RESEARCH

Factors influencing sustainability of incontinent associated dermatitis prevention initiatives in a hospital setting

Leena Jacob[1], Valerie Wilson,[2] Samara Geering[2,3], Josephine SF Chow[2,3,4], Gregory Melbourne[2,3,4]

[1]Wound Care Bankstown-Lidcombe Hospital, NSW, Australia
[2]Ingham Institute for Applied Medical Research, NSW, Australia
[3]SWS Nursing and Midwifery Research Alliance, Ingham Institute for Applied Medical Research, NSW, Australia
[4]South Western Sydney Local Health District, NSW, Australia

*Corresponding author email leena.jacob@health.nsw.gov.au

Abstract

Incontinence-associated dermatitis (IAD) is a significant risk factor for the development of hospital-acquired pressure injuries (HAPIs), with inappropriate and delayed management contributing to prolonged patient hospitalisation, increased healthcare costs and decreased quality of life. This study investigates the effectiveness of evidence-based guidelines for preventing and managing IAD applied across three wards at Bankstown-Lidcombe Hospital. Building on a translational research study from 2020–2021, this investigation assesses whether the guidelines reduce IAD occurrence and HAPIs while determining whether the intervention strategies remain effective over 12 months. The study found a significant reduction in both IAD and HAPI rates post-implementation; however, some barriers to sustainability emerged, relating to staffing, resources and leadership turnover rates. This paper discusses the findings and challenges and it offers recommendations for continued improvement in IAD management and prevention practices.

Keywords incontinence-associated dermatitis, hospital-acquired pressure injuries, best practice guidelines, skin care, nursing.

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Introduction

Incontinence-associated dermatitis (IAD) is defined as the inflammation of the skin exposed to urinary or faecal incontinence, which predominantly affects the buttocks and groin regions.[1,2] IAD is considered one of the leading risk factors for the development of hospital-acquired pressure injuries (HAPIs), which complicate patient care and prolong length of stay.[1,2,3] Studies have indicated that approximately 32% of patients with IAD develop secondary skin infections.[2,4,5] Inadequate management of IAD can increase patient morbidity, nursing workload and the financial burden on healthcare institutions. Effective prevention, early detection and management of IAD are crucial to improving patient care and reducing healthcare costs.[2,4,5]

This research aimed to monitor the sustainability of previously implemented intervention strategies for managing IAD. These key strategies included the use of a clinical flowchart to guide appropriate incontinence management, a 3-day incontinence chart to support the development of individualised toileting plans, the use of appropriate continence pads, limiting to a maximum of two layers underneath patients, and the application of barrier cream cloths.[2,4,5] The project also aimed to evaluate the long-term sustainability of these practices and to identify barriers to their successful implementation in the clinical setting.

Bankstown-Lidcombe Hospital is a 454-bed principal referral facility within the South Western Sydney Local Health District (SWSLHD). Between 2020 and 2021, this hospital was among six healthcare facilities across five local health districts (LHDs) that took part in a translational research project. The project involved three specific wards: Aged Care, Rehabilitation, and Stroke Rehabilitation. The implementation of evidence-based practice guidelines helps reduce hospital-acquired IAD while enhancing the identification and treatment of existing IAD conditions and subsequently decreasing HAPIs.[1,2,3] Incident management system data confirmed that

there was a reduction in HAPI occurrence from nine to two (a 78% decrease), with no sacral pressure injuries reported across all three wards 12 months post-implementation of the project. Moreover, an overall 60.7% reduction in hospital-acquired IAD. Project implementation strategies were sustained for 12 months. However, after 12 months, a subsequent rise in the number of HAPIs reported in two of the three intervention wards highlighted the need to explore the sustainability of the practices and investigate the reasons behind these changes.

While this study focuses primarily on IAD prevention and management, it is important to note the relationship between IAD and the occurrence of pressure injuries. Pressure injuries result from pressure and shear forces on tissue, whereas IADs develop from skin exposure to moisture and irritants from incontinence.[1,2,4,5] Despite their different aetiologies, they share common risk factors and prevention strategies, particularly regarding patient mobility, skin assessment and moisture management. The increase in HAPIs prompted an investigation into whether IAD prevention practices were also affected by sustainability challenges.

