAD, there will be various degrees of pain: burning pain when stool or urine comes in contact with the irritated area; chronic pain from the damaged skin; and psychological pain associated with the skin breakdown.^{24–26}

The RNAO's guidelines indicate that all patients should be assessed at regular intervals, using the same validated pain assessment tool each time.^{15,18} Currently there are no validated assessment tools specific to pain from alterations in skin integrity; however, there are a number of validated pain assessment tools that can be utilized, depending upon the cognitive level of the patient.²⁶

When assessing pain in the elderly population, simply worded questions and tools that can be easily understood are the most effective.²⁵ This is because sensory deficits and cognitive impairments often contribute to the inability of older adults to communicate pain to caregivers. Subjective tools such as a visual analogue scale (VAS) or the Faces Pain Rating Scale are highly effective for this population. A VAS is a horizontal 100-mm line anchored with "no pain" on the left and "worst possible pain" or "pain as bad as it could possibly be" on the right.²⁵ Patients are simply asked to choose a position on the line that represents their pain. The Faces Pain Rating Scale depicts facial expressions on a scale of zero to six, with zero represented by a smile and six by a crying grimace. Patients choose a face that illustrates how the pain makes them feel.²⁵

The patient's perception of pain must be respected and addressed by the interprofessional team. An accurate assessment of the type of pain experienced, its intensity and the impact this pain has on the patient's quality of life must be taken into consideration when creating a personalized plan of care and should be an integral part of the overall clinical assessment.^{24,25}

Recommendation 5 (Level of Evidence: III–IV)

Classify and document IAD according to degree of trauma using a validated assessment tool.

Discussion

The RNAO guidelines^{15,18} and the WOCNS¹⁷ guidelines provide recommendations related to the classification of wounds. Alterations in skin integrity should be classified in a systematic and universally accepted manner. To accurately document and treat IAD, it is important that a common language is used. Proper documentation is vital to understanding the extent of the problem. IAD should not be grouped





into pressure ulcer categories.

The presence and severity of IAD should be assessed using a standardized tool that accurately and reliably assesses the skin integrity of individuals suffering from incontinence.² Two tools that fit these criteria are available: the Perirectal Skin Assessment Tool and the Skin Assessment Tool proposed by Kennedy and Lutz (as described by Junkin and Seleko²⁷). Junkin and Seleko have proposed a new IAD classification tool—the IAD Intervention Tool (IAD-IT)—that builds on this previous work.² The scale uses

FIGURE 6

The IAD Intervention Tool² (reprinted with permission)

INCONTINENCE-ASSOCIATED DERMATITIS INTERVENTION TOOL (IAD-IT)

