Incontinence-associated dermatitis and *Candida* infection; Current evidence and practice

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The perfect storm of challenges for 21st century aged care

- Rapidly ageing population
- Increasing complexity of resident health status
- Increasing chronic disease burden
- Ageing workforce
- Staff recruitment & retention challenges
- Increasing cost & shrinking financial resources
- The requirement for safe and quality care
- New aged standards

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Perhaps we deliver skin integrity care in silos?

Do the multiple skin integrity silos have different priorities depending on the most pressing need?

Or, is there one predominant skin silo that resources are directed to in response to the imperatives of safety, governance and reputation?
However, these approaches may result in...

- Omission
- Duplication
- Fragmentation
- Confusion; for residents and staff
- Conflict & competing interests
- A narrow focus on a single condition can result in a narrow and disconnected solution

Campbell, Coyer & Osborne (2014)
The Skin Safety Model: Reconceptualizing Skin Vulnerability in Older Patients

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Key words: Acute care, Incontinence-associated dermatitis, Older adult, Pressure ulcer, Skin safety

Abstract

Purpose: To develop a unique skin safety model (SSM) that offers a new and unified perspective on the diverse yet interconnected antecedents that contribute to a spectrum of potential iatrogenic skin injuries in older hospitalised adults.

Organizing Construct: Discussion paper.

Methods: A literature search of electronic databases was conducted for published articles written in English addressing skin integrity and iatrogenic skin injury in elderly hospital patients between 1960 and 2014.

Findings: There is a multiplicity of literature outlining the etiology, prevention, and management of specific iatrogenic skin injuries. Complex and interrelated factors contribute to iatrogenic skin injury in the older adult, including multiple comorbidities, factors influencing healthcare delivery, and acute situational stresses. A range of injuries can result when these factors are complicated by skin irritation, pressure, shear, or friction; however, despite skin injuries sharing multiple antecedents, no unified overarching skin safety conceptual model has been published.

Conclusions: The SSM presented in this article offers a new, unified framework that encompasses the spectrum of antecedents to skin vulnerability as well as the spectrum of iatrogenic skin injuries that may be sustained by older acute care patients. Current skin integrity frameworks address prevention and management of specific skin injuries. In contrast, the SSM recognizes the complex interplay of patient and system factors that may result in a range of iatrogenic skin injuries. Skin safety is reconceptualised into a single model that has the potential for application at the individual patient level, as well as healthcare systems and governance levels.

Clinical Relevance: Skin safety is concerned with keeping skin safe from any iatrogenic skin injury, and remains an ongoing challenge for healthcare providers. A conceptual framework that encompasses all of the factors that may contribute to a range of iatrogenic skin injuries is essential and guides the decision in maintaining skin integrity in the vulnerable older patient.

Skin is the largest organ in the human body and is vulnerable to a multitude of threats. Within the acute care setting, older patients (those 65 years of age and older) are particularly vulnerable to skin integrity threats and subsequent skin injury (Carville, 2012). While the impact of pressure ulcers (PUs) in the acute setting is...
Conceptual Framework

Skin Safety Model

Campbell, Coyer & Osborne (2014)

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Skin Injury; Potential Contributing Factors in RAC

Resident Factors

Systems and Process Factors

Situational Stressors

Vulnerable Frail Skin

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A closer look at skin injury contributing factors

Resident Factors
• Advanced age
• Multiple chronic conditions
• Medications
• Poor nutrition/hydration
• Impaired cognition
• Impaired mobility
• Altered sensation
• Altered circulation & oxygenation
• Pain

Systems/Processes
• Funding models
• Staff levels & skill mix
• Governance
• Culture
• Safety culture/ procedures
• Handover/clinical communication
• Clinical equipment & resources
• Skin care processes & products
• Continence management

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Contributing factors contd...

Situational stressors

- Acute illness (e.g., UTI, URTI)
- Acute delirium
- Pain
- Depression
- Psychosocial stressors
Skin Injury; Exacerbating elements in RAC

Potential Skin Injury

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Potential skin injuries may be...