Methods

Study design and data collection

This observational study employed a mixed-methods approach to evaluate the effectiveness of implemented guidelines for the prevention and management of IAD and HAPIs. The study was guided by a wound care Clinical Nurse Consultant and ward clinical nurse educators. The education bundle was delivered to new nursing staff through hospital education sessions, and all existing ward staff were fully educated on the guidelines prior to the study. Combining quantitative and qualitative data provided a comprehensive understanding of practice effectiveness, sustainability and the factors influencing care delivery.

Quantitative data collection and analysis: Quantitative data were obtained through a retrospective audit of HAPI incidents using the hospital's Incident Management System (IMS+), and electronic Medical Record (eMR) file audits over 12 months, from July 2023 to July 2024. During this time, a 10 HAPIs were reported across the three participating wards. Data extraction included patient demographics, injury characteristics, grading of the injury, anatomical location and associated risk factors. Statistical analysis involved descriptive statistics to summarise HAPI incidence rates, trend analysis to identify patterns over time, and comparative analysis against baseline data from the 2020–2021 implementation period. The quantitative findings were used to measure the effectiveness of the guidelines in reducing HAPI occurrence and to evaluate the sustainability of prevention initiatives.

Qualitative data collection and analysis: Qualitative data were obtained through focus group discussions conducted with nursing staff from each participating ward.

The qualitative data collection process used a semi-structured approach involving open-ended questions presented to each focus group, designed to elicit comprehensive insights into staff experiences and perspectives. All group discussions were audio-recorded with participant consent to ensure complete and accurate data capture, then professionally transcribed verbatim to facilitate detailed analysis.

Analytical methods: The transcribed data underwent systematic thematic analysis following Braun and Clarke's (2019) established framework. This process involved several methodological steps: initial data familiarisation through repeated reading of transcripts, systematic coding of meaningful data segments, identification and development of potential themes, review and refinement of themes for coherence and distinctiveness, and final theme definition with supporting evidence. Researchers independently coded the transcripts to enhance analytical rigor and reduce researcher bias. Any coding discrepancies were resolved through discussion and consensus. The analysis employed both inductive and deductive approaches, allowing themes to emerge naturally from the data while also examining responses in relation to existing theoretical frameworks around guideline implementation and sustainability. This methodical approach ensured a comprehensive understanding of participants' perspectives and experiences regarding the prevention and management of IAD.

Focus group recruitment: Purposive sampling was employed to recruit registered and enrolled nurses with direct patient care responsibilities in the prevention and management of IAD. Recruitment involved ward managers identifying eligible staff members who had worked on the respective wards for a minimum of six months and had experience with the implemented guidelines. Participation was voluntary, with written informed consent obtained from all participants. Staff were recruited through email invitations. A total of six focus groups were conducted. Each focus group included 6–8 participants and was facilitated by an experienced researcher using a semi-structured interview guide, The interview guide was based on existing literature and clinical guidelines and was reviewed by the research team prior to use. Sessions explored current IAD prevention practices, staff knowledge and confidence levels, perceived facilitators and barriers to guideline adherence, resource availability and it sought suggestions for improvement.

The integration of quantitative trends with qualitative insights provided a comprehensive understanding of both clinical outcomes and the contextual factors influencing guideline implementation and sustained adherence in clinical settings.

Results

Hospital-Acquired Pressure Injuries (HAPIs)

The data on HAPIs (Figure 1) collected between July 2023 and July 2024 across three wards shows varying severity of sacral pressure injuries (PI). The sample involved 66 patients, among whom a total of 10 PIs were recorded. The Aged

Care Ward reported two PIs (20%), both classified as Stage 2 (partial thickness loss of dermis). The Rehabilitation Ward accounted for three PIs (30%), including one Stage 1 (non-blanchable erythema) and two Stage 2 PIs. The Stroke Ward reported five PIs (50%), including one Stage 1, two Stage 2, and one Stage 3 (full-thickness tissue loss). Overall, 60% of injuries were Stage 2, 30% were Stage 1, and 10% were Stage 3. There were no Stage 4 (full thickness tissue loss with exposed bone, tendon or muscle), unstageable (full thickness tissue loss in which the base of the PI is covered by slough or eschar), or suspected deep tissue injuries (purple or maroon localised area, or discoloured intact skin or blood filled blister due to damage of underlying tissue from pressure or shear). This indicates that the pressure injuries were generally less severe. The Stroke Ward had the most severe injuries, suggesting that patients in this ward may face higher risks due to their medical conditions and possible gaps in compliance with evidence-based practices for the prevention and management of IAD.

