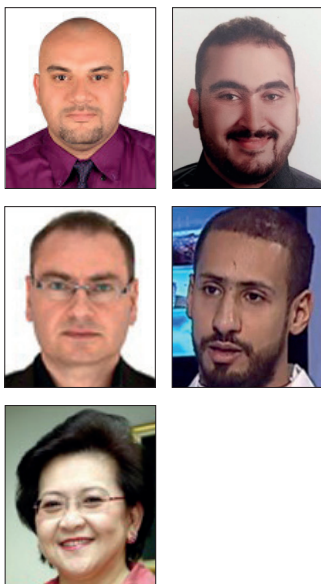


Incontinence-associated dermatitis: a gap in practice



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Incontinence-associated dermatitis (IAD) is common in patients with incontinence and failure to diagnose it may result in complications. The authors aimed to review the definition and management of IAD and address the gap in practice. Five electronic databases were searched for publications referring to IAD published before October 2018 and their reference sections searched for relevant literature. All studies presenting a definition or classification of IAD were included. It was determined that, as a definition, IAD is a form of skin inflammation that may or may not be associated with infection and skin may or may not be intact. Evidence did not point to a preferred classification tool, therefore, a tool should be adapted/created based on expert consensus. A clear definition and simple classification tool will help nurses identify and treat IAD. There is no standardised management protocol, however, the *Wounds International* Global IAD Expert Panel document (Beeckman et al, 2015b) could act as a basis for this. A nursing minimum data set and core outcome measure should be developed to aid in the development and dissemination of evidence-based practice.

Incontinence-associated dermatitis (IAD) is a common problem (Van Damme et al, 2017; Van den Bussche et al, 2017). An estimated 20–25% of hospitalised patients who are incontinent have IAD (Beeckman et al, 2009; Beeckman, 2017) and the proportion affected in community healthcare settings is even higher (Junkin and Selekof, 2008; Kehind, 2016). IAD is a secondary problem; patients develop dermatitis as a consequence of urinary or faecal incontinence (Beeckman et al, 2015a). People with the condition are at high risk of developing skin complications, such as pressure ulceration (Gray, 2007; Beeckman et al, 2009), intertriginous dermatitis (Idensohn, 2015) and skin tears (LeBlanc et al, 2016). Poor quality care or a failure to properly diagnose IAD leads to further complications (Duprez et al, 2016; Coyer et al, 2017). The lack of studies and data relating to the management process of IAD has led to ambiguity and misunderstanding in clinical nursing practice (Van den Bussche et al, 2017). In this study, the authors aimed to review the concept of IAD, integrate literature from the various nursing fields, and remove ambiguity around the hospital management of IAD.

Method

The following electronic databases were searched to identify relevant literature:

- Cochrane Wounds Group Specialised Register
- Ovid MEDLINE, based on the Saudi Commission for Health Specialist access
- Ebsco CINAHL
- ClinicalKey
- Ovid MEDLINE In-Process & Non-Indexed Citations.

The search terms used were “incontinence associated dermatitis”, “incontinence”, “skin belling”, “moisture lesions” and “moisture ulcer”. Papers published after the year 2000 and before October 2018 were included. The reference sections of papers that were included were also searched. All papers presenting a definition of or classification for IAD were included.

As there is ambiguity surrounding IAD and its management, the authors aimed to identify the challenges faced by clinical nurses in understanding, reporting on and classifying IAD. The literature review therefore included all papers deemed relevant for the classification of IAD. The list of papers identified was revised by three authors separately (AI, AB and MA). The

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senior author (HA) revised the overall list and agreed on the content.

Results

Definition

Of the 560 studies scanned, 35 contained definitions or classifications of IAD. A consensus statement describes IAD as being skin inflammation/injury resulting from changes that occur when the skin comes into contact with urine, faecal matter or both (Black et al, 2011). Gray (2007) defines IAD as a clinical manifestation of moisture damage associated with skin irritation, inflammation and erosion correlated with prolonged exposure to urine or stool. Another paper defined skin inflammation as redness with or without blistering, erosion or loss of skin barrier function (Gray et al, 2007).

