Prevention of Incontinence Associated Dermatitis: Decreasing Pressure Ulcer Risk

Joyce M. Black, PhD, RN, CWCN, FAAN
University of Nebraska Medical Center
Omaha, NE
Kathleen M Vollman MSN, RN, CCNS, FCCM, FAAN
kvbollman@Comcast.net

Notes on Hospitals: 1859

“It may seem a strange principle to enunciate as the very first requirement in a Hospital that it should do the sick no harm.”

Florence Nightingale

Advocacy = Safety
PROTECT THE PATIENT FROM BAD THINGS HAPPENING ON YOUR WATCH

Implement Interventional Patient Hygiene

Interventional Patient Hygiene

- Hygiene...the science and practice of the establishment and maintenance of health
- Interventional Patient Hygiene...nursing action plan directly focused on fortifying the patients host defense through proactive use of evidence based hygiene care strategies

Incontinence Associated Dermatitis Prevention Program

Pressure Injury Prevention

Comprehensive Oral Care Plan

Bathing & Assessment

Catheter Care
INTERVENTIONAL PATIENT HYGIENE (IPH)

- VAP/HAP
- Oral Care/Mobility
  - HAND
  - Patient
- HYGIENE
  - Catheter Care
  - Skin Care/Bathing/Mobility
    - CA-UTI
    - CA-BSI
    - SSI
    - Falls
    - HASI


Achieving the Use of the Evidence

Factors Impacting the ability to Achieve Quality Nursing Outcomes at the Point of Care

Value
Attitude
Accountability

Skills & Knowledge
Resources & System

What skin problems are present?

Joyce Black AACN NTI May 2017

Moisture Associated Skin Damage (MASD)

- Skin damage associated with excessive exposure to moisture
  - Incontinence Associated Dermatitis
    - Irritant contact dermatitis from exposure to caustic fluids (urine, stool), use of absorptive containment device
  - Intertrigo or Intertriginous Dermatitis
    - Inflammation in skin folds related to non-caustic fluids (perspiration), friction and bacterial/fungal bioburden
  - Periwound maceration
    - Skin breakdown from wound exudate, associated with volume of exudate, its constituents and bacterial bioburden
Incontinence Associated Dermatitis

- Skin damage associated with exposure to urine or stool
- IAD is a type of irritant contact dermatitis (inflammation of the skin)
- IAD
  - Causes considerable discomfort
  - Can be difficult to treat
  - Can be expensive to treat

From Beeckman, D. Incontinence Associated Dermatitis: Moving Prevention Forward. Available at www.woundsinternational.com

Why does it matter?

- IAD today is not a Hospital Acquired Condition
  - May be in the future, however ICD codes do not exist today for IAD
    - ICD-10 for diaper dermatitis
  - Needs to be monitored however
- Link to pressure injury development is clear
  - Moisture damaged skin is much, much more likely to ulcerate
IAD: Multisite Epidemiological Study

- 5342 patients in 424 facilities in Acute & Long Term Care in US
- Prevalence study
  - To measure the prevalence of IAD in the acute care setting,
  - To describe clinical characteristics of IAD, and
  - To analyze the relationship between IAD and prevalence of sacral/coccygeal pressure injury
- Results: 1716 patients incontinent (44%)
  - 57% both FI and UI, 27% FI, 15% UI
  - 24% IAD rate
    - 60% mild
    - 27% moderate
    - 5% severe
  - 73% was facility acquired
  - ICU a 36% rate
  - IAD 5x more likely to develop a HAPU

Giuliana K. Presented at the CAACN September 25-27th Winnipeg, Manitoba, CA
Gray M. Presenting a Wound Care Conference, 2016, New York City, NY

A Closer Look at Moisture

- Skin pH 5.5
  - This acid mantle keeps our skin healthy and resists bacterial invasion

- Some body fluids are not caustic
  - Sweat pH is 5.5
    Exposure leads to maceration

- Some body fluids are caustic
  - Diarrhea pH is acidic to alkaline
  - Urine pH 4.5-8.0 depending on disease and diet
  - Exposure leads to IAD
How incontinence injures skin

- Water in urine or stool is absorbed into corneocytes
- Overhydrated cells swell and disrupt barrier leading to maceration and injury from friction
- Irritants pass more easily through cells to stimulate irritation and inflammation
- Skin becomes more alkaline and promotes bacterial growth
- Liquid feces contain digestive enzymes that damage skin

Maceration from wet dressings

- White soft skin
- Serous drg from wound
- Periwound maceration
Who is at Risk for IAD?

