WOUND BASICS ASSESSMENT & MANAGEMENT

June 2016 Webinar Series
prepared for
State of Maryland
Developmental Disabilities Nursing Team
Presenters-
Baltimore Affiliate Wound Ostomy Continence Nursing Society

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Objectives Webinar Series 1- Assessment

1. Recognize principles of healthy skin care management

2. Identify 4 or more interventions which reduce the risk of pressure injury based on evidence based skin risk assessments

3. Discuss 4 or more components of a comprehensive skin/wound assessment.

4. Differentiate 3 or more interventions and associated wound characteristics that support wound healing.

5. Distinguish 3 or more characteristics of various wound etiologies including moisture associated skin injury, pressure injury, and venous, arterial, and neuropathic ulcers
Objectives Webinar Series 2- Management

6. Support wound dressing/treatment selections based on wound product categories associated with 3 or more patient centered assessment findings.

7. Appreciate principles of safe negative pressure wound therapy

8. Choose appropriate support surface application based on 2 or more unique patient centered needs

9. Identify community resources applicable to the chronic wound care management across care settings.
Impact of chronic wounds

Chronic wounds affect an estimated 6.5 million patients.

More than $25 billion is spent annually on the treatment of chronic wounds

Chronic wounds impact individuals, families, communities, and society

Pain and suffering

Social isolation- can’t go to programs

Cross contaminations and spread of resistant organisms
Common medical problems seen in adult disability clinics

- Early arthritis
- Difficulty sitting for long periods of time with ulcer formation.
- Progression of their movement disorder.
- Mental health issues such as bipolar disorder and depression.
- Progressive loss of ambulation as the patient ages.
- Cervical and lumbar spine problems including myelopathy.
- Progressive hydrocephalus in middle ages.
- Worsening of dysphagia and ability to eat.
- Worsening dental care with dental caries and abscesses.
Target population risk factors influencing skin and wound care management

- Nutrition
- Oral health
- Continence
- Behavioral
- Caregiver dependence
- Cognitive
- Mobility
- Community lifestyle
The Skin

- Weighs 8 lbs/covers 20 sq ft
- Protects body from environment as first line of defense
- Largest organ in our body
- Receives 1/3 of our blood flow
- pH (5.5)

June 28, 2016
Functions of the Skin

- Protection against the environment
- Fluid and electrolyte balance
- Excretion of waste
- Temperature regulation
- Sensation
- Production of vitamin B folates
- Metabolism – Vitamin D synthesis
Skin changes influenced by

- Age
- Blood vessel diseases
- Diabetes
- Heart/liver disease
- Nutritional and hydration deficiencies
- Obesity
- Reactions to medications
- Stress
- Structural and functional changes
Skin Assessment: Inspect/palpate

All body parts without the presence of clothing, undergarments or shoes
- Skin loss
- Redness
- Turgor
- Lesions
- Skin discoloration
- Edema
- Rash
- Warmth
- Moisture
Skin Check

Heels
Occiput
Toes

Sacrospinales
Posterior Buttock/Ischium
Over Bony Prominences
Thoracic Spine
Scapula

Medical Devices
Skin Monitoring: Comprehensive CNA Shower Review

Perform a visual assessment of a resident’s skin when giving the resident a shower. Report any abnormal looking skin (as described below) to the charge nurse immediately. Forward any problems to the DON for review. Use this form to show the exact location and description of the abnormality. Using the body chart below, describe and graph all abnormalities by number.

Resident: ____________________________ Date: ____________________________

Visual Assessment
1. Bruising
2. Skin tears
3. Rashes
4. Swelling
5. Dryness
6. Soft heels
7. Lesions
8. Decubitus
9. Blisters
10. Scratches
11. Abnormal color
12. Abnormal skin
13. Abnormal skin temp (h-hot/c-cold)
14. Hardened skin (orange peel texture)
15. Other: ____________________________

CNA Signature: ____________________________ Date: ____________________________

Does the resident need his/her toenails cut?
☐ Yes  ☐ No

Charge Nurse Signature: ____________________________ Date: ____________________________

Charge Nurse Assessment:

Intervention:

Forwarded to DON:
☐ Yes  ☐ No

DON Signature: ____________________________ Date: ____________________________
Licensed Nurse Weekly Skin Assessment

Resident: ____________________ Date: ________ Room #: ________

This form should be completed weekly on all residents per facility policy. Any areas of skin requiring treatment should have a thorough record of documentation in addition to this form located elsewhere in the chart per facility protocol. Check “Yes” or “No” if the item reflects the resident’s assessment. If the answer is “yes” to 3 or more of the items listed below, consider implementation of the “Skin Tear Prevention Protocol.” Review the care plan to ensure skin care is included as necessary.

