Incontinence Associated Dermatitis: Evidence Based Prevention Strategies

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Disclosures

- Eloquest Healthcare
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Session Objectives

- Create a link between evidence based fundamental nursing care and nurses advocacy role
- Define incontinence associated dermatitis (IAD) and understand the risk factors associated with its development
- Discuss key fundamental evidence based nursing care prevention strategies for IAD
- Outline impact of shear & friction in conjunction with moisture and strategies to prevent
- Identify evidence support processes around cleaning incontinence to reduce risk

Florence Nightingale on:

SKIN INTEGRITY

- “It may be worth while to remark, that where there is any danger of bed-sores a blanket should never be placed under the patient. It retains damp and acts like a poultice.”

- “If a patient is feverish, if a patient is faint, if he is sick after taking food, if he has a bed-sore, it is generally the fault NOT OF THE DISEASE, BUT OF THE NURSING.”

- “Poisoning by the skin is no less certain than poisoning by the mouth—only it is slower in its operation.”

Notes on Nursing (1860/1969)
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

INTERVENTIONAL PATIENT HYGIENE (IPH)

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

Volman KM. Intensive Crit Care Nurs, 2013;22(4): 152-154
Attitude & Accountability

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

Skills & Knowledge

Resources & System

Value

Achieving the Use of the Evidence

Moisture Injury: Incontinence Associated Dermatitis

- Inflammatory response to the injury of the water-protein-lipid matrix of the skin
  - Caused from prolonged exposure to urinary and fecal incontinence
  - Liquid stool identified as a particularly potent irritant
- Top down injury
- Physical signs on the perineum & buttocks
  - Erythema, swelling, oozing, vesiculation, crusting and scaling

Moisture Injury: Incontinence Associated Dermatitis

Brown DS & Sears M, OWN 1993;39:2-26
IAD: Multisite Epidemiological Study

• 791 patients in 20 facilities in US
• One day prevalence
  – 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 ulcers
• Results: Incontinence 54%
  – 16.3% perineal skin damage, (23.3%) IAD
  – All patients had urinary or fecal incontinence or both
  – 26% was present on admission, 74% was hospital acquired
  – IAD was associated with an increased prevalence of sacral/coccygeal pressure ulcers (p<0.000).

Gray M, Presented at the 23rd Annual Meeting of the Wound Healing Society; SAWC Spring/WHS Joint Meeting: Denver, Colorado • May 1 - 5, 2013

Impact of Moisture

Humidity/Moisture:
  – Strain at which the skin breaks is 4x greater with excess moisture than dry skin
  – Moisture increases the risk of shear & friction damage
  – Development and severity of IAD include high levels of Staphylococcus aureus or Candida albicans

Potential Complications of Fecal Incontinence and Diarrhea

- Dehydration & Malnutrition
- Spread of infectious microorganisms
- Incontinence Associated Dermatitis & Pressure Ulcers

Identify Patients at High Risk
IAD Assessment Tool

Assessment, definitions, grading & evidence based interventions

Joan Junkin
IADIT@medbiopub.com
Its About the Sub-Scale’s

- Retrospective cohort analysis of 12,566 adults patients in progressive & ICU settings for yr. 2007
- Identifying patients with HAPU Stage 2-4
- Data extracted: Demographic, Braden score, Braden subscales on admission, LOS, ICU LOS, presence of Acute respiratory and renal failure
- Calculated time to event, # of HAPU’s

- Results:
  - 3.3% developed a HAPU
  - Total Braden score predictive (C=.71)
  - Subscales predictive (C=.83)


Braden Score

Braden Sub-Scales

Multivariate model included 5 Braden subscales, surgery and acute respiratory failure C=0.91 (Mobility, Activity and sensory perception more predictive when combined with moisture or shear and friction)
EBP Recommendations to Reduce Injury From Incontinence & Other Forms of Moisture

- Clean the skin as soon as it becomes soiled.
- Use an incontinence pad and/or briefs that wick away
- Use a protective cream or ointment
  - Disposable barrier cloth recommend by IHI & IAD consensus group
- Ensure an appropriate microclimate & breathability
- < 4 layers of linen
- Barrier & wick away material under adipose and breast tissue
- Support or retraction of the adipose tissue (i.e. KanguruWeb)
- Pouching device or a bowel management system

www.ihi.org
Current Practice:
Moisture Management

- Disposable Incontinence Pads
- Adult diaper
- Airflow pads for Specialty Beds
- Reusable Incontinence pads