Skin care and related interventions

The audit results collected across three wards, with a sample size of 66 patients, assessed for skin care interventions and indicated high adherence to best practice guidelines. The implementation of continence aids, barrier creams and skin care regimes scored high in compliance; the Continence Aid received the highest rating of 100%, indicating it was the most consistently and effectively implemented intervention. The Skin Care Regime, Barrier Cream/Cloths, and Toileting Plan all scored 90% reflecting strong but slightly less consistent application. The use of an appropriate number of absorbent layers scored 30% suggesting this aspect of care was less reliably implemented. Hospital-acquired IAD received the lowest score at 20%, indicating that incontinence was effectively managed in the hospital setting according to the audit findings.

Focus groups

Table 1. Demographic and Professional Profile of Focus Group Participants

Category	
Total focus groups conducted	6
Ward speciality	Rehab, Aged Care, Stroke Ward
Total participants	39
Percentage of female participants	88%
Percentage of registered nurses	87%
Years of experience (0–5 years)	51%
Years of experience (>5 years)	49%

Qualitative results

The analysis of the focus group data resulted in the formation of three themes, which are reported below.

1. Recognising IAD

This theme described how staff recognised the key aspects of IAD. Three sub-themes were identified:

Prolonged exposure to moisture and skin damage

The emphasis in this theme was on staff's knowledge of how extended exposure to moisture, often from incontinence, can weaken the skin's protective barrier, making it more prone to irritation and damage. Here, two staff members indicate this saying

'The longer the skin is exposed to moisture, the more it deteriorates, making it harder to heal,' (FG2) while another nurse said: 'We try to use only two layers of pads to reduce the risk of moisture buildup and prevent further irritation.' (FG3).

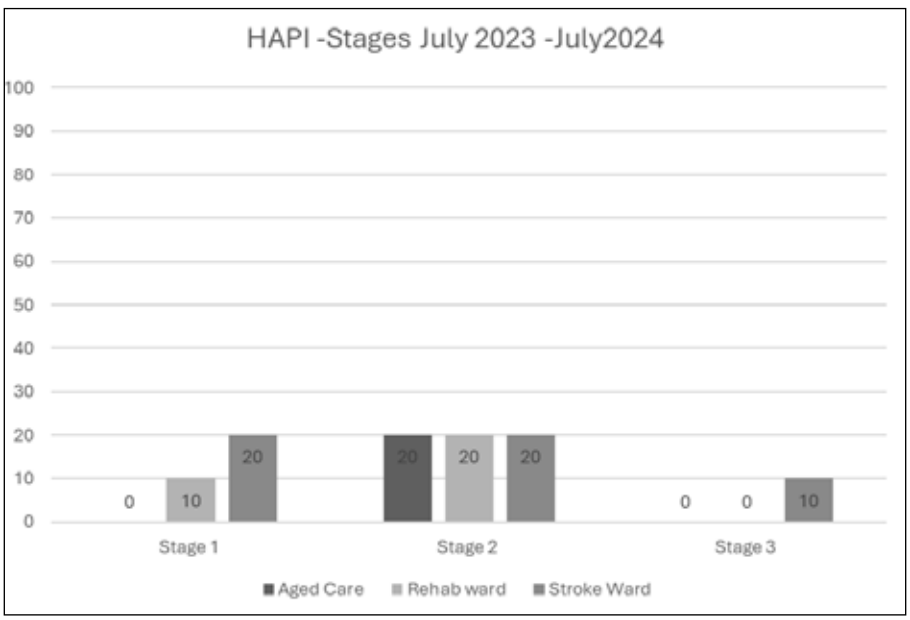

Figure 1. Incidence of sacral HAPI between July 2023 and July 2024

Sensitivity of skin

The nurses discussed this, highlighting that certain groups, such as people over 65, overweight individuals, and those with fragile skin, are more susceptible to skin damage due to increased sensitivity, and this results in the IAD. A staff member noted,

'Patients who are overweight or immobile are at a higher risk of skin irritation and breakdown, and in elderly patients, the skin tends to tear or break easily when exposed to moisture' (FG4).