If any questions are answered “yes,” indicate location on body outline with number of question.

<table>
<thead>
<tr>
<th>Weekly Skin Assessment</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any reddened areas that remain after 30 minutes of pressure reduction? Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any rashes? Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any bruises? Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any open lesions, cuts, lacerations, or skin tears? (Indicate even if being treated.) Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any blisters? Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any open ulcers (Indicate even if being treated.) Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excessively dry or flaky skin? Comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any edema? Location:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Licensed Nurse Signature: ____________________ Date: ________

Document available at www.primaris.org

Note: This resource is part of Primaris, the National Quality Improvement Organization for Missouri, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The content presented does not necessarily reflect CMS policy. Adapted from BAIL Care Center.
Basic skin care principles

Skin cleansing at time of soiling & at routine intervals:

- Avoid diapering/adult briefs
- Avoid hot, harsh soaps
- Do not rub /scrub
- Dry thoroughly
- Use pH balanced products

Moisturize daily to dry and threatened skin
## Popular Soap pH levels

<table>
<thead>
<tr>
<th>Soaps</th>
<th>pH</th>
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</thead>
<tbody>
<tr>
<td>Dove</td>
<td>6</td>
</tr>
<tr>
<td>Caress, Oil of Olay</td>
<td>7</td>
</tr>
<tr>
<td>Basis, Coast, Lever 2000, Lava, Safeguard, Shield</td>
<td>9</td>
</tr>
<tr>
<td>Camay, Dial, Irish Spring, Ivory, Jargons, Tone, Yardley, Nivea, and Zest</td>
<td>10</td>
</tr>
</tbody>
</table>
Pressure Injury

- Elderly
- Bed or Chairbound
- Under or Overweight
- Malnourished
- Incontinence
- Limited sensation
- Decreased mobility
- Decreased mental status

- Dehydration
- Multisystem trauma
- Poor circulation, anemia
- History of previous pressure ulcers
- Diabetes
- Chronic Illness
- Immunosuppressed
- Specific medications
Drugs impact skin risk

Steroids-systemic or inhalers
Chemotherapy
Radiation
Anticoagulant therapy
Immunosuppressant therapy
Hormone therapy
# Braden Pressure Ulcer Risk Assessment

**Act to Prevent Pressure Ulcers**

<table>
<thead>
<tr>
<th>Sensory Perception</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Add to Total Score</th>
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<tbody>
<tr>
<td>No Impairment</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slightly Limited</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very Limited</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Completely Limited</td>
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<table>
<thead>
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<th>Moisture</th>
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<tr>
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<tr>
<td>Occasionally Moist</td>
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<td></td>
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<tr>
<td>Often Moist</td>
<td>2</td>
<td></td>
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<tr>
<td>Constantly Moist</td>
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<table>
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<th>Activity</th>
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<td>Walks Frequently</td>
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<td></td>
</tr>
<tr>
<td>Walks Occasionally</td>
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<td></td>
</tr>
<tr>
<td>Chair Fast</td>
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<tr>
<td>Bed Fast</td>
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<table>
<thead>
<tr>
<th>Mobility</th>
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<tbody>
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<td>Completely Immobile</td>
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<table>
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<th>Nutrition</th>
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<td>Excellent</td>
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<td>Adequate</td>
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<tr>
<td>Probably</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Very Poor</td>
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</table>

<table>
<thead>
<tr>
<th>Friction &amp; Shear</th>
<th>4321</th>
<th>Add to Total Score</th>
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<td>No Apparent Problem</td>
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<tr>
<td>Potential Problem</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Problem</td>
<td>2</td>
<td></td>
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<tr>
<td>Constant Problem</td>
<td>1</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Risk Scale Equipment</th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>High</th>
<th>Severe</th>
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<td>23 22 21 20 19 18</td>
<td>1615</td>
<td>1312111019</td>
<td></td>
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</tbody>
</table>

Reference: "The Braden Scale of Predicting Pressure Ulcer Risk"
Addressing subscales of risk

Sensory Precautions

• Protection from injury
  trauma, heat,
• Foot wear /linen/clothing/bed trash
• Catheter or tubing sites
• Thorough skin check
• PT/OT needs
Activity/Mobility

- MOVE THAT BUS
- ADL participation
- Turning routines
- Repositioning if in chair
- Get out of bed
- PT/OT referral
Friction and Shear

- **Friction** is the “mechanical force exerted when skin is dragged across a coarse surface.
- **Shear** is a combination of friction and gravity.