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www.ihi.org
Consensus Statement on Prevention & Treatment of IAD: Skin Protectants

- Product labels provide broad categories, but they may not provide sufficient information for clinical decision making.
- Some moisture barriers are occlusive and therefore contraindicated for overhydrated skin.
- Barrier such as zinc oxide paste are somewhat astringent and contraindicated for dry skin.
- Concentration of ingredients in products vary
  - Dimethicone is classified as a water repellent non-occlusive emollient and skin protectant, but some may have as little 1% dimethicone, while others contain too much 5%

Evidence-based Components of an IAD Prevention Program

- Skin care products used for prevention or treatment of IAD should be selected based on consideration of individual ingredients in addition to consideration of broad product categories such as cleanser, moisturizer, or skin protectant. (Grade C)
  - A skin protectant or disposable cloth that combines a pH balance no rinse cleanser, emollient-based moisturizer, and skin protectant is recommended for prevention of IAD in persons with urinary or fecal incontinence and for treatment of IAD, especially when the skin is denuded. (Grade B)
  - Commercially available skin protectants vary in their ability to protect the skin from irritants, prevent maceration, and maintain skin health. More research is needed (Grade B)
Evidence Based Product Selection

- Not all products with the same active ingredient perform the same...

- It is essential to consider overall product formulation and delivery method in order to make a comparison of product

- The decision to choose a product should be based on the entire product formulation and its performance as a barrier

West D, Poster presented at the Symposium on Advanced Wound Care Fall, October 2014

Evaluating the Efficacy of a Uniquely Delivered Skin Protectant and Its Effect on the Formation of Sacral/Buttock Pressure Ulcers

Methodology:

- Retrospective/prospective quasi-experimental study
- 57 bed LTC
- Data collected 3 months before use & 3 months following conversion
- Demographics comparable between groups
  - Age, LOS, mobility in bed, transfer between surfaces, incontinence of bowel/bladder, BMI, albumin and concurrent disease scale
- Pre-data revealed 12 residents with incontinence developed 15 sacral stage 1 & 2 ulcers.
- Monthly incidence rates over 9 months 4.7%

Clever K. OWM. 2002;48(12): 60-67
Clever et al. “Pressure Ulcer” Study

Evaluating the Efficacy of a Uniquely Delivered Skin Protectant and Its Effect on the Formation of Sacral/Buttock Pressure Ulcers

Average Monthly Incidence of Sacral/Buttock Pressure Ulcers

Old Standard of Care
July 2000 to

New Standard of Care
May to July 2001
Feb to April 2002

*No significant differences in impact variables between groups

Clever K. OWM. 2002;48(12): 60-67

4.7%

0.5%

89% Reduction in Incidence

Reducing IAD in the Critical Care Area

• Methodology:
  – Adult patients admitted to the ICU without skin breakdown were included
  – Sample size of 100 for each of the 2 study arms
  – Measured how often appropriate prevention measures for IAD are used
  – Measured rate of skin breakdown in patients with fecal incontinence who were managed with interventional protocol
  – 1st phase examined current practice: skin cleanser and separate barrier and frequency of use
  – 2nd phase introduced an all in one incontinence management system

Driver D. Critical Care Nurse, 2007;27(4):42-46
Reducing IAD in the Critical Care Area

Results

• Collected data on 131 patients
  – 50% (8/16 incontinent) patients developed perineal dermatitis (skin breakdown)
  – Non-compliance with incontinence skin care protocol
  – Reasons for non-compliance
    • Not easy to apply/not easy to remove

• Collected data on 177 patients post incontinence product change
  – 19% (3/16 incontinent) patients developed perineal dermatitis (skin breakdown)

Driver D. Critical Care Nurse, 2007;27(4):42-46

Nurse Driven Interventions to Improve IAD and HAPU

• 3 phase prospective trial
• Phase 1: Standard care:
  – Foam cleanser, washcloths, hospital grade moisturizer & zinc based barrier cream at caregiver discretion

• Phase 2: Control & Intervention group
  – Control-SOC
  – Intervention; education on IAD & use of a 3-1 barrier cloth