There are more than 18 concepts, words and abbreviations used to define or describe IAD (Beeckman et al, 2009; 2015a). For instance, the terms “diaper/napkin dermatitis”/“nappy rash” and “diaper/napkin erythema” are all used to refer to IAD. The ICD-10 uses the term ‘diaper rash’ to describe IAD and defines it as an irritant dermatitis localised to the area in contact with the diaper (Beeckman et al, 2009). Despite its association with diapers, evidence demonstrates that IAD can occur in patients who do not wear diapers (Beeckman et al, 2015b). There is no definition of IAD in the 2008 North America Nursing Diagnosis list (Beeckman et al, 2009), reflecting the ambiguity surrounding this condition in the nursing field.

The aetiology of IAD has not been well-defined (Beeckman et al, 2009). However, the Global IAD Expert Panel proposes it results from an increase in the permeability of the epidermal barrier as a result of interaction between the skin and fluids (Beeckman et al, 2015b; Beeckman, 2017). The increased skin pH level activates lipases in the stool or urease in the urine and interacts with normal flora. Friction between the skin and a patient’s clothes, diaper or bed linen result in inflammation and redness and may progress to ulceration (Beeckman et al, 2015b; Payne, 2017). Campbell et al (2017) hypothesise that colonisation with specific microorganisms results in IAD, but they fail to support this theory with evidence. Therefore, IAD can be considered skin inflammation that may or may not be associated with infection and with intact or damaged epidermis (Beeckman et al, 2009; Beeckman, 2017).

Prevention and treatment

Current heterogeneity among studies (Van

den Bussche et al, 2017) and differences in defining IAD in terms of infection and the state of the epidermis make it hard to propose evidence-based practice. The Global IAD Expert Panel principles of best practice document supports cleansing and then protecting the skin (Beeckman et al, 2015b). International recommendations add moisturising as a third step in IAD prevention and management (Beeckman et al, 2009).

There is no consensus on whether the use of standard wipes or cleansing solutions containing various ingredients is more suitable for cleansing (Beeckman et al, 2015a). There is some evidence supporting the use of emollient-based skin cleansers with acidic PH and avoiding alkaline soaps (Beeckman et al, 2009). Various products, such as oxide cream (Sudocream), non-sting barrier film, petrolatum-based ointment and skin protectors with active ingredients (dimethicone 3% or 5%), have been shown to protect the skin (Beeckman et al, 2011; 2015a; 2015c). The role of different diaper types in protecting patients against IAD is also unclear (Rippon et al, 2016).

Researchers have debated whether to moisturise with a hydrogel barrier cream or petrolatum-based moisturiser in addition to using perineal cleansers and skin protectant (Beeckman et al, 2015a; Beeckman, 2017). However, evidence is emerging in support of moisturising and protecting the skin using ‘leave on’ skin products. There are three types of ‘leave on’ skin cream products (Beeckman et al, 2015b):

- Emollients, which are moisturising substances that soften or soothe the skin and hydrate it
- Humectants, which hydrate the skin, and therefore are not suitable in cases where there is a high fluid accumulation in the epidermal layers (Beeckman et al, 2011)
- Occlusive products, which create a barrier that protects the skin from additional exposure to urine or faeces (Beeckman et al, 2015b).

Disagreement about the defining attributes of IAD and how it is measured has prevented management from being standardised. For example, in one study supporting the use of topical antiseptic cream over zinc oxide cream, IAD was defined as ‘dermatitis due to the physical stress of incontinence’ (Pluck, 1987). This ignores the contribution of chemical interactions and yet IAD occurs as a result of the combination of physical and chemical interactions (Beeckman et al, 2015b). In a study comparing no-sting barrier film with

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petrolatum-based ointment, non-clinical tools were used to measure the effects of treatment (Bliss et al, 2007). An experimental study investigating the differences between hydrogel barrier cream and petrolatum-based moisturiser defined the outcome as ‘diaper dermatitis’ (Draelos, 2000) and required diaper use for the diagnosis. Some research, therefore, excludes IAD in patients without diapers (Beeckman et al, 2015b). Differences in definitions have a negative impact on the effectiveness of management.

Classification

The first step in managing any health condition is creating an agreed standardised classification (Beeckman et al, 2015b). Suggested classifications should enable clinicians to classify IAD based on severity and depth, in a similar way to the pressure ulcer staging system (National Pressure Ulcer Advisory Panel et al, 2014).