- Rule of 30
- Turning
- Lifting
- Moisturizing
- Skin Protectants
- Use Lateral Transfer devices
- Involve necessary disciplines
- Proper fitting devices
Triple threat - Moisture → Shear/friction → Pressure
**Nutrition management**

- Small frequent meals
- Food choices
- Act promptly based on nutritional risks
- Vitamin supplements
- Maintain good hydration
- Dietician consult
- Evaluation for tube feedings/swallowing evaluation
Basic prevention principles

Avoid massage over bony prominences
Encourage maximum mobility
Position changes
Float heels
Protect bony prominences
Lift don’t drag
Reposition in bed and chair
# Pressure Injury Prevention Points

## Risk Assessment

1. Consider bedfast and chairfast individuals to be at risk for development of pressure injury.
2. Use a structured risk assessment, such as the Braden Scale, to identify individuals at risk for pressure injury as soon as possible (but within 8 hours after admission).
3. Refine the assessment by including these additional risk factors:
   - A. Fragile skin
   - B. Existing pressure injury of any stage, including those ulcers that have healed or are closed
   - C. Impairments in blood flow to the extremities from vascular disease, diabetes or tobacco use
   - D. Pain in areas of the body exposed to pressure
4. Repeat the risk assessment at regular intervals and with any change in condition. Base the frequency of regular assessments on acuity levels:
   - A. Acute care . . . Every shift
   - B. Long term care . . Weekly for 4 weeks, then quarterly
   - C. Home care . . . At every nurse visit
5. Develop a plan of care based on the areas of risk, rather than on the total risk assessment score. For example, if the risk stems from immobility, address turning, repositioning, and the support surface. If the risk is from malnutrition, address those problems.

## Skin Care

1. Inspect all of the skin upon admission as soon as possible (but within 8 hours).
2. Inspect the skin at least daily for signs of pressure injury, especially nonblanchable erythema.
3. Assess pressure points, such as the sacrum, coccyx, buttocks, heels, ischium, trochanters, elbows and beneath medical devices.
4. When inspecting darkly pigmented skin, look for changes in skin tone, skin temperature and tissue consistency compared to adjacent skin. Moistening the skin assists in identifying changes in color.
5. Cleanse the skin promptly after episodes of incontinence.
6. Use skin cleansers that are pH balanced for the skin.
7. Use skin moisturizers daily on dry skin.
8. Avoid positioning an individual on an area of erythema or pressure injury.

## Nutrition

1. Consider hospitalized individuals to be at risk for under nutrition and malnutrition from their illness or being NPO for diagnostic testing.
2. Use a valid and reliable screening tool to determine risk of malnutrition, such as the Mini Nutritional Assessment.
3. Refer all individuals at risk for pressure injury from malnutrition to a registered dietitian/nutritionist.
-skin /pressure ulcer risk assessment
  -support surface
  -shear reduction- lifting/drawsheets/trapeze

-keep turning/moving
  -keep heels off bed
  -keep head of bed at lowest possible height (30° or less) as medically and physiologically appropriate

-integumentary assessment
  -incontinence/moisture management
  -include other disciplines
  -inspect under devices daily - remove stockings and supportive devices daily as medically and physiologically appropriate
  -inform patient and caregiver of risk and prevention strategies

-no donuts, blue plastic pads under patients or massage over bony prominences
  -nutrition consult ordered
  -nutritional supplements per recommendations
Pressure Injury

is localized damage to the skin and/or underlying soft tissue usually over a bony prominence or related to a medical or other device

- Inverse relationship between time & pressure
- Muscle more sensitive to pressure than skin
- “Bottom up”; injury begins at bone-muscle interface
Even Superman could not win a battle against PRESSURE INJURY.
Every wound tells a story
Are you listening????

6/28/2016
Sarah Beth Rogers, RN, CWCN

QUESTIONS???