Skin Care for Incontinent Persons		
<ol style="list-style-type: none"> 1. Cleanse incontinence ASAP and apply barrier. 2. Document condition of skin at least once every shift in nurse's notes. 3. Notify primary care provider when skin injury occurs and collaborate on the plan of care. 4. Consider use of external catheter or fecal collector. 5. Consider short term use of urinary catheter only if necessary. 		
	DEFINITION	INTERVENTION
HIGH-RISK	Skin is not erythematous or warmer than nearby skin but may show scars or color changes from previous IAD episodes and/or healed pressure ulcers). Person not able to adequately care for self or communicate need and is incontinent of liquid stool at least 3 times in 24 hours. ¹	<ol style="list-style-type: none"> 1. Use a disposable barrier cloth containing cleanser, moisturizer and protectant.² 2. If barrier cloths not available, use acidic cleanser (6.5 or lower), not soap (soap is too alkaline); cleanse gently (soak for a minute or two – no scrubbing); and apply a protectant (ie: dimethicone, liquid skin barrier or petrolatum). 3. If briefs or underpads are used, allow skin to be exposed to air. Use containment briefs only for sitting in chair or ambulating – not while in bed. 4. Manage the cause of incontinence: a) Determine why the patient is incontinent. Check for urinary tract infection. b) Consider timed toileting or a bladder or bowel program. c) Refer to incontinence specialist if no success.¹
EARLY IAD	 <p>Skin exposed to stool and/or urine is dry, intact, and not blistered, but is pink or red with diffuse (not sharply defined), often irregular borders. In darker skin tones, it might be more difficult to visualize color changes (white or yellow color) and palpation may be more useful. Palpation may reveal a warmer temperature compared to skin not exposed. People with adequate sensation and the ability to communicate may complain of burning, stinging, or other pain.</p>	
MODERATE IAD	 <p>Affected skin is bright or angry red – in darker skin tones, it may appear white or yellow. Skin usually appears shiny and moist with weeping or pinpoint areas of bleeding. Raised areas or small blisters may be noted. Small areas of skin loss (dime size) if any. This is painful whether or not the person can communicate the pain.</p>	<p>↑ Include treatments from box above plus:</p> <ol style="list-style-type: none"> 5. Consider applying a zinc oxide-based product for weepy or bleeding areas 3 times a day and whenever stooling occurs. 6. Apply the ointment to a non-adherent dressing (such as anorectal dressing for client, Tella for flat areas, or ABD pad for larger areas) and gently place on injured skin to avoid rubbing. Do not use tape or other adhesive dressings. 7. If using zinc oxide paste, do not scrub the paste completely off with the next cleaning. Gently soak stool off top then apply new paste covered dressing to area. 8. If denuded areas remain to be healed after inflammation is reduced, consider BTC ointment (balsam of peru, trypsin, castor oil) but remember balsam of peru is pro-inflammatory. 9. Consult WOCN if available.
SEVERE IAD	 <p>Affected skin is red with areas of denudement (partial thickness skin loss) and oozing/bleeding. In dark skinned patients, the skin tones may be white or yellow. Skin layers may be stripped off as the oozing protein is sticky and adheres to any dry surface.</p>	<p>↑ Include treatments from box above plus:</p> <ol style="list-style-type: none"> 10. Position the person semiprone BID to expose affected skin to air. 11. Consider treatments that reduce moisture: low air loss mattress/overlay, more frequent turning, astringents such as Domeboro soaks. 12. Consider the air flow type underpads (without plastic backing).
FUNGAL APPEARING RASH	 <p>This may occur in addition to any level of IAD skin injury. Usually spots are noted near edges of red areas (white or yellow areas in dark skinned patients) that may appear as pimples or just flat red (white or yellow) spots. Person may report itching which may be intense.</p>	<p>Ask primary care provider to order an anti-fungal powder or ointment. Avoid creams in the case of IAD because they add moisture to a moisture damaged area (main ingredient is water).</p> <ol style="list-style-type: none"> 1. If using powder, lightly dust powder to affected areas. Seal with ointment or liquid skin barrier to prevent caking. 2. Continue the treatments based on the level of IAD. 3. Assess for thrush (oral fungal infection) and ask for treatment if present. 4. For women with fungal rash, ask health care provider to evaluate for vaginal fungal infection and ask for treatment if needed. 5. Assess skin folds, including under breasts, under pannus, and in groin. 6. If no improvement, culture area for possible bacterial infection.

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descriptions of the skin condition to determine whether IAD has developed and to measure its severity. IAD is then classified as high risk, early IAD, moderate IAD, severe IAD and fungal-appearing rash (Figure 6).²

Recommendation 6 (Level of Evidence: III)

Provide and support an optimal wound-healing environment.

Discussion

The RNAO^{15,18} and WOCNS¹⁷ guidelines make multiple recommendations related to the assessment and treatment of wounds. Prevention of IAD should be the primary focus; however, healthcare professionals must be equipped to manage skin breakdown should it occur (Figure 7).

To adequately treat skin breakdown, several factors must be addressed. These include co-existing factors, nutritional support, pain management, local skin conditions and, if necessary, optimal dressing selection.²⁷ When addressing IAD, the first step is to determine the severity of the alteration in skin integrity.¹⁴ Treatment can then be guided by the IAD-IT (Figure 6).² Actual interventions will depend on the assessment.²⁷

Treatment of IAD should centre around prevention strategies.¹⁰ As highlighted in Recommendation 3, moisturizers and protective barriers in combination with the removal of the cause are key components for treating IAD.

If a dressing is required, it is important that the dressing chosen is atraumatic, supports healing and adheres well in a moist environment.^{12,14} The RNAO guidelines support the need for a systematic approach to dressing selection.^{15,18} Ovington²⁸ has made seven dressing recommendations, which are also endorsed by the RNAO recommendation.¹⁸ Recommendations include choosing a dressing that will: maintain constant moisture; be appropriate in accordance to the local wound environment; protect the peri-wound skin; control or manage exudate; control or manage infection; and consider caregiver time. These recommendations should be followed when assessing any wounds and deciding which dressing or product to use.²⁷ Appropriately utilized



Skin breakdown as a result of severe IAD.

dressings can optimize the healing environment by maintaining the appropriate moisture levels to promote cell growth and healing.^{6,27,29}

Beitz has indicated that the most effective method for managing IAD is to leave the affected area uncovered by a dressing, but protected by barrier creams and moisturizers.¹² Contrary to previous practices, it is not recommended to keep skin exposed to the air to let it dry.⁵

Recommendation 7 (Level of Evidence: III–IV)

Determine the effectiveness of interventions.

