SKIN AND WOUND CARE UPDATE March 2016

By

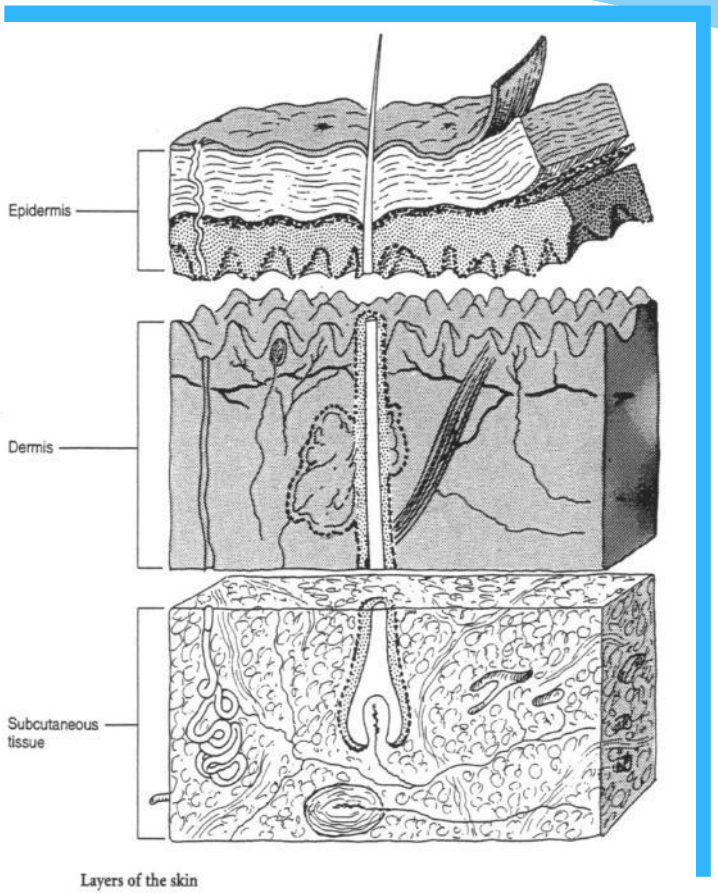
Darcie Peterson, MSN, RN, ANP-BC

CWOCN-AP

Course Objectives

1. Demonstrate basic understanding of anatomy & physiology of skin and its functions
2. Define 6 stages of pressure ulcers as outlined by 2007 NPUAP guidelines
3. Differentiate between pressure ulcers, moisture associated skin damage and other wound types
4. Describe assessment tools available for prevention and monitoring
5. Demonstrate knowledge of pressure ulcer prevention techniques, treatment principles/options, moisture management and wound packing,

Anatomy & Physiology of Skin



Layers of the skin

- Largest organ of body
- Weighs 6-8 lbs.
- 20 sq. ft.
- Thickness varies 1/50 in. over eyelids to 1/3 in. on palms of the hands and soles of the feet
- Special cells harden to form nails and elongate to form hair
- Acid mantle: pH 4.5-5.5
- Lubricated
- Elastic

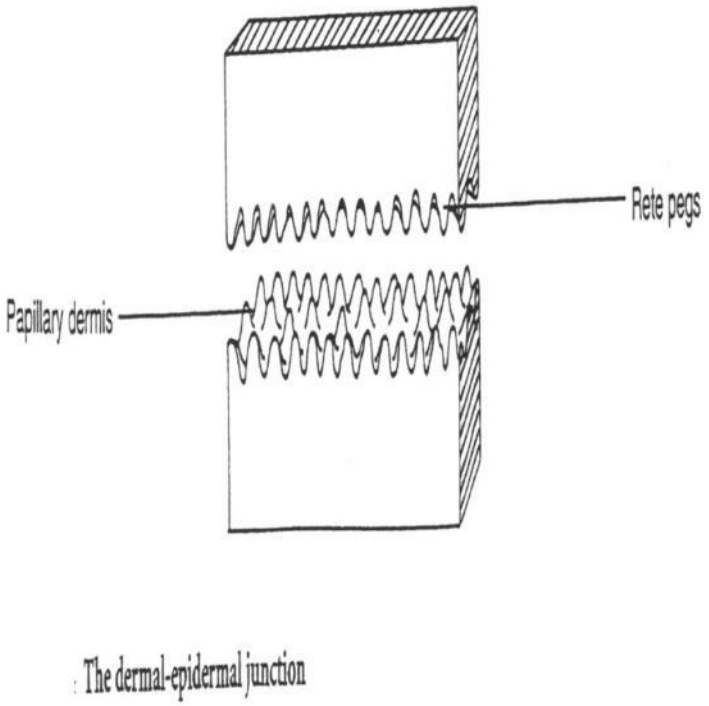
Functions

* Regulates body temperature
* Transmits sensations of touch, pressure and pain
* Prevents loss of body fluids
* Acts as an excretory organ
* Provides an interface between the body and the environment
* Protects the inner tissues from invasion
* Synthesizes vitamin D

Aging of the Skin

* Atrophy & thinning of all layers
* Flattening of rete pegs
* Easily traumatized
* Decrease in elasticity, immune response, sebaceous glands and thermoregulation
* Fewer sweat glands
* Sun exposure is the single most important factor in producing wrinkles.