Excessive moisture retention:

The third element of recognising IAD relates to the role of excessive moisture retention in skin damage, which can occur when multiple bed layers trap moisture against the skin, preventing proper evaporation and leading to an increased risk of IAD. As these staff discuss:

'Sticky dressings are avoided as they can cause moisture retention and worsen IAD,' (FG1) another said: 'We try to use only two layers of pads to reduce the risk of moisture buildup and prevent further skin damage.' (FG 4)

Practices to prevent IAD

Nurses discussed practices on the ward to prevent IAD, which included several strategies.

Barrier creams, regular hygiene, and preventing moisture

'Barrier creams … to protect the skin from moisture and prevent IAD,' (FG3) and the use of 'wipes to clean the skin and maintain dryness before applying barrier creams.' (FG6)

Alongside the use of barrier cream cloths, absorbent pads were used to manage moisture and safeguard the skin. This included:

'Scheduled routines and regular changes in pads help prevent moisture buildup and reduce the risk of IAD.' (FG2) as well as 'Regular cleaning and hygiene routines … essential to prevent IAD from developing, ensuring that patients are cleaned and dried properly after every episode of incontinence.' (FG4)

Preventing further deterioration

Additionally, practices were in place to prevent further deterioration of the skin; this included pressure area care and repositioning, along with regular skin assessments.

One staff member emphasised, *'Repositioning patients regularly is important to avoid pressure on the skin and reduce moisture buildup,' (FG 2) while another said, 'Pressure relief is key in preventing IAD from worsening, especially in patients who are bedridden.' (FG 3)*

Nurses' understanding of the importance of prevention also included seeking referrals to other specialists or services if the damage became severe, as this nurse said:

'When the skin integrity is severely compromised, it's critical to involve experts who can assess and implement more specialised care.' (FG4)

Enablers and barriers in preventing and managing IAD

Barriers to preventing and managing IAD on the ward included time constraints due to patient acuity, limited patient mobility, language barriers, delays in referrals to the wound Clinical Nurse Consultant (CNC), and a lack of resources. Several sub-themes were identified.

Mobility

The patient's ability to be mobile impacted the strategies being used to prevent and manage IAD, as these nurses indicate.

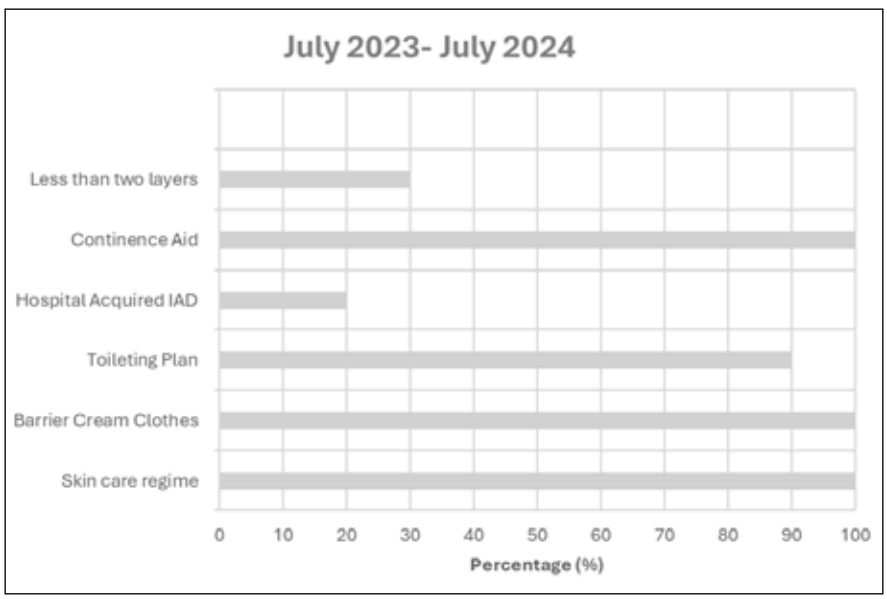

Figure 2. Audit results: Skin care and related interventions

'Mobility issues make it harder to reposition patients on time and manage their hygiene effectively,' (FG1) this is clearly a challenge for staff, especially in busy clinical areas with several competing demands, as this nurse highlights: 'Patients who are unable to move themselves need more assistance to maintain hygiene and prevent skin damage, resulting in additional care requirements'. (FG5)

Communication issues

This can be further compounded when there are communication issues and for patients who do not speak English or have cognitive impairment, as this nurse indicates.

'It's difficult to assess the full extent of incontinence or skin issues when the patient can't communicate, especially if there's a language barrier.' (FG4)

Timely referrals

Another issue was accessing the additional help required, if things worsen for the patient, as this nurse said.