Hall KD, The Clinical Symposium on Advances in Skin & Wound Care; September 9-12, 2011
Nurse Driven Interventions to Improve IAD and HAPU

Hall KD, The Clinical Symposium on Advances in Skin & Wound Care; September 9-12, 2011
Cost-Benefit Ratio

CA-UTI vs. IAD & Pressure Ulcer

Cleansing of Patients with Indwelling Catheter

- Indwelling catheter care should occur with the daily bath (basinless bathing)*
- There is no evidence to support 2x a day indwelling catheter care
- If a large liquid stool occurs, bathe the patient with basin less bathing (clean front to back in the perineal area and 6 inches of the catheter**)
- Apply barrier cloth to area of skin requiring protection


*Sage recommends following hospital policy
EBP Recommendations to Reduce Injury From Incontinence & Other Forms of Moisture

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www.ihi.org

External 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.
Indwelling Stool Management System

- To Potentially Reduce Bacterial Load in the Environment
- Stool Containment for Non-Intact Skin

Devices are associated with increased risk of medical device related pressure ulcers (Black, Alves et al., 2013)

A New Male External Catheter: ReliaFit

- Hydrocolloid alternative
  - Hydrocolloid wafer shaped adheres to the glans penis
  - Acts as a skin protectant
  - Protects the glans penis from excessive moisture
  - The seal is reinforces by a second hydrocolloid strip
  - Can be used with circumcised and uncircumcised males
  - Clean glans penis with a remover & alcohol
Evaluation of a New, Novel Male External Urinary Management Device

Lisa M. Lucas MSN, RN, ACNS-BC, Jackie Isseler MSN, RN, ACNS-BC, Lori Gale BS, RN, WOCN-BC
Spectrum Health Butterworth Grand Rapids, MI

- 31 RN’s/ 3 units
- 42 devices
- Mean wear time > 23hrs
- Easy to apply
- 72.8% of RN’s likely to advocate for its use
- No UTI’s reported in patients using the new male external catheter

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Alternative Male Urinary Catheter Device</th>
<th>No Preference</th>
<th>Common Catheter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy to apply</td>
<td>39.1%</td>
<td>22.7%</td>
<td>10.2%</td>
</tr>
<tr>
<td>Satisfactory urine flow</td>
<td>50.0%</td>
<td>40.0%</td>
<td>9.1%</td>
</tr>
<tr>
<td>Stay on securely</td>
<td>45.5%</td>
<td>50.0%</td>
<td>4.5%</td>
</tr>
<tr>
<td>No urine leakage</td>
<td>45.5%</td>
<td>40.0%</td>
<td>10.6%</td>
</tr>
<tr>
<td>Wear time</td>
<td>40.6%</td>
<td>50.0%</td>
<td>9.1%</td>
</tr>
<tr>
<td>Does not cause skin redness/irritation</td>
<td>59.0%</td>
<td>50.0%</td>
<td>9.1%</td>
</tr>
<tr>
<td>Patient comfort</td>
<td>36.4%</td>
<td>59.1%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Patient acceptance</td>
<td>31.8%</td>
<td>68.2%</td>
<td>0.0%</td>
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</table>

Pressure Ulcers

Pressure ulcer is localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear

Moisture increases the impact of shear and friction coefficient

Adapted from Barb Bates-Jensen & NPUAP
Shear & Friction

- Humidity also increases the friction coefficient between the skin and supporting surface, thus enhancing the risk of shear damage
  (Gardner and Briggs, 2001)
  (Yuan and Verma, 2006)

EBP Recommendations to Achieve Offloading & Reduce Pressure & Shear

- Turn & reposition every 2 hours (avoid positioning patients on a pressure ulcer)
  - Repositioning should be undertaken to reduce the duration & magnitude of pressure over vulnerable areas
  - Cushioning devices to maintain alignment /30° side-lying & prevent pressure on boney prominences
  - Use lifting device or other aids to reposition & make it easy to achieve the turn
  - Assess whether actual offloading has occurred

Dressing As an Adjunct to Pressure Ulcer Prevention: Consensus Panel Recommendations*