Dermal-epidermal Junction



The dermal-epidermal junction

* Basement membrane-separates and attaches the epidermis to the dermis
* Epidermis has downward finger like projections called rete ridges or pegs
* Interface with upwards projections of the papillary dermis
* When touching these two layers resemble a waffle iron or velcro
* With aging these projections flatten out and leave older adults susceptible to skin tears

Skin Tears

A traumatic wound caused by friction and/or shearing forces which separate the epidermis from the dermis.

GERIATRIC SKIN TIPS

* Remove adhesive as directed
* Adhesive remover may be beneficial
* Secure skin and keep taut while removing to protect it
* Consider shear and friction forces when repositioning patient


DENNIS THE MENACE By HANK KETCHAM
6-15
©2004 North America Synd.
"I'm wonderin' where Mr. Wilson found skin big enough to fit him."

Microflora of the Skin

* Resident Flora-microbes that normally inhabit the skin
  1. Gram positive- Staphylococcus Epidermis and Coryneform bacteria
  2. Gram negative- E-coli, Proteus and Pseudomonas
* Transient Flora-are acquired through direct contact or are airborne

Examples: Staphylococcus Aureus and Streptococci

Pressure ulcers

Definitions and stages

Pressure ulcer definition and stages

Definition: 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 and/or friction

Staging is a tool for describing depth of tissue damage

The 6 stages effective as of 2007 are:

* Stage I
* Stage II
* Stage III
* Stage IV
* Suspected deep tissue injury (SDTI)
* Unstageable (UST)

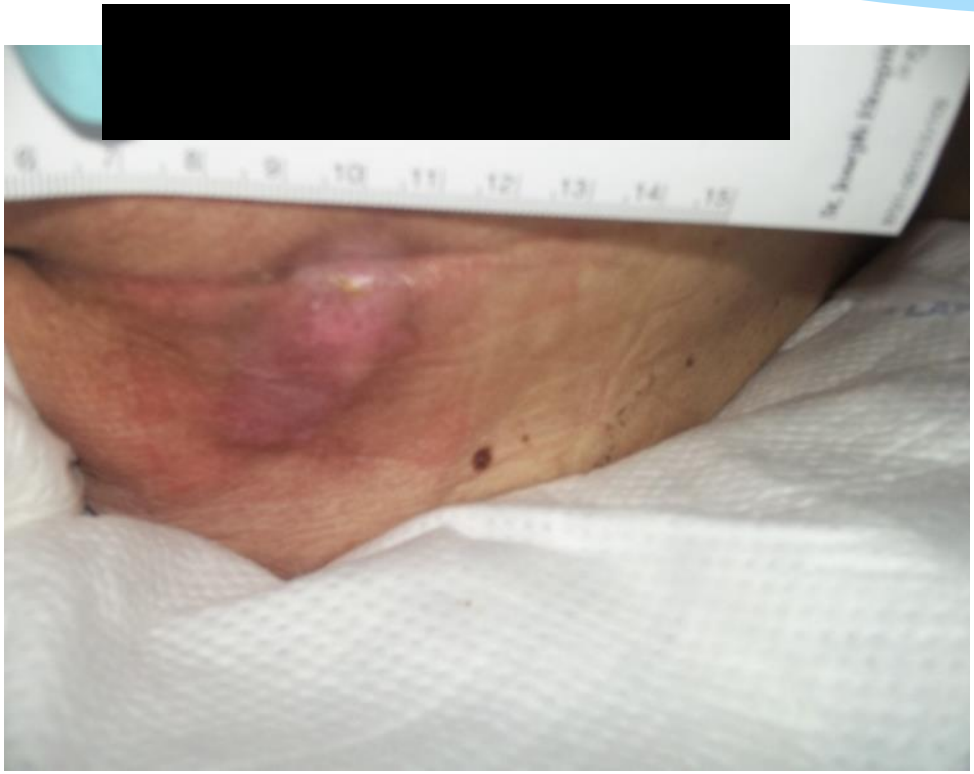
Pressure ulcer Stage I

Definition: intact skin with non-blanchable redness of localized area usually over a bony prominence. Darkly pigmented skin may not have visible blanching; color may differ from surrounding area.