- All incontinent patients/residents
  - Fecal and urine combined
  - Fecal or urine individually
- Use of occlusive undergarments
- Fragile skin condition
- Immobile
- Confused, comatose, paralyzed
- Unable to perform personal hygiene
- Pain
- On antibiotics or immunosuppressants
- Poor nutritional status, tube feeding
- Critically ill

Braden Moisture Subscale Does Not Predict IAD

- Level 4 -- Rarely moist
  - Skin is usually dry; linen only requires changing at routine intervals
- Level 3-- Occasionally moist
  - Skin is occasionally moist, requiring an extra linen approximately once a day
- Level 2 -- Very moist
  - Skin is often but not always moist. Linen must be changed at least once a shift
- Level 1 -- Constantly moist
  - Skin is kept moist almost constantly by perspiration, urine etc. Dampness is detected every time patient is moved or turned.
**IAD or PI?**

- History of exposure to urine or stool
- Skin looks denuded in multiple open areas with flaring on the edges
- Skin is inflamed
- Ulcers are in areas that have been exposed to fluid—may be mirrored or kissing
- Skin may also smell of ammonia

**Classes of IAD**

**Mild**
- Dry, intact, not blistered
- Pink or red with diffuse (not sharply defined), often irregular borders

**Moderate**
- Shiny and moist skin with weeping
- Pinpoint areas of bleeding
- Raised areas/blisters
- Angry bright red
- Small areas of skin loss
- Painful

**Severe**
- Red with areas of denudement
- Oozing/bleeding
- Skin layers may be stripped off as the oozing protein is sticky and adheres to any dry surface
**Incontinence Associated Dermatitis**

- Burning sensation, worse with cleaning
- Red angry skin in areas exposed to urine and stool, often mirrored
- Maceration of skin

**When they all occur together**

- Periwound maceration
- Unstageable ischial ulcer
- IAD, mirrored wound
- Deep stage 2 ischial ulcer
- Device MDR?
Etiology of Stage 2 pressure injury

- Exposure to low levels of continuous pressure
  - Compression of feeding vessels
  - Leading to ischemia of the skin but not underlying tissues

How deep can a Stage 2 go?

Into the reticular dermis
Stage 2 heals via reepithelialization

Reepithelialization seen in partial thickness wounds

Granulation and contractile scar seen in full thickness wounds

Treatment of Stage 2

• Pressure relief
  – Do not place patient on ulcer
  – If patient must be on the ulcer, upgrade the mattress

• Nutrition
  – Work with nutritionists to be certain protein and calorie needs are being addressed
  – If on supplements, give meds with them

• Wound care
  – Foam, hydrocolloids in areas not likely to roll/fold
  – Skin moisturizers work well too
Healed IAD

- Partial thickness wounds
- Epithelialization
- Healed IAD visible in darkly pigmented skin

What is your diagnosis?
EBP Recommendations to Reduce Skin Injury From Incontinence & Other Forms of Moisture

- Keep the skin clean and dry
- Use a pH balance skin cleanser
- Clean the skin promptly following episodes of incontinence
- Protect the skin from exposure with skin barriers
  - Disposable barrier cloth recommend by IHI & IAD consensus group
- Use a skin moisturizer to hydrate the skin
- Other recommendations
  - Use an incontinence pad and/or briefs that wick away
  - Consider pouching device or a bowel management system
  - Ensure an appropriate microclimate & breathability
    - < 4 layers of linen
  - Wick away material under adipose and breast tissue

Skin Care Basics

- **Cleanse** – don’t clean
  - Use soft clothes
  - **Use pH balanced soap**
    - No Dial, Irish Spring etc
      - Alkali based
      - Lead to skin erosion
    - No alcohol-based products
    - Products can be liquid, emulsion, foam, or impregnated into wipes
  - Don’t rub to clean off debris
  - No rinse products ideal
  - Pat dry, don’t rub
Moisturize

- While the skin is damp apply a moisturizing lotion
  - Lotion needs to have no fragrance, no alcohol, no preservatives
    - Fragrance can be inhaled and can be nauseating
    - Some compounds purposely contain alcohols to dry the skin, so that you use more product
    - Preservatives are absorbed by fragile skin

Beware of Preservatives

Highly allergenic
- Benzyl alcohol, butylated hydroxytoluene, chlorocresol, imidurea, parabens, sodium metabisulfite, sorbic acid

Absorbed by very young skin (prior to 44 days of life) and very old skin and damaged skin
EBP Recommendations to Reduce Skin Injury From Incontinence & Other Forms of Moisture

• Keep the skin clean and dry
• Use a pH balance skin cleanser
• Clean the skin promptly following episodes of incontinence
• Protect the skin from exposure with skin barriers
  • Disposable barrier cloth recommend by IHI & IAD consensus group
• Use a skin moisturizer to hydrate the skin
• Other recommendations
  – Use an incontinence pad and/or briefs that wick away
  – Consider pouching device or a bowel management system
  – Ensure an appropriate microclimate & breathability
    • < 4 layers of linen
  – Wick away material under adipose and breast tissue