Based on the literature review, the authors identified six classification/staging tools used in IAD:

- Severity categorisation tool (Bliss et al, 2011)
- IAD and its Severity Instrument (IADS) (Borchert et al, 2010)
- Skin Assessment Tool (Black et al, 2011)
- Perineal Assessment Tool (Nix, 2002)
- Skin Excoriation Tool for Incontinent Patients (NATVNS) (Bianchi, 2012)
- Modified IADS (IADS–D) (Gray et al, 2012).

These tools present different paradigms of IAD in terms of risk assessment and categorisation of severity. An internationally-agreed tool for IAD classification — whether it is generated by modifying one of the current tools or merging various tools — will be useful (Van den Bussche et al, 2017).

IAD internationally

Experts cannot compare the international prevalence of and statistics related to IAD due to a lack of agreement on the definition of the condition (Van den Bussche et al, 2017). For this reason, the prevalence of IAD among incontinent patients was found to be 79% by Payne (2017) and 31% by Beeckman et al (2011) in similar settings in the UK. Borchert et al (2010) reported a prevalence of around 50% in the United States when using a different definition of IAD. In the Australian acute care setting, Campbell and colleagues found IAD had decreased from 10% in 2011 to 2.7% in 2012 in one study (Campbell et al, 2016a), similar to the 2.3% of acute care patients

affected in the United States (Werth, 2017). Yet this proportion increased from 10% of the acute care population to 42% of incontinent patients when skin changes in the diaper area were included in a second Australian study by the same authors (Campbell et al, 2016b). The definition of IAD thus significantly impacts the number of patients deemed to be affected and impedes the ability to identify the best ways of managing it. Generally, disagreements in the defining attributes of IAD make comparing and standardising treatment regimens or devising effective prevention initiatives difficult.

Nursing skills and care

IAD detection is a skill that nurses should develop. Nurses often confuse IAD with pressure ulcers (Yun Jin et al, 2013; Voegeli, 2016), skin tears (LeBlanc et al, 2016) or intertriginous dermatitis (Idensohn, 2015). Although the anatomical sites and general appearance of pressure ulcers and IAD are similar, the aetiology and treatments are different (Beeckman et al, 2015b; Payne, 2017). Misdiagnosis leads to inappropriate clinical decision-making and ineffective treatment choices (Beeckman et al, 2015a). Inappropriate treatment may increase (Aydin et al, 2015; LeBlanc et al, 2016; Beeckman, 2017; Payne, 2017):

- The severity of the condition
- The length of treatment
- The cost of treatment
- The nursing workload.

IAD is often under-reported or mismanaged (Beeckman et al, 2009; 2011; 2015b), resulting in missed nursing care, which is when a patient’s needs are not addressed by the required intervention (Kalisch et al, 2009). IAD prevention strategies need to be applied whenever patients complain of incontinence. Unfortunately, this is not always the case (Bliss et al, 2011). Any suspected missed care in the nursing field should be investigated and systematically analysed (Kalisch et al, 2009).

There is an urgent need to specify the attributes of IAD in order to support nursing staff in its proper management and to provide them with the competencies to deliver safe and consistent care. IAD situational analysis will help healthcare providers, academics and researchers in nursing fields to highlight issues related to IAD care in clinical practice.

Where are we?

Nurses require a clear definition, staging system and training to enhance the care they provide to patients with IAD. The creation of

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an internationally-recognised definition and staging system requires the cooperation and coordination of experts. Ghent University in Belgium is creating an IAD research group that uses the same outcome criteria all IAD studies (Van den Bussche et al, 2017). Nursing schools and international nursing organisations should encourage researchers to conduct IAD studies using the Ghent University outcome criteria.

Sharing evidence across national and international hospitals will help bridge the gap in IAD practice.

Bridging the gap

The first step to improving current understanding and practice is to standardise the concepts of IAD (Van den Bussche et al, 2017). Second, professional agreement needs to be reached about the minimum measurements to be taken in IAD studies in most hospitals (Van den Bussche et al, 2017). Evidence-based practice is built on the consistent use of measurement tools. To start building international evidence-based practice, the authors suggest using the following relevant measurement terms:

- Core outcome measures for the research domain
- Nursing minimum data set (NMDS) for the evidence-based practice domain.