Recognize principles of healthy skin care management

Identify 4 or more interventions which reduce the risk of pressure injury based on evidence based skin risk assessments

Discuss 4 or more components of a comprehensive skin/wound assessment.
Acute vs. Chronic Wounds

Acute wounds

- caused by external trauma
- heal within a predictable time frame
- progress through a series of predictable phases
Acute vs. Chronic Wounds

Chronic wounds

- caused by a variety of underlying situations
- do not heal within a timely, orderly, or predictable time frame
- stuck in the inflammatory healing stage
**4 Phases of wound healing**

**Partial thickness** wounds/Stage 1 and 2 pressure ulcers heal by regeneration/migration

**Full thickness** wounds/Stage 3 and 4 pressure ulcers heal by repair (granulation/contraction/epithelialization)

**Phase 1**
- **Day 1 to 3**
  - Hemostasis: Stop Bleeding

**Phase 2**
- **Day 3 to 20**
  - Inflammation: New framework for blood vessel growth

**Phase 3**
- **Week 1 to 6**
  - Pulls the wound closed: Proliferation or Granulation

**Phase 4**
- **Week 6 to 2 Years**
  - Final proper tissue: Remodeling or Maturation
Acute wounds become chronic

- Pressure
- Friction/Shear
- Mobility
- Movement
- Location
- Moisture
- Desiccation
- Age
- Trauma

- Nutritional status
- Tissue perfusion
- Infection
- Co-morbid diseases
- Pharmacology
- Immunosuppression
General wound healing principles

- Optimize the host
- Evaluate for internal/external barriers to healing
- Promote perfusion and oxygenation
- Focus on glycemic control (hgb A1C)
- Infection control – prevent cross contamination
- Focus on nutritional needs - MVI/protein and calories---oral/dental health
- Manage pain and psychological factors
- Smoking cessation
Components of Wound Assessment

- Wound location
- Wound type
- Wound measurement
- Wound tissue color and percentage
- Wound drainage, amount and type
- Odor
- Surrounding skin / wound edge
- Dressing(s) used and frequency
- Pain level
- *Etiology ????????????
Location, Location, Location
The location of wound may provide clues to determine wound origin

<table>
<thead>
<tr>
<th>Location</th>
<th>Possible etiology</th>
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</thead>
<tbody>
<tr>
<td>Bony prominences</td>
<td>Pressure ulcers</td>
</tr>
<tr>
<td>Arms/Shins</td>
<td>Skin Tears</td>
</tr>
<tr>
<td>Lower Extremities</td>
<td>Below the Knee</td>
</tr>
<tr>
<td>Along toes/foot or malleolus, toe tops</td>
<td>Arterial</td>
</tr>
<tr>
<td>Between knee and ankle</td>
<td>Venous</td>
</tr>
<tr>
<td>Plantar foot</td>
<td>Diabetic</td>
</tr>
<tr>
<td>Heel</td>
<td>Pressure Ulcer</td>
</tr>
</tbody>
</table>
Wound Tissue Descriptors

- **Partial Thickness**
  - Involve the epidermis and dermis

- **Full Thickness**
  - Extend into subcutaneous tissue and/or muscle or other structures

ONLY PRESSURE INJURY SHOULD BE STAGED, MOST OTHER WOUNDS SHOULD BE DESCRIBED AS PARTIAL OR FULL THICKNESS
Tissue Types-
Percentages Red, Yellow or Black

Epithelial Tissue
(Pink)- regenerated epidermal tissue migrating across the wound surface

Granulation Tissue
(Red) grainy beefy red tissue with fresh blood vessels and connective tissue

Slough- (Yellow) – devitalized tissue that is yellow/tan. Can be stringy and fibrinous-debridement needed

Eschar (Black) – devitalized tissue, generally black & leathery. Do not debride if on the heel unless s/s infection
Wound Measurement

**Length** – measure from head to toe at longest place using North to South Axis

**Depth** – wounds with depth should be measured using a cotton tipped applicator

**Width** – measure from arm to arm at longest place using East to West axis

**Tunnel** - A narrow opening or passageway into the base of the wound that can extend in any direction.

**Undermining** – a gap between the edge of the wound and wound base. Undermining has a roof.
## Wound Drainage/Exudate

Note wound odor after wound cleansing

<table>
<thead>
<tr>
<th>Serous – clear to straw colored watery plasma</th>
<th>Sanguineous - bloody</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Serous Wound" /></td>
<td><img src="image" alt="Sanguineous Wound" /></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Serosanguineous - blood combined with plasma</th>
<th>Purulent - thick opaque fluid with white blood cells and bacteria - may be white, yellow, green or tan</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Serosanguineous Wound" /></td>
<td><img src="image" alt="Purulent Wound" /></td>
</tr>
</tbody>
</table>
Wound edge