'If the IAD worsens, it's often hard to get timely referrals to a wound CNC, which means patients may not get the specialised care they need when the condition becomes severe.' (FG 6)

This then places the care burden beyond the scope of the ward nurse, indicating that it requires a higher level of skill and knowledge, the more complex the issue becomes for the patient.

Resources

Adding to this issue was the lack of the right resources (equipment) for staff required to prevent and manage IAD on the ward, as this nurse described. *'Sometimes we don't have the right equipment, like high-quality incontinence pads or barrier creams, which can make a big difference in preventing and managing IAD' (FG2)*

The focus groups revealed that key enablers identified included regular toileting plans, the use of barrier creams, and maintaining routine skin inspections. Barriers included time constraints, patient behaviour, and staffing limitations, which impacted the ability to follow best practice guidelines consistently. The enablers (Table 2) were utilised to support the continued work. While some barriers, particularly those related to the context, such as workloads and patient acuity, could not be resolved, others, like knowledge gaps, were addressed through education sessions.

Discussion

This research sought to explore the understanding, practices, and barriers related to the sustained prevention and management of IAD on the ward. The findings from the audit results, eMR documentation (file audits), and focus group discussion provide valuable insights into the factors that influence IAD prevention and management, the enablers that support effective management, and the barriers that challenge delivery of consistent care.

Managing care burdens with mobility and communication challenges

The findings from this study highlight a significant challenge in IAD management: how healthcare staff navigate increasing care burdens when patients face mobility and communication difficulties. Across the three wards studied, healthcare professionals consistently identified patient mobility limitations as a substantial barrier to effective IAD prevention. Mobility issues often led to prolonged skin exposure to moisture and pressure, increasing the risk of IADs. Studies have highlighted that patients with severe mobility limitations are at a higher risk for both pressure injuries and IADs.[5] When patients cannot reposition themselves or effectively communicate discomfort or incontinence, it becomes more difficult for staff to provide timely care.

Research also highlighted the workload burden placed on nurses when managing these patients. High patient acuity, combined with limited resources, often means that nurses are unable to consistently follow best practice guidelines.[5,6,7] Caregiver fatigue is also a significant barrier, leading to inconsistent implementation of preventive measures.[5] This reinforces the need for adequate staffing and specialised training to manage these complex cases effectively, particularly in wards with higher patient acuity like Rehab, Aged Care, and Stroke wards. Staff may require additional support systems or assistive technology (utilisation of allied health, mobility aids) to address these challenges.[2]

Table 2. Perceived barriers and enablers to implement evidence-based guidelines

Enablers	Barriers
• Regular toileting plan • Routine skin inspection • Use of barrier cream clothes • Reducing bed layers • Wound care clinical nurse consultants • Clinical nurse educators • Wound champions	• Staff shortage • Patient acuity: patients needing more frequent and intensive assistance with toileting • Staff adherence to guidelines: influenced by factors such as workload, insufficient training and cultural attitudes towards routine care. • Limited patient mobility • Communication issues • Knowledge gap of staff

Maintaining momentum in IAD prevention strategies

Sustainability of IAD prevention strategies requires continuous reinforcement, regular staff education and systematic support from leadership. One of the biggest challenges is preventing IADs, in the face of evolving healthcare demands and varying patient needs. Research indicates that the sustainability of IAD prevention measures is often hindered by inconsistent application and the absence of ongoing reinforcement.[7,8] While initial implementation may be successful, over time, staff may become complacent, or barriers, such as staffing shortages and workload pressures, may reduce the consistency of care.[5,7]

Studies suggest that regular education and feedback are essential to overcome these barriers. Staff training on IAD prevention, which includes knowledge about moisture management and pressure relief techniques, must be repeated periodically to ensure high levels of awareness and adherence.[7,8,9,10] The role of leadership is critical in sustaining these efforts. As noted in the literature, effective leadership and support from Clinical Nurse Consultants and wound care champions can significantly enhance adherence to best practices and ensure that IAD prevention remains a priority in the care environment.[5]

Furthermore, interdisciplinary collaboration (involving wound care specialists, physiotherapists, occupational therapists, dieticians, and nursing staff) helps to reinforce the importance of IAD prevention strategies and integrate them into daily practice. Research also emphasises that tailored care plans, including individualised toileting schedules and regular skin assessments, are key to preventing IADs, particularly for patients with diverse needs.[2,5,7]