Discussion

The RNAO^{15,18} and WOCNS¹⁷ guidelines recommend examining the edge of the wound to determine the effectiveness of any interventions and to establish a renewed plan of care if progress is not as anticipated. When determining the effectiveness of their intervention, clinicians who are treating individuals with IAD are advised to measure and document the total area of redness/excoriation and/or skin breakdown. This will allow the clinician to determine if the affected area is enlarging, maintaining or decreasing in size.

Flanagan has stated that a 20–40 per cent reduction in wound area in two and four weeks is likely to be a reliable predictive indicator of healing.³⁰ For IAD with actual skin breakdown, it can be extrapolated that a similar reduction in size would be expected. But for skin that is only red or excoriated, the expected rate of improvement is increased. Therefore, an individual with IAD should experience a decrease in the severity and size of the affected area if the cause of the IAD has been treated and the condition appropriately

treated. If there is no improvement, the clinician should revise the plan of care to ensure improvement.

Recommendation 8 (Level of Evidence: IV)

Develop an interprofessional team with flexibility to meet the patient's needs.

Discussion

The RNAO guidelines provide recommendations related to the development of an organized interprofessional team approach to managing wounds.^{15,18}

Patients, families and caregivers require the added expertise of other members of the interprofessional team in addition to the wound or skin care expert's professional knowledge. Other team members can include, but are not limited to, an occupational therapist, physical therapist, dietitian, social worker, general physician, general nurse, enterostomal therapy nurse, nurse continence advisor, pharmacist and discharge

planner.³⁰ All healthcare professionals involved in the care of the patient with IAD must be willing and able to work together toward positive patient outcomes. A team of healthcare professionals working together is more effective than one healthcare professional working in isolation.³⁰

The patient should be at the core of the team. The patient should be involved in his or her care and the team should work to keep the patient involved in the plan of care as much as possible. However, this may not always be possible when co-existing issues such as dementia are present. The patient's desires and wishes must be respected even if they differ from the ultimate goals of the healthcare team.³⁰

Recommendation 9 (Level of Evidence: IV)

Educate patients, caregivers and healthcare professionals on the prevention and treatment of IAD.

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Discussion

The RNAO^{15,18} and WOCNS¹⁷ guidelines support the need to educate patients, caregivers and healthcare professionals.

Patients, families and healthcare professionals require ongoing education and support to ensure current evidence-based practice is being followed. Prevention is a critical element in a successful plan of care and education is a key component in any successful preventive or treatment program. Education is particularly important in the prevention of IAD. Management of IAD should start not only with a good prevention program,^{8,10,20} but should also include an element to determine and if possible remove the cause of the incontinence.^{2,20} Frequent monitoring of individuals deemed to be high risk is an important part of any prevention program and is especially important when caring for individuals with IAD.^{2,20}

In addition to these strategies it is important to involve those at risk, their family members and their caregivers in the prevention process, thus empowering each person to play a proactive role in IAD prevention.¹⁴ Effective patient and caregiver education is an essential component of successful IAD prevention and management.¹⁴ A needs assessment of patients and caregivers should be performed and documented, including baseline information pertaining to knowledge, beliefs, health practices and perceived learning needs of patients, families and caregivers. Cultural and psychological variables will also be factors in developing prevention and management strategies.⁶ Involving individuals and families in prevention strategies and educating them regarding proper techniques for providing care will increase the likelihood of a successful IAD prevention and treatment program.^{1,5,16}

Conclusion

IAD presents a complex and challenging problem for healthcare professionals. IAD can be defined as an inflammation of the perineal or peri-genital skin resulting from prolonged contact with urine or stool. Literature pertaining to the prevention and management of IAD is limited. There is no literature available addressing the prevalence and incidence of IAD related to the Canadian population. In the US, increased

attention has been paid to the economic outcomes associated with prevention strategies, but very little research has focused on the management of IAD and the effectiveness of interventions.

Further research is needed to determine the extent of IAD in the Canadian population and the impact it has on the healthcare system and individuals. ☞

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