Rolled edge/ Epibole

Regular shape

Flattened edge

Irregular Shape and edges
**Surrounding Skin Descriptors**

- **Maceration** – softened by excess contact with moisture
- **Cellulitic** – tissue is erythematous and warm to the touch
- **Denuded** – epithelial tissue stripping
Surrounding Skin Descriptors

**Hyperpigmented** – discoloration of the skin that does not blanch. May describe scar tissue.

**Weepy** – skin that is moist, usually with serous fluid.

**Mottled** – blood vessel changes resulting in patchy appearance.

**Indurated** – abnormally firm area.
Surrounding Skin Descriptors

Ecchymotic – discoloration caused by blood seeping into skin usually due to trauma

Callus – thickened skin due to chronic rubbing, pressure/irritation

Scaly – excessively dry skin
Wound Pain Management

- Dressing removal (many patients say this is most painful aspect)
- Wound cleansing
- Inappropriate dressing selection or application
- Desiccation of wound surface/edges
- Imprinting from previous experiences

- Pre-medicate as ordered
- Request order & apply topical anesthetic as ordered
- Soak existing dressings with saline prior to removal
- Apply moist wound care principles and products
- Use diversional tactics as appropriate
- Describe procedures to patient to alleviate anxiety
Wound infection

- **Infection = bacteria dose x virulence host resistance**
- All chronic wounds are contaminated
- Nonviable tissue will harbor bacteria
- Know your patient’s risk for infection - diabetes, immunocompromised, chronic wound location and duration
Signs of Infection - Local

- Wound deterioration – additional breakdown including tunneling and undermining
- Increased drainage
- Purulent exudate
- Abnormal odor
- Heat gradient
- Erythema
- Increased pain
- Edema
- Induration
- Nonhealing wound

**Culture** the cleanest tissue area; nonviable tissue cultures are always positive and do not reflect what is happening at the tissue. Swab cultures yield little reliable information except MDRO’s.
Signs of Infection - Systemic

- Fever
- Elevated WBC count
- Hyperglycemia in diabetics
- Confusion
- Malaise
- Aggregate of local s/s infection

Topical care is not the answer here. Debridement and IVAB likely forthcoming.
What is good hand hygiene?

Wash your hands for at least 20 seconds (or two verses of the “Happy Birthday” song) with soap and water:

- After using the toilet or helping someone use the toilet.
- After touching dirty surfaces and handling soiled laundry.
- After handling items soiled by body fluids.
- Before and after preparing meals/snacks.
- Before eating meals.
- Before and after taking or giving medications.
- After caring for a sick person.
- After touching pets.
- After sneezing, coughing, or blowing your nose.
- Any time hands are visibly dirty.
MRSA and infection control

- Clean hands with an antimicrobial soap or alcohol-based hand rub before and after each patient, even if gloves have been worn.
- Wear gloves when examining infected areas and appropriately dispose of gloves after use.
- Properly dispose of all dressings contaminated with drainage from the infected site.
- Clean surfaces and equipment in the exam or hospital room that may have been contaminated by the patient with a commercial disinfectant or with a 1:100 bleach and water solution.
  - Launder all linens that come into contact with drainage or secretions from the infected site in hot water and dry with a high dryer setting as the heat will help to kill any bacteria still present after the wash.
- Don’t share towels or clothing
- **Keep wound covered with clean, dry bandage**
- **Clean hands after changing bandage**
C.Diff

• How can I prevent spreading C. diff (and other germs) to others at home?
  • Wash your hands often with soap and water, especially after using the bathroom, before preparing food and before eating.
  • For drying your hands, use cloth towels only once, or use disposable towels.
  • Wear disposable gloves if you expect to come into contact with stool, urine and wound drainage. Wash your hands after removing gloves.
  • Frequently clean areas of your home, such as your bathroom, that may become contaminated with C. diff.
  • Change and wash linens on a regular basis, or any time they are soiled.

If you are given a prescription to treat C. diff, take the medicine exactly as prescribed by your doctor and pharmacist. Do not take half-doses or stop before you run out.

ALCOHOL BASED HAND SANTITIZERS ARE INEFFECTIVE
QUESTIONS???

Discuss 4 or more components of a comprehensive skin/wound assessment.