- Consider use of a 5-layer soft silicone border dressing to enhance but not replace pressure ulcer prevention strategies for the sacrum, buttock & heel (A)
- Before selecting addressed to consider the current status of the skin and the ease of dressing removal in order to prevent mechanical stripping (B)
- Apply the dressing to intact skin. Do not use emollients or other barriers as they will prevent adhesion (C)
- Choose addressing that exceeds the area of the tissue at risk (C)
- Inspect the skin beneath the dressing on a regular basis (C)
- Consider placement prior to prolonged procedures or continuous head elevation (B)

EBP Recommendations to Reduce Shear & Friction

- Loose covers & increased immersion in the support medium increase contact area
- Use lifting/transfer devices & other aids to reduce shear & friction.
  - Mechanical lifts
  - Transfer sheets
  - 2-4 person lifts
  - Turn & assist features on beds
Current Practice: Turn & Reposition

- Transfer Device
- Specialty Bed
- Disposable Slide Sheets
- Draw Sheet/Pillows/Layers of Linen
- Lift Device

70% REPOSITIONING THE PATIENT
70% CAREGIVER INJURY
SAFE PATIENT HANDLING

Care Giver Injury

- 50% of nurses required to do repositioning suffered back pain
- High physical demand tasks
  - 31.3% up in bed or side to side
  - 37.7% transfers in bed
- 40% of critical care unit caregivers performed repositioning tasks more than six times per shift
- Number one injury causation activity: Repositioning patients in bed

Harber P, et al. J. Occupational Medicine, 27:518-524
Fragala G. AAoHN, 2011;59:1-6
Number, Incidence Rate, & Median Days Away From Work for Occupational Injuries RN's with Musculoskeletal Disorders in US, 2003 – 2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Ownership</th>
<th>Occupation</th>
<th>Total Cases</th>
<th>Incidence Rate</th>
<th>Median Days Away From Work</th>
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</thead>
<tbody>
<tr>
<td>2009</td>
<td>private industry</td>
<td>RNs</td>
<td>8,760</td>
<td>51.6</td>
<td>0</td>
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<td>2010</td>
<td>Private industry</td>
<td>RNs</td>
<td>9,260</td>
<td>53.7</td>
<td>6</td>
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<tr>
<td>2011</td>
<td>Private industry</td>
<td>RN's</td>
<td>10,210</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>private industry</td>
<td>RNs</td>
<td>8,120</td>
<td>48.4</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>local government</td>
<td>RNs</td>
<td>540</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>2007</td>
<td>private industry</td>
<td>RNs</td>
<td>8,580</td>
<td>53.4</td>
<td>6</td>
</tr>
<tr>
<td>2006</td>
<td>private industry</td>
<td>RNs</td>
<td>9,200</td>
<td>59.1</td>
<td>6</td>
</tr>
<tr>
<td>2005</td>
<td>private industry</td>
<td>RNs</td>
<td>9,060</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>2004</td>
<td>private industry</td>
<td>RNs</td>
<td>8,810</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>2003</td>
<td>private industry</td>
<td>RNs</td>
<td>10,250</td>
<td>-</td>
<td>6</td>
</tr>
</tbody>
</table>


Achieving the Use of the Evidence For Mobility & Moisture

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

- Resource & System
  - Breathable glide sheet/stays
  - Foam Wedges
  - Microclimate control
  - Reduce layers of linen
  - Wick away moisture body pad

Vollman KM. Australian Crit Care, 2009;22(4): 152-154
Comparative Study of Two Methods of Turning & Positioning

- Blocked design with convenience sample of 60 patients
- SOC: pillows/draw sheet
- TAP: breathable glide sheet/foam wedges/wick away pad
- Results:
  - Nurse satisfaction 87% versus 34%
  - 30° turn achieved versus -0-15 in SOC
  - SOC group required more resources

<table>
<thead>
<tr>
<th></th>
<th>SOC</th>
<th>TAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time on Product</td>
<td>7 days (1-29)</td>
<td>7 days (1-45)</td>
</tr>
<tr>
<td>Age</td>
<td>57.72 (SD 18.45)</td>
<td>57.73 (SD 17.67)</td>
</tr>
<tr>
<td>Gender</td>
<td>14 Female / 16 male</td>
<td>10 Female / 20 Male</td>
</tr>
<tr>
<td>Braden</td>
<td>12.77</td>
<td>13.23</td>
</tr>
<tr>
<td>Mobility</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>BMI</td>
<td>29.02</td>
<td>30.07</td>
</tr>
<tr>
<td>PU development</td>
<td>0</td>
<td>1*</td>
</tr>
<tr>
<td>Pulled up in bed</td>
<td>3.38</td>
<td>2.58</td>
</tr>
<tr>
<td>Number to turn</td>
<td>1.97</td>
<td>1.35</td>
</tr>
</tbody>
</table>