Experts need to investigate the effects of nursing interventions on the prevention and treatment of IAD and the minimum data set is a practical and clinically useful tool in this arena (Hutchinson et al, 2010). The specific IAD–NMDS will need to express the role of nursing interventions in IAD management. It should facilitate the implementation of standardised care procedures, aiding the management and monitoring of IAD, as well as recourse planning and staffing levels. Specific studies should be conducted to assure the validity and reliability of this IAD–NMDS.

The ageing population, need to reduce healthcare costs, changes within healthcare systems and a shift in core nursing values to patient-oriented care and a holistic caring approach are all factors that highlight the importance of IAD prevention and management. An agreed definition and approved staging system will enable nurses to improve IAD care at a clinical level.

Summary

IAD is increasingly being recognised as an important health issue in hospitals. It poses various problems for nurses and patients. Expert

opinion on the characteristics, prevention and treatment of IAD differs, therefore there is an urgent need to agree upon a definition and staging system that can facilitate and integrate the results of research into evidence-based practice. The development of an IAD–NMDS and core outcome measure may be fundamental in the pathway to improved IAD care. **WME**

References

- Aydin C, Donaldson N, Stotts NA et al (2015) Modeling hospital-acquired pressure ulcer prevalence on medical-surgical units: Nurse workload, expertise, and clinical processes of care. *Health Serv Res* 50(2): 351–73
- Beeckman D (2017) A decade of research on incontinence-associated dermatitis (IAD): Evidence, knowledge gaps and next steps. *J Tissue Viability* 26(1): 47–56
- Beeckman D, Campbell J, Campbell K et al (2015b) *Proceedings of the Global IAD Expert Panel. Incontinence-associated dermatitis: Moving prevention forward.* Wounds International, London. Available at: <https://bit.ly/2ESZnt5> (accessed 16.08.2019)
- Beeckman D, Schoonhoven L, Verhaeghe S et al (2009) Prevention and treatment of incontinence-associated dermatitis: Literature review. *J Adv Nurs* 65(6): 1141–54
- Beeckman D, van Damme N, Schoonhoven L et al (2015a) Interventions for preventing and treating incontinence-associated dermatitis in adults. *Cochrane Database Syst Rev* 11: CD011627
- Beeckman D, van Damme N, Van den Bussche K, De Meyer D (2015c) Incontinence-associated dermatitis (IAD): an update. *Dermatological Nursing* 14(4): 32–6
- Beeckman D, Verhaeghe S, Defloor T et al (2011) A 3-in-1 perineal care washcloth impregnated with dimethicone 3% versus water and pH neutral soap to prevent and treat incontinence-associated dermatitis: A randomized, controlled clinical trial. *J Wound Ostomy Continence Nurs* 38(6): 627–34
- Bianchi J (2012) Top tips on avoidance of incontinence-associated dermatitis. The Identification and Management of Moisture Lesions. *Wounds UK* 8(2 Suppl): 56–8
- Black JM, Gray M, Bliss DZ et al (2011) MASD part 2: Incontinence-associated dermatitis and intertriginous dermatitis: A consensus. *J Wound Ostomy Continence Nurs* 38(4): 359–70
- Bliss DZ, Savik K, Thorson MAL et al (2011) Incontinence-associated dermatitis in critically ill adults: Time to development, severity, and risk factors. *J Wound Ostomy Continence Nurs* 38(4): 433–45
- Bliss DZ, Zehrer C, Savik K et al (2007) An economic evaluation of four skin damage prevention regimens in nursing home residents with incontinence: Economics of skin damage prevention. *J Wound Ostomy Continence Nurs* 34(2): 143–52
- Borchert K, Bliss DZ, Savik K, Radosevich DM (2010) The incontinence-associated dermatitis and its severity instrument: Development and validation. *J Wound Ostomy Continence Nurs* 37(5): 527–35
- Campbell JL, Coyer FM, Osborne SR (2016a) Incontinence-associated dermatitis: A cross-sectional prevalence study in the Australian acute care hospital setting. *Int Wound J* 13(3): 403–11
- Campbell JL, Gosley S, Coleman K, Coyer FM (2016b)