Differentiate 3 or more interventions and associated wound characteristics that support wound healing.
Pressure INJURY

- is localized damage to the skin and/or underlying soft tissue usually over a bony prominence or related to a medical or other device
- can present as intact skin or an open ulcer and may be painful
- occurs as a result of intense and/or prolonged pressure or pressure in combination with shear
- the tolerance of soft tissue for pressure and shear may also be affected by
  - microclimate,
  - nutrition,
  - perfusion,
  - comorbidities and
  - condition of the soft tissue.
Pressure Injury

Stage 1

Stage 2

Stage 3

Stage 4

Unstageable

Deep Tissue Injury
Stage 1 Pressure Injury

- Non-blanchable erythema of intact skin
- Intact skin with a localized area of non-blanchable erythema, which may appear differently in darkly pigmented skin.
- Presence of blanchable erythema or changes in sensation, temperature, or firmness may precede visual changes.
- Color changes do not include purple or maroon discoloration; these may indicate deep tissue pressure injury.
Stage 2 Pressure Injury
Partial-thickness loss of skin

- Partial-thickness loss of skin with exposed dermis.
- The wound bed is viable, pink or red, moist, and may also present as an intact or ruptured serum-filled blister.
- Adipose (fat) is not visible and deeper tissues are not visible
- Granulation tissue, slough and eschar are not present.
- These injuries commonly result from adverse microclimate and shear in the skin over the pelvis and shear in the heel.
- This stage should not be used to describe moisture associated skin damage (MASD) including incontinence associated dermatitis (IAD), intertriginous dermatitis (ITD), medical adhesive related skin injury (MARSI), or traumatic wounds (skin tears, burns, abrasions).
Stage 3 Pressure Injury
Full-thickness skin loss

• Full-thickness loss of skin, in which adipose (fat) is visible in the ulcer and granulation tissue and epibole (rolled wound edges) are often present.

• Slough and/or eschar may be visible.

• The depth of tissue damage varies by anatomical location; areas of significant adiposity can develop deep wounds.

• Undermining and tunneling may occur.

• Fascia, muscle, tendon, ligament, cartilage and/or bone are not exposed. If slough or eschar obscures the extent of tissue loss this is an Unstageable Pressure Injury.
Stage 4 Pressure Injury: Full-thickness skin and tissue loss

- Full-thickness skin and tissue loss with exposed or directly palpable fascia, muscle, tendon, ligament, cartilage or bone in the ulcer.
- Slough and/or eschar may be visible.
- Epibole (rolled edges), undermining and/or tunneling often occur.
- Depth varies by anatomical location. If slough or eschar obscures the extent of tissue loss this is an Unstageable Pressure Injury.
**Unstageable Pressure Injury:**

*Obscured full-thickness skin and tissue loss*

- Full-thickness skin and tissue loss in which the extent of tissue damage within the ulcer cannot be confirmed because it is obscured by slough or eschar.

- If slough or eschar is removed, a Stage 3 or Stage 4 pressure injury will be revealed. Stable eschar (i.e. dry, adherent, intact without erythema or fluctuance) on an ischemic limb or the heel(s) should not be removed.

June 28, 2016
Deep Tissue Pressure Injury:
Persistent non-blanchable deep red, maroon or purple discoloration

- Intact or non-intact skin with localized area of persistent non-blanchable deep red, maroon, purple discoloration or epidermal separation revealing a dark wound bed or blood filled blister.
- Pain and temperature change often precede skin color changes.
- Discoloration may appear differently in darkly pigmented skin.
- This injury results from intense and/or prolonged pressure and shear forces at the bone-muscle interface.
- The wound may evolve rapidly to reveal the actual extent of tissue injury, or may resolve without tissue loss.
- If necrotic tissue, subcutaneous tissue, granulation tissue, fascia, muscle or other underlying structures are visible, this indicates a full thickness pressure injury (Unstageable, Stage 3 or Stage 4).
- Do not use DTPI to describe vascular, traumatic, neuropathic, or dermatologic conditions.

June 28, 2016
Medical Device Related Pressure Injury

- describes the etiology of the injury
- result from the use of devices designed and applied for diagnostic or therapeutic purposes
- the resultant pressure injury generally conforms to the pattern or shape of the device
- the injury should be staged using the staging system.
Mucosal Membrane Pressure Injury

- is found on mucous membranes with a history of a medical device in use at the location of the injury
- due to the anatomy of the tissue these injuries cannot be staged
Not all wounds are pressure injury

WHAT'S THE DIFFERENCE?
Is it a pressure ulcer or moisture associated skin damage?