Barriers to IAD prevention and management

Effective IAD prevention is frequently hindered by systemic barriers, such as time constraints, lack of resources and communication challenges. Several studies have identified key barriers to the prevention and management of IADs, which were consistent with the findings from this research. Time constraints due to high patient acuity, staff shortages, and patient behaviour (such as agitation or confusion) are frequently cited as significant barriers.[3,4,5,9,10] Communication barriers, particularly in cases where patients cannot effectively communicate their incontinence or discomfort, also complicate timely interventions. Effective patient assessment is crucial in IAD prevention, but when patients are unable to verbalise their needs, staff may miss early signs of skin damage, delaying appropriate care.[2,5]

Additionally, the lack of appropriate resources, such as high-quality incontinence pads or barrier cream cloths, was highlighted as a practical barrier in this study. Without access to these essential resources, even the most knowledgeable staff can struggle to provide optimal care. This aligns with findings from the literature that emphasise the importance of having adequate supplies to effectively manage moisture and pressure.[3,4,5,7,11,12] Delays in specialist referrals, particularly to wound care consultants, are another systemic issue that can impede timely treatment. Research has shown that early specialist involvement in severe cases of IAD can lead to better outcomes.[1,2,5,6,7,13] Without timely referrals, patients may experience prolonged skin damage, making it more difficult to manage IADs effectively.

Each of these sub-themes illustrates important contributing factors that healthcare providers must consider in managing and preventing IAD, particularly for at-risk populations. Staff identified some of the key risk factors, including incontinence, reduced mobility, adding extra layers to the bed and poor skin care.

A comparison between the three wards revealed that most nurses reported issues with the structured skin care regimen, individualised toileting plans, appropriate continence aids, and the layering of bed sheeting and pads as key barriers observed.

Recommendations

1. Staff education and training: Ongoing education sessions should be implemented to address knowledge gaps about IAD and improve nurses' understanding of effective treatment methods. Education should be incorporated into orientation packages for new and graduate nurses, with regular updates provided to all staff to promote sustained knowledge and adherence to best practice guidelines.

2. Use of ward IAD champions and active involvement from the leadership team: Assign ward-based champions to promote the consistent application of best practices and drive adherence to guidelines. Active engagement from the leadership team is crucial to provide support, allocate resources and reinforce the importance of IAD prevention across the organisation.

3. Address resource limitations: Cost management can be addressed by focusing on long term cost savings rather than initial expenses. High-quality continence pads and barrier cream cloths reduce moisture exposure and skin breakdown, resulting in fewer cases of IAD. This decreases the need for wound care products, reduces staff time spent managing skin damage and helps prevent extended hospital stays, thereby lowering overall healthcare costs.

4. Regular Audits and Feedback: Conduct regular audits and focus groups to gather feedback from nursing staff and identify areas for continuous improvement. Incorporate these audits into biannual pressure injury spot check audits.

Conclusions

In conclusion, this audit evaluation highlights the complexities involved in preventing and managing IAD on the ward. While there is a clear understanding of IAD and its risk factors, the ability to consistently implement best practice guidelines is hindered by several barriers, including time constraints, patient mobility, and resource limitations. However, enablers, such as structured care plans, the use of barrier cream

cloths and support from specialised staff, play a vital role in overcoming these challenges.

The audit revealed that although the number of HAPI cases increased after implementing best practice guidelines, the incidence of hospital-acquired IAD decreased, demonstrating the sustained effectiveness of these practices. Notably, only two patients developed IAD, and both also developed HAPI. Adherence to the intervention is now monitored as part of a quarterly pressure injury spot audit, which involves independently assessing 25% of patients randomly selected. Addressing both barriers and enablers is essential for improving the prevention and management of IAD, ensuring better outcomes for patients. Future strategies should focus on providing adequate resources and offering continuous education to ensure that best practice guidelines in IAD are followed consistently across all wards.

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Conflict of interest

The authors declare no conflicts of interest

Ethics statement

Ethics approval was obtained from the South Western Sydney Local Health District Human Research Ethics Committee (Approval number 2023/ETH01561). All staff participants were provided with detailed information about the study aims, methods and data handling procedures before participation. Written informed consent was obtained from all participants, documenting their voluntary agreement to participate and their understanding that they could withdraw from the study at any time without consequence. Confidentiality and anonymity of all participants were maintained throughout the data collection, analysis and reporting processes.