Description:

1. The area may be painful, firm, soft, warmer or cooler as compared to adjacent tissue
2. Stage I may be difficult to detect in individuals with dark skin tones
3. May indicate “at risk” persons (a heralding sign of risk)

Stage I- Sacral/Coccyx

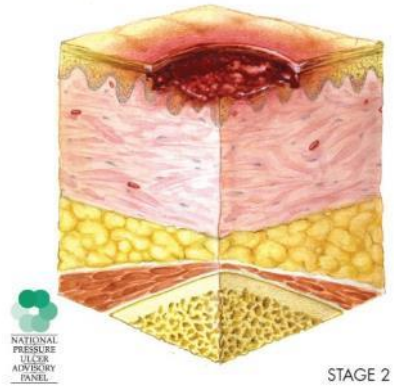


Pressure ulcer Stage II

Definition: Partial thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough. May also present as an intact or open/ruptured serum-filled blister

Description:

1. Presents as a shiny or dry shallow ulcer without slough or bruising
2. This stage should not be used to describe skin tears, tape burns, incontinence associated dermatitis (IAD), maceration or excoriation

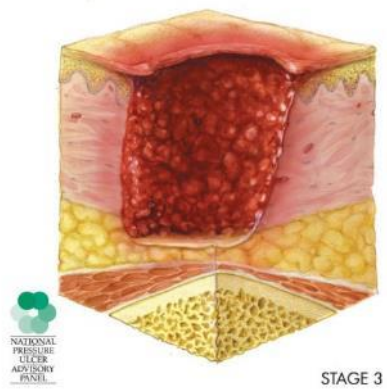


Pressure ulcer Stage III

Definition: Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon, or muscle are not exposed. Slough may be present but does not obscure the depth of tissue loss. May include undermining and tunneling

Description:

1. The depth of a stage III pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have subcutaneous tissue and stage III ulcers can be shallow. In contrast, areas of significant adiposity can develop extremely deep stage III pressure ulcers
2. Bone/tendon is not visible or directly palpable

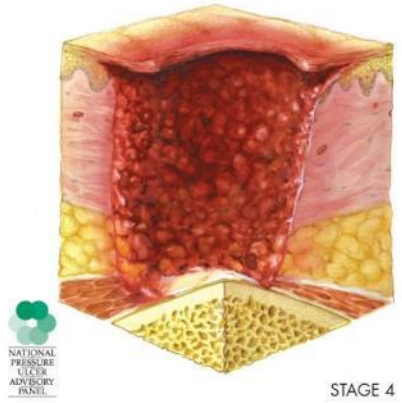


Pressure ulcer Stage IV

Definition: Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present on some parts of the wound bed. Often include undermining and tunneling

Description:

1. The depth of a stage IV pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have subcutaneous tissue and these ulcers can be shallow
2. Stage IV ulcers an extend into muscle and/or supporting structures (e.g., fascia, tendon, or joint capsule) making osteomyelitis possible.
3. Exposed bone/tendon is visible or directly palpable

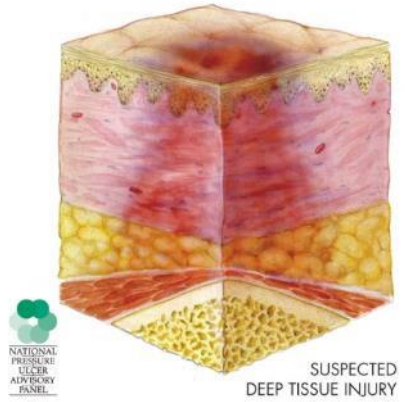


Suspected Deep tissue injury (SDTI)

Definition: Purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear

Description:

1. The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer, or cooler as compared to adjacent tissue.
2. Deep tissue injury may be difficult to detect in individuals with dark skin tones
3. Evolution may include a thin blister over a dark wound bed. The wound may further evolve and become covered by thin eschar.
4. Evolution may be rapid exposing additional layers of tissue even with optimal treatment



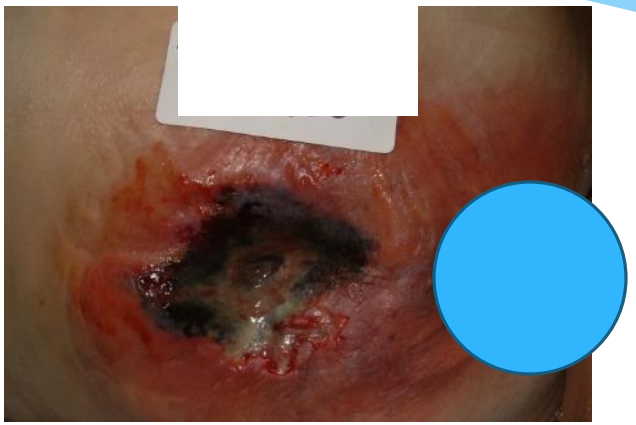
Unstageable (UST)