Moisture-Associated Skin Damage

- From Prolonged Exposure to Urinary and Fecal Incontinence
  - Incontinence-Associated Dermatitis
- From Prolonged Exposure to Perspiration in Skin Folds
  - Intertiginous Dermatitis
- From Prolonged Exposure to Wound Exudate
  - Periwound Moisture-Associated Dermatitis
- From Prolonged Exposure To Effluent from an Ostomy
  - Peristomal Moisture-Associated Dermatitis
Characteristics of moisture associated skin injury

- Called moisture lesion, moisture ulcer, perineal dermatitis, diaper dermatitis, incontinence associated dermatitis
- Diffuse erythema and edema of upper dermal skin surface,
- May include bullae with serous exudate, erosion, or secondary cutaneous infection (Gray et al., 2012)
- Often mistaken as Stage II PU (Top Down vs Bottom Up)
- Enzymes breakdown & destroy intercellular “cement”, disrupting stratum corneum; ↑pH
- Skin damage resulting from excess moisture + chemical composition of the moisture
- Skin protective barrier compromised, allows “enzyme attack”

(Wishin et al., 2008)

- Incontinence
<table>
<thead>
<tr>
<th>Wound type</th>
<th>Location</th>
<th>Depth</th>
<th>Characteristics</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure ulcer</td>
<td>Over bony prominence</td>
<td>Full-thickness* (extension</td>
<td>Undermining and tunneling common</td>
<td>Pressure and/or shear</td>
</tr>
<tr>
<td></td>
<td>Under medical device</td>
<td>to subcu, muscle, bone)</td>
<td>Slough and eschar common</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>May initially present as</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>suspected deep tissue injury</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incontinence-associated</td>
<td>Perineal and perianal areas</td>
<td>Superficial/partial</td>
<td>Maceration of surrounding skin</td>
<td>Stool and/or urine</td>
</tr>
<tr>
<td>dermatitis</td>
<td>Inner thighs</td>
<td>thickness</td>
<td>common</td>
<td></td>
</tr>
</tbody>
</table>

Location, Location, Location

- Buttock
- Gluteal Fold/Cleft
- Inner Thighs
- Posterior Thighs
- Perineal Area
Skin first layer of defense

• **Fecal incontinence**
  - alone can increase risk of moisture associated injury 22x
  - Stool contains enzymes- caustic- if decreased bowel transit time increase skin damage

• **Urinary Incontinence**
  - Contains urea
  - Changes to ammonia

  **Hyper hydration** -> increase in pH of skin (nl pH ~5.5 which creates hostile environment to bacteria/fungal growth) acid mantle - >decrease barrier function
Incontinence skin care

Clean when soiled
Use barriers
Minimize diapering
Use pH balanced skin care products
Incontinence skin care

Toileting strategies
Dietary management - fluids and fiber
Pharmaceutical
Pelvic floor exercises
R/o infections and other physiologic reasons for incontinence
Skin Tears

- Can involve more than the dermis—partial or full thickness
- With or without a flap
- Upper and lower extremities
- Frail elderly with limited ADL ability, gait disturbance
- Prednisone, Coumadin
Lower extremity ulcers

- Venous stasis ulcers
- Arterial ulcers
- Diabetic ulcers
- Neuropathic ulcers

- 15% will develop a diabetic foot ulcer and 50% of these will become infected, representing an estimated 2 million patients
- 60,000 amputations annually
# Quick Assessment of Leg Ulcers