- Pressure Injury
- Skin Tear
- Moisture-associated skin damage;
  - IAD
  - Intertriginous dermatitis
  - Peri-wound/peri-stomal skin damage
  - Saliva related injury
- Medical-adhesive related skin injury
Lived experience of a skin injury

- Pain
- Infection
- Chronic wound
- Disability
- Disfigurement
- Potential adverse impact on functional status
- Depression/distress
- Isolation
- Impaired wellbeing
- Increased cost
- Burden of frequent dressing changes
- Death

Augustin et al (2012)
Reconceptualising how we deliver skin care

• Skin safety approach provides a holistic unifying framework that integrates multiple risk factors

• Different skin injuries can have multiple shared risk factors

• Risk factors interact & can be highly individual

• Risk factors can change over time

• Systems & processes can contribute to injury
Moving on to look at IAD
IAD – What it is

• A reactive skin response to chronic exposure to urine & faeces
  • Could be observed as inflammation, erythema
  • +/- erosion

• A threat to skin integrity in incontinent patients

IAD- What it isn’t

- Pressure injury
- Skin tear
- Medical-adhesive related skin injury
- Moisture-associated skin damage caused by moisture other than urine and/or faeces.

However; all of these skin injuries may occur concurrently with IAD.

Thorough assessment and accurate skin-injury identification is essential for appropriate management.
IAD – lots of names

- Moisture lesions
- Perineal dermatitis
- Incontinence dermatitis
- Contact dermatitis
- Intertrigo
- Heat rash
- Excoriation
- Pressure ulcer
- Nappy rash

(Gray et al 2007)
IAD prevalence in aged care ranges from 5-30%.


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Causative factors for IAD

1. Type of incontinence
2. Frequency of incontinent episodes

Beeckman et al. (2015)

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IAD Complications

- Pain; can be severe & is compared to pain of a burn Decreased quality of life, loss of independence, disruption to activities / sleep
- Increased burden and cost of care
- Increased length of hospital stay

IAD predisposes to:
  - Pressure injury
  - Infection, eg *Candida albicans*
If an individual is incontinent, they are at risk of IAD.

If an individual is continent, any pelvic skin injury is not IAD.

INCONTINENCE-ASSOCIATED DERMATITIS:
MOVING PREVENTION FORWARD

Addressing evidence gaps for best practice

- Identifying causes and risk factors for IAD
- IAD and pressure ulceration
- IAD assessment and severity-based categorisation
- IAD prevention and management strategies

Proceedings from the Global IAD Expert Panel

Download from: www.woundsinternational.com


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<table>
<thead>
<tr>
<th>Clinical presentation</th>
<th>Severity of IAD</th>
<th>Signs**</th>
</tr>
</thead>
<tbody>
<tr>
<td>No redness and skin intact (at risk)</td>
<td>Skin is normal as compared to rest of body (no signs of IAD)</td>
<td></td>
</tr>
<tr>
<td>Category 1 - Red* but skin intact (mild)</td>
<td>Erythema +/-oedema</td>
<td></td>
</tr>
<tr>
<td>Category 2 - Red* with skin breakdown (moderate-severe)</td>
<td>As above for Category 1 +/-vesicles/bullae/skin erosion +/- denudation of skin +/- skin infection</td>
<td></td>
</tr>
</tbody>
</table>

* Or paler, darker, purple, dark red or yellow in patients with darker skin tones

** If the patient is not incontinent, the condition is not IAD

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Beeckman et. al, 2015
IAD Prevention

2 key interventions cited in literature;