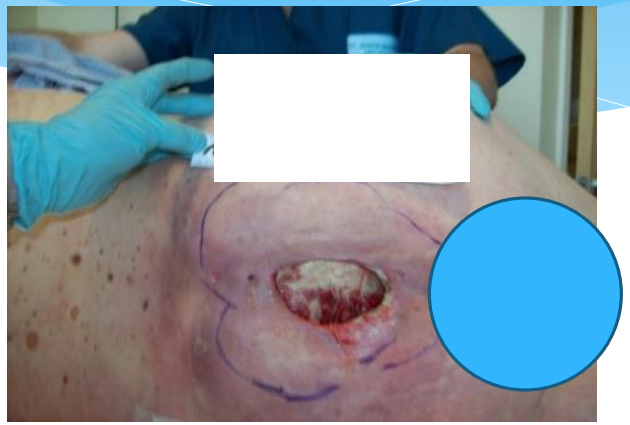
Definition: Full thickness tissue loss in which the base of the ulcer is covered by slough (yellow, tan, gray, green or brown) and/or eschar (tan, brown, or black) in the wound bed.

Description:

1. Until enough slough and/or eschar is removed to expose the base of the wound, the true depth, and therefore stage, cannot be determined
2. Stable (dry, adherent, intact with erythema or fluctuance) eschar on the heels serves as "the body's natural biological) cover" and should not be removed

Unstageable





- Note surrounding erythema which may indicate undermining after debridement
- Note marking indicating undermining

Prevention of Pressure Ulcers

* **Avoid raising the head of the bed more than thirty degrees for extended periods of time.**
* **Most of the pressure should be on the side of the buttock, not the side of the hip.**
* **Place a pillow between the knees and ankles to prevent them from touching.**
* **Try not to “drag” the patient across sheets. Use draw sheet . This causes friction & shear and can damage the top layers of skin.**

Prevention of Pressure Ulcers

* **Manage moisture from incontinence of urine and stool**
* **Proper management of nutritionally compromised patients**
* **If patient not able to ambulate QID then frequent changing of position Q 1-2 hours**
* **Float heels using pillows to suspended off bed surface**
* **Use chair cushion when up in chair**

Prevention tool

* What tools are you familiar with?

SKIN

Surface selection
Keep turning
Incontinence management
Nutrition

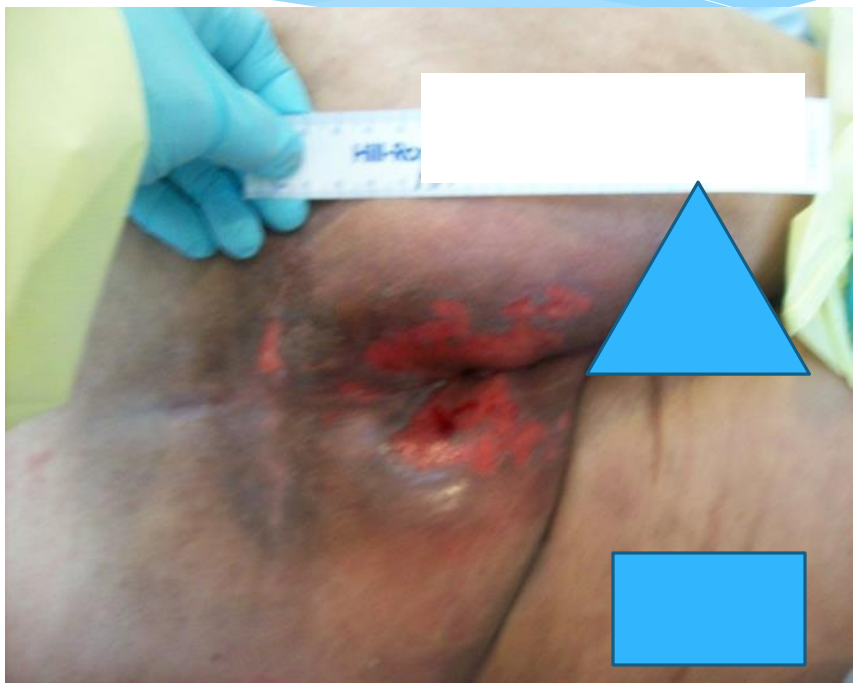
IAD & MASD

Incontinence Associated Dermatitis

Moisture Associated Skin Damage

Incontinence-Associated Dermatitis (IAD)