- Combining pressure injury and incontinence-associated dermatitis prevalence surveys: An effective protocol? *Wound Pract Res* 24(3): 170–7
- Coyer F, Gardner A, Doubrovsky A (2017) An interventional skin care protocol (INSPIRE) to reduce incontinence-associated dermatitis in critically ill patients in the intensive care unit: A before and after study. *Intensive Crit Care Nurs* 40: 1–10
- Draelos ZD (2000) Hydrogel barrier/repair creams and contact dermatitis. *Am J Contact Dermat* 11(4): 222–5
- Duprez V, Vandecasteele T, Verhaeghe S et al (2016) The effectiveness of interventions to enhance self-management support competencies in the nursing profession: A systematic review. *J Adv Nurs* 73(8): 1807–24
- Gray M (2007) Incontinence-related skin damage: Essential knowledge. *Ostomy Wound Manage* 53(12): 28–32
- Gray M, Beekman D, Bliss DZ et al (2012) Incontinence-associated dermatitis: A comprehensive review and update. *J Wound Ostomy Continence Nurs* 39(1): 61–74
- Gray M, Bliss DZ, Doughty DB et al (2007) Incontinence-associated dermatitis: A consensus. *J Wound Ostomy Continence Nurs* 34(1): 45–54
- Hutchinson AM, Milke DL, Maisey S et al (2010) The Resident Assessment Instrument-Minimum Data Set 2.0 quality indicators: A systematic review. *BMC Health Serv Res* 10: 166
- Idensohn T (2015) Differential assessment: Pressure ulcers versus incontinence-associated dermatitis versus intertriginous dermatitis. *Wound Healing Southern Africa* 8(1): 31–3
- Junkin J, Selekof JL (2008) Beyond “diaper rash”: Incontinence-associated dermatitis: Does it have you seeing RED? *Nursing* 38(11 Suppl): 56hn1-10
- Kalisch BJ, Landstrom GL, Hinshaw AS (2009) Missed nursing care: A concept analysis. *J Adv Nurs* 65(7): 1509–17
- Kehind O (2016) Common incontinence problems seen by community nurses. *Journal of Community Nursing* 30: 46–55
- LeBlanc K, Alam T, Langemo D et al (2016) Clinical challenges of differentiating skin tears from pressure ulcers. *EWMA Journal* 16(1): 17–23
- Nix DH (2002) Validity and reliability of the Perineal Assessment Tool. *Ostomy Wound Manage* 48(2): 43–6, 48–9
- National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel, Pan Pacific Pressure Injury Alliance, Emily Haesler (2014) Prevention and Treatment of Pressure Ulcers: Quick Reference Guide. Cambridge Media: Osborne Park, Western Australia
- Payne D (2017) Stop the rash: Managing incontinence-associated dermatitis in the community. *Br J Community Nurs* 22(Suppl 3): S20–6
- Pluck R (1987) A clinical study of Sudocrem in the management of dermatitis due to the physical stress of incontinence in a geriatric population. *J Adv Nurs* 12(5): 599–603
- Rippon M, Colegrave M, Ousey K (2016) Incontinence-associated dermatitis: Reducing adverse events. *Br J Nurs* 25(18): 1016–21
- Van Damme N, Van den Bussche K, De Meyer D et al (2017) Independent risk factors for the development of skin erosion due to incontinence (incontinence-associated dermatitis category 2) in nursing home residents: Results from a multivariate binary regression analysis. *Int Wound J* 14(5): 801–10
- Van den Bussche K, De Meyer D et al (2017) CONSIDER–Core Outcome Set in IAD Research: study protocol for establishing a core set of outcomes and measurements in incontinence-associated dermatitis research. *J Adv Nurs* 73(10): 2473–83
- Voegeli D (2016) Incontinence-associated dermatitis: New insights into an old problem. *Br J Nurs* 25(5): 256–62
- Werth SL (2017) Prevalence of moisture-associated skin damage for adult patients in an acute care setting. *J Wound Ostomy Continence Nurs* 44(1): S25–6
- Wounds International (2015) *Incontinence-associated Dermatitis: Moving Prevention Forward. Best Practice Principles: Proceedings from the Global IAD Expert Panel*. Wounds International, London. Available at: <https://bit.ly/2N9dObS> (accessed 16.08.2019)
- Yun Jin L, Seungmi P, Jung Yoon K et al (2013) Clinical nurses’ knowledge and visual differentiation ability in pressure ulcer classification system and incontinence-associated dermatitis. *J Korean Acad Nurs* 43(4): 526–35 [Article in Korean]