Containment products

• Underpads or absorbant briefs
  – Should wick urine away from skin not trap against the skin
• Pads/briefs create heat and can lead to maceration if left in place
• Recommendations
  – Use when ambulating for dignity
  – Open or remove when at bedrest
Perineal odor

- Perineal odor from urine common even after bathing
  - Only when skin cells shed, does the odor from those cells leave
  - Important to do good skin care and change pads when soiled
  - Deodorizers available

Protect

- Also called skin barriers or moisture barriers
- Apply product liberally to prevent skin damage from urine or stool
- Try to use products that contain blocking agents
  - Dimethicone
  - Petrolatum
  - Zinc oxide (not by itself)
- Consider how you will get the product off!
- Liquid barrier films also available
  - Applied to the skin and after evaporation leaves of film barrier
IAD/HAPU Reduction Study

- Prospective, descriptive study
- 2 Neuro units
- Phase 1: prevalence of incontinence & incidence of IAD & HAPU
- Phase 2: Intervention
  - Use of a 1 step cleanser/barrier product
  - Education on IAD/HAPU
- Results:
  - Phase 1: incontinent 42.5%, IAD 29.4%, HAPU 29.4%, LOS 7.3 (2-14 days), Braden 14.4
  - Phase 2: incontinent 54.3%, IAD & HAPU 0, LOS 7.4 (2-14), Braden 12.74


Conclusions from Metaanalysis

- 10 studies, 804 subjects
  - Low number of studies and subjects considering the high prevalence of IAD
- 3 in 1 wash cloths reduce prevalence and severity of IAD (compared to soap & water)
- Barrier films lengthen time to breakdown
- Foam cleaners prevent skin breakdown

Pather, Hines et al. Effectiveness of topical skin products in the treatment and prevention of incontinence associated dermatitis: a systematic review. JBI Database of Sys Reviews, 2017
Benefits of a Skin Care Program

- 98% of residents (N=1918) in long-term care found to have incontinence—Only 3.4% developed IAD due to the skin care program
  - Daily perineal skin assessment by CNAs
  - Formal assessment for high risk patients by nurses
  - Skin cleansing when soiled
  - Skin moisturizing daily
  - Skin protection when incontinent


Skin care products prevent PI

- Evaluation of pressure injury prior to and following the adoption of a new skin care program in a long-term care setting
  - Cleansing Gel
  - Skin Cream with micronutrients
  - Protective antifungal paste
  - Adult disposable briefs
- N = 204 as baseline and N = 118 post
- Pressure ulcer rates fell from 12.2% to 4.7%

Cabot & Young. A single-center evaluation of a dermal management product suite to prevent pressure ulcers and skin tears. Advanced Skin and Wound Care, 2015
Skin care products prevent PI

• Evaluation of the change in PI numbers in incontinent patients on a medical unit after a skin care regimen that contained silicone
  – Baseline number of PI = 31%
  – Change in staffing on PI = 21%
  – Addition of silicone skin care regimen = 0%
  – Skin care regimen was $.75 more expensive
  – Cost savings was $6677 per patient
    • Total savings was $265,011 for the unit

Joyce Black AACN NTI May 2017

EBP Recommendations to Reduce Skin Injury From Incontinence & Other Forms of Moisture

• Keep the skin clean and dry
• Use a pH balance skin cleanser
• Clean the skin promptly following episodes of incontinence
• Protect the skin from exposure with skin barriers
  • Disposable barrier cloth recommend by IHI & IAD consensus group
• Use a skin moisturizer to hydrate the skin
• Other recommendations
  – Use an incontinence pad and/or briefs that wick away
  – Consider pouching device or a bowel management system
  – Ensure an appropriate microclimate & breathability
    • < 4 layers of linen
  – Wick away material under adipose and breast tissue

Joyce Black AACN NTI May 2017
Fecal Containment Device

- Provides a method for managing fecal incontinence.
- Remains securely attached to ambulatory patients.
- Kit contains collection bag, closure clip, drainage bag adapter, powder adhesive and adhesive remover.

Treatment of IAD

- Skin care much like prevention
  - Clean promptly
  - Protect the skin from next exposure with short-acting agents
    - Barriers with zinc oxide, dimethicone
  - Protect the skin with long-acting agents
    - Cyanoacrylates
- Monitor for deterioration
  - Infection
  - Increasing Pain
  - Bleeding
Topical Agents Reduce Inflammation

Glycerin, dimethicone, Macadamia nut oil
- 50 patients with VLU
  - repeated measure of periwound
    - 452 observations

Silicone to reduce TEWL
Olivamine as anti-inflammatory, vitamins A, B, C, D and hydroxytyrosol (anti-oxidant)
- 28 patients with VLU
  - repeated measure of periwound size
    - 463 observations


Treatment of Severe IAD

- Fecal incontinence strongly associated with pressure injury
- Fecal diversion crucial
  - Associated with PI from the device
- Care cleansing needed
- Cyanoacrylate needed to close the skin
  - Skin products won’t stick