## Location

<table>
<thead>
<tr>
<th>VENOUS INSUFFICIENCY (STASIS)</th>
<th>ARTERIAL INSUFFICIENCY</th>
<th>PERIPHERAL NEUROPATHY (DIABETIC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Malleolus</td>
<td>• Areas exposed to pressure or repetitive trauma, or rubbing of footwear</td>
<td>• Altered pressure points/sites of painless trauma/repetitive stress</td>
</tr>
<tr>
<td>• Medial aspect of leg superior to medial malleolus</td>
<td>• Lateral malleolus</td>
<td>• Dorsal and distal toes</td>
</tr>
<tr>
<td></td>
<td>• Mid tibial</td>
<td>• Heels</td>
</tr>
<tr>
<td></td>
<td>• Phalangeal heads</td>
<td>• Inter-digital</td>
</tr>
<tr>
<td></td>
<td>• Toe tips or web spaces</td>
<td>• Metatarsal heads</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mid-foot (dorsal and plantar)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Toe interphalangeal joints</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>### Wound</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Base: ruddy red; yellow adherent or loose slough; granulation tissue present, undermining</td>
<td>• Base: pale; granulation rarely present; necrosis, eschar, gangrene may be present</td>
<td>• Base: pink/pale; necrotic tissue variable</td>
</tr>
<tr>
<td>or tunneling are uncommon</td>
<td>• Depth: may be deep</td>
<td>• Depth: variable</td>
</tr>
<tr>
<td>• Depth: usually shallow</td>
<td>• Margins: edges rolled, punched out, smooth and undermining</td>
<td>• Edges well defined</td>
</tr>
<tr>
<td>• Margins: irregular</td>
<td>• Exudate: minimal</td>
<td>• Exudate: small to moderate</td>
</tr>
<tr>
<td>• Exudate: moderate to heavy</td>
<td>• Infection: minimal</td>
<td>• Wound shape: usually rounded or oblong and found over bony prominence</td>
</tr>
<tr>
<td>• Infection: less common</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>### Surrounding Skin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Venous dermatitis – erythema, weeping, scaling, crusting</td>
<td>• Pallor on elevation</td>
<td>• Normal skin tones</td>
</tr>
<tr>
<td>• Hemosiderosis – brown staining</td>
<td>• Dependent rubor</td>
<td>• Trophic changes</td>
</tr>
<tr>
<td>• Lipodermatosclerosis; Atrophy Blanche</td>
<td>• Shiny, taq, thin, dry</td>
<td>• Fissuring or callus formation</td>
</tr>
<tr>
<td>• Temperature: normal to warm</td>
<td>• Hair loss over lower extremities</td>
<td>• Edema: with erythema may indicate high pressure</td>
</tr>
<tr>
<td>• Edema: pitting or non, possible induration and cellulitis</td>
<td>• Atrophy of subcutaneous tissue</td>
<td>• Temperature: warm</td>
</tr>
<tr>
<td>• Scarring from previous ulcers, ankle flare, tinea pedis</td>
<td>• Edema: variable; atypical</td>
<td></td>
</tr>
<tr>
<td>• Infection: Induration, cellulitis, inflamed, tender bulla</td>
<td>• Temperature: decreased/cold</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Necrosis, eschar, gangrene may be present</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>![Image of leg ulcer]</td>
<td>![Image of leg ulcer]</td>
<td></td>
</tr>
</tbody>
</table>
Venous

• Improve venous return-compression
• Optimize local wound environment
• Bioburden and exudate management
• Disease management
• Lifestyle changes

6/28/2016
Arterial: Do no harm!!

- Improve perfusion
- Optimize local wound environment
- Reduce or eliminate contributing factors
- Assess for infection
- Disease management
- Vascular care
Diabetic foot ulcers / neuropathic

- Debridement
- Off-loading
- Local wound care
- Patient education
- Disease management and adjunctive therapies
- Podiatric/vascular care
Surgical wounds

- Primary Closure/Intention
- Secondary Closure/Intention
- Delayed Primary Closure/Tertiary Intention

http://mkt.medline.com/clinicalblog/files/2013/12/SSIsstatistics.png
Atypical wounds

Consider a wound atypical if it has not responded to appropriate wound care management in 3-6 months providing systemic support is optimized.

Consider dermatology, infectious disease, tissue biopsy, underlying systemic disease with nonhealing wounds.
In summary: A wound is not “just a wound.”

- Today we’ve reviewed skin anatomy, wound assessment, pressure ulcer prevention, and how to differentiate various types of wounds.
- During our next presentation on June 30, we’ll address dressings and wound treatments, support surfaces, and community resources.
- Now we’d like to hear comments and questions from the audience.
Nursing process continues in WEBINAR 2 next week

- Comprehensive wound assessments allow for management by etiology and wound characteristics
- Drives the plan of care
  - Optimize the host
  - Address modifiable factors
  - Wound bed preparation
  - Product selection
  - Intraprofessional involvement
Select References


- Department of Disabled Adults. Viewed 05/01/2016 from http://dda.dhmh.maryland.gov/Pages/health_and_nursing.aspx


YOUR QUESTIONS & COMMENTS?
Thank You!