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Author contribution

LJ led the research project, conducted data collection and analysis, and drafted the manuscript. SG, JC, GM, and VW provided critical proofreading and editorial support, offering valuable guidance on the manuscript's structure and clarity. All authors reviewed and approved the final version of the paper.

References

1. Barakat-Johnson M, Lai M, Wand T, Coyer F, White K. Cultivating incontinence-associated dermatitis prevention practices in an Australian local health district: A quasi-experimental study. *Ostomy Wound Manage.* 2018;64(12):16–28. doi: 10.25270/owm.2018.12.1628.
2. Geering S, Wilson V, Jacob L, Macpherson A, Melbourne G, Kohler F, Chow JSF. Implementing a hospital-wide programme using iPARiHS to prevent and manage incontinence-associated dermatitis and improve hospital-acquired pressure injuries. *J Adv Nurs.* 2024;1–10. doi: 10.1111/jan.16465
3. Avşar P, Karadağ A. Efficacy and cost-effectiveness analysis of evidence-based nursing interventions to maintain tissue integrity to prevent pressure ulcers and incontinence-associated dermatitis. *Worldviews Evid Based Nurs.* 2018;15(1):54–61. doi: 10.1111/wvn.12264
4. Campbell JL, Coyer FM, Osborne SR. Incontinence-associated dermatitis: A cross-sectional prevalence study in the Australian acute care hospital setting. *Int Wound J.* 2014;13(3):403–411. doi: 10.1111/iwj.12322
5. Barakat-Johnson M, Beeckman D, Campbell J, Dunk A-M, Lai M, Stephenson J, et al. Development and psychometric testing of a knowledge instrument on incontinence-associated dermatitis for clinicians: The Know-IAD. *J Wound Ostomy Continence Nurs.* 2022;49(1):70–77. doi: 10.1097/won.0000000000000837
6. Banharak S, Panpanit L, Subindee S, Narongsanoi P, Sanunaur P, Kulwong W, et al. Prevention and care for incontinence-associated dermatitis among older adults: A systematic review. *J Multidiscip Healthc.* 2021;14:2983–3004. doi: 10.2147/jmdh.S329672
7. Barakat-Johnson M, Stephenson J, Lai M, Basjarahil S, Campbell J, Cunich M, et al. Impact of an evidence-based bundle on incontinence-associated dermatitis prevalence in hospital patients: A quasi-experimental translational study. *Int Wound J.* 2024;21(6):1–12. doi: 10.1111/iwj.14936
8. Gray M, Giuliano KK. Incontinence-associated dermatitis, characteristics and relationship to pressure injury: A multisite epidemiologic analysis. *J Wound Ostomy Continence Nurs.* 2018;45(1):63–67. doi: 10.1097/WON.0000000000000390
9. Johansen E, Bakken LN, Duvaland E, Faulstich J, Hoelstad HL, Moore Z, et al. Incontinence-associated dermatitis (IAD): Prevalence and associated factors in 4 hospitals in Southeast Norway. *J Wound Ostomy Continence Nurs.* 2018;45(6):527–531. doi: 10.1097/WON.0000000000000480
10. Koloms K, Cox J, VanGilder CA, Edsberg LE. Incontinence management and pressure injury rates in US acute care hospitals: Analysis of data from the 2018–2019 International Pressure Injury Prevalence™ (IPUP) survey. *J Wound Ostomy Continence Nurs.* 2022;49(5):405–415. doi: 10.1097/won.0000000000000905
11. Liu H, Du A, Tian Y, Gao M, Ji S, Mi J, et al. The ability of critical care nurses to identify pressure injury and incontinence-associated dermatitis: A multicentre cross-sectional survey. *Nurs Open.* 2022;10(3):1556–1564. doi: 10.1002/nop2.1406
12. Liu Q, Lu Wan X, Pan Yan B, Shan Miao H. Investigating ICU nurses' understanding of incontinence-associated dermatitis: An analysis of influencing factors. *WCET J.* 2020;40(1):32–38. doi: 10.33235/wcet.40.1.32-38
13. Sharma RK, Sharma P, Sambatra L. Development of a need-based interventional skin care protocol on incontinence-associated dermatitis among critically ill patients. *Indian J Crit Care Med.* 2021;25(2):158–165. doi: 10.5005/jp-journals-10071-23716