Impacting Outcomes: Decreasing Patient & Staff Injury

- 3 Select Medical System Hospital
- Intervention period over the course of a year
- Patients with anticipated > 5 days LOS, Braden subscales of moisture < 1 and mobility <2 received the intervention
- Intervention: Turn & Position system
- Measured:
  - HAPU rates before & after
  - Staff injury before & after

Presented at ALHAA’s 2012 National Clinical Conference, Dallas, TX, May 16-18, 2012
Safe Patient Handling Initiative: Decreases Staff Musculoskeletal Injuries & Patient Pressure Ulcers

SAFE PATIENT HANDLING INITIATIVE PROTOCOL
1. Does the patient have a total body score of 11+ in the following categories and/or a Biddle mobility score of 1:
   - Limited mobility or unable to move
   - Dependent on personal care providers
   - Autonomic Cardiovascular

2. Does the patient have a history of pressure ulcers?

RESULTS

<table>
<thead>
<tr>
<th>Decrease in Pressure Ulcers</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>28%</td>
<td>$184,720</td>
</tr>
<tr>
<td>58%</td>
<td>$247,500</td>
</tr>
</tbody>
</table>

It is not enough to do your best, you have to know what to do and then do your best.

E. Deming
How Do We Make It Happen?

Implementing Best Practices with Ease

1st Step: Collection of baseline data
- Direct observation of current status on Q2hr turning
- Nosocomial pressure ulcer rates (NDNQI)
- Incontinence associated dermatitis rates (IAD Form)
- Staff musculoskeletal injuries (Employee Health)
- Cost-analysis of patient and staff injuries

Implementing Best Practices with Ease

2nd Step: Evaluating resources to help staff achieve the right care, at the right time with the right pt

- Slide/Glide sheet that remains underneath the patient to reduce shear/friction & aid with turning
- Foam wedges to help sustain the turn
- Large enough wick away pad to remove moisture
- Lifts and chair devices for out of bed mobility
- Best surface underneath the patient based on risk
- Every thing breathes & appropriate layers of linen
- Tools inside the patients room (turn clock, musical cues)
- A protocol


Implementing Best Practices with Ease

3rd Step: Education on products and processes

- Education on the evidence based strategies
- Address in-bed & out of bed mobility barriers
- Education on any new products and how they will be used
- Re-education when necessary to ensure appropriate use
- Use of reference cards
- Build into orientation
4th Step: Sustaining change in practice
• Skin rounds/time frequency
  – Hand-off communication
  – Skin liaison/champion nurses
  – Creative strategies to reinforce protocol use
    • Visual cues in the room or medical record
    • Rewards for increase compliance
  – Yearly competencies on beds or positioning aids to ensure correct and maximum utilization

5th Step: Evaluate outcomes using comparison of data measurements pre and post implementation
– Direct observation measurement of turning
– Nosocomial pressure ulcer rates (NDNQI)
– Incontinence associated dermatitis rates (IAD Form)
– Staff musculoskeletal injuries (Employee Health)
– Cost-savings analysis of patient and staff injuries post change in practice (including any new product costs)
Can We Make a Difference?

- 78 hospitals in California
  - Submitted data to CALNOC
  - All inpatient units, plus observational
- Time period: 2003-2010
- Reported on 258,456 adult patients, 1970 prevalence studies, no increase in hospital days over time
- Standardized tool used with interrater reliability ensured
- Common interventions used:
  - Protocol development with evidence based practices
  - Staff education
  - Risk assessment tool
  - Monitoring & feedback


Can We Make a Difference?

- HAPU all stages ↓ from 10.4% to 1.8%*
- HAPU 2+ ↓ from 5.9% to 1.2%* (> in Medical vs. Surgical)
- HAPU 3+ ↓ from 2.0% to 0.4%

*P < .0001

Be Courageous

We all are responsible for the safety of our patients & ourselves…Own the Issues

- “If not this, then what??”
- “If not now, then when?”
- “If not me, then who??”