• Manage incontinence

• Implement a structured skin care regimen
  – Cleanse
  – Protect
  – Restore

Beeckman et al 2015
# A severity-based approach to treatment

## Table 5: Interventions for prevention and management based on the severity of IAD

<table>
<thead>
<tr>
<th>Patient with urinary +/- faecal incontinence</th>
<th>ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>No redness and skin</td>
<td>CLEANSE*, PROTECT** &amp; RESTORE***</td>
</tr>
<tr>
<td></td>
<td>PREVENTION: select option 1 or 2</td>
</tr>
<tr>
<td></td>
<td>1. Continence care wipe (3-in-1: cleanser + skin protectant + moisturiser)</td>
</tr>
<tr>
<td></td>
<td>ADD skin protectant (e.g. dimethicone-containing product) if extra skin protection is required</td>
</tr>
<tr>
<td></td>
<td>2. Skin cleanser OR bathing/cleansing wipe PLUS</td>
</tr>
<tr>
<td></td>
<td>Skin protectant (e.g. acrylate terpolymer film or petrolatum-based product or dimethicone-containing product)</td>
</tr>
<tr>
<td>Category 1 - Red but skin intact (mild)</td>
<td>MANAGEMENT: select option 1 or 2</td>
</tr>
<tr>
<td></td>
<td>1. Continence care wipe (3-in-1: cleanser + skin protectant + moisturiser)</td>
</tr>
<tr>
<td></td>
<td>ADD skin protectant (e.g. acrylate terpolymer barrier film) if worsening erythema/skin condition</td>
</tr>
<tr>
<td></td>
<td>2. Skin cleanser OR bathing/cleansing wipe PLUS</td>
</tr>
<tr>
<td></td>
<td>Skin protectant (e.g. acrylate terpolymer barrier film or dimethicone-containing product)</td>
</tr>
<tr>
<td>Category 2 - Red with skin breakdown (moderate-severe)</td>
<td>MANAGE INCONTINENCE EDUCATE PATIENTS AND CAREGIVERS</td>
</tr>
<tr>
<td></td>
<td>1. Continence care wipe (3-in-1: cleanser + skin protectant + moisturiser)</td>
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<td>ADD skin protectant (e.g. acrylate terpolymer barrier film) if worsening erythema/skin condition</td>
</tr>
<tr>
<td></td>
<td>2. Skin cleanser OR bathing/cleansing wipe PLUS</td>
</tr>
<tr>
<td></td>
<td>Skin protectant (e.g. acrylate terpolymer barrier film, dimethicone-containing product or zinc oxide based ointment or paste)</td>
</tr>
<tr>
<td></td>
<td>AND consider containment devices (e.g. FMS/faecal pouch)</td>
</tr>
<tr>
<td>Plus skin infection</td>
<td>REFER FOR SPECIALIST ADVICE if there is no improvement within 3-5 days OR if a skin infection is suspected</td>
</tr>
</tbody>
</table>

* Cleansing should take place daily and after each episode of faecal incontinence
** Skin protectants should be applied according to the manufacturer’s instructions
*** For skin that is overhydrated or where maceration is present, do not use skin care products that trap moisture or are formulated to attract moisture

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Candida albicans

- *Candida albicans* is the most common fungal commensal organism in humans
- Colonises gastrointestinal & genitourinary tract 30-60% healthy individuals
- Can transform from commensal to pathogen
- *Candida* infection is reported as a frequent complication of IAD (one study found fungal infection in patients with IAD 32%)

Campbell et al 2016
Recognising *Candida* infection

- Mainstay of diagnosis is clinical assessment/visual inspection followed by empirical treatment
- Microbiological testing (swabs) often not collected
- *Candida* infection may present as a central maculopapular rash with characteristic satellite lesions at margins of erythema
- Confluent non-specific rash/erythema
- May be thick, yellowish/white discharge, often in skin folds
- Remember, these presentations are not unique to *Candida* infections

Clinical presentations of *Candida* infection
Treating *Candida* infection

- Thorough skin inspection and clinical assessment
- Topical antifungal medication if clinical presentation of *Candida*
- Ensure full course of topical medication applied.
- Consider *Candida* Rx if not responding to best-practice skin care
- Consider topical anti-inflammatory as a pain and symptom management strategy.
- **Topical steroid does not treat the fungal infection**
- Evaluate response to treatment

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IAD pain; similar to burn pain

CONSIDER ANALGESIA

• Topical (may be anti-inflammatory)
• Systemic
• Combination of approaches
• Specialist pain management consultation, and MD team approach. IAD pain is challenging to manage in the presence of ongoing incontinence/diarrhoea.

Junkin Selekof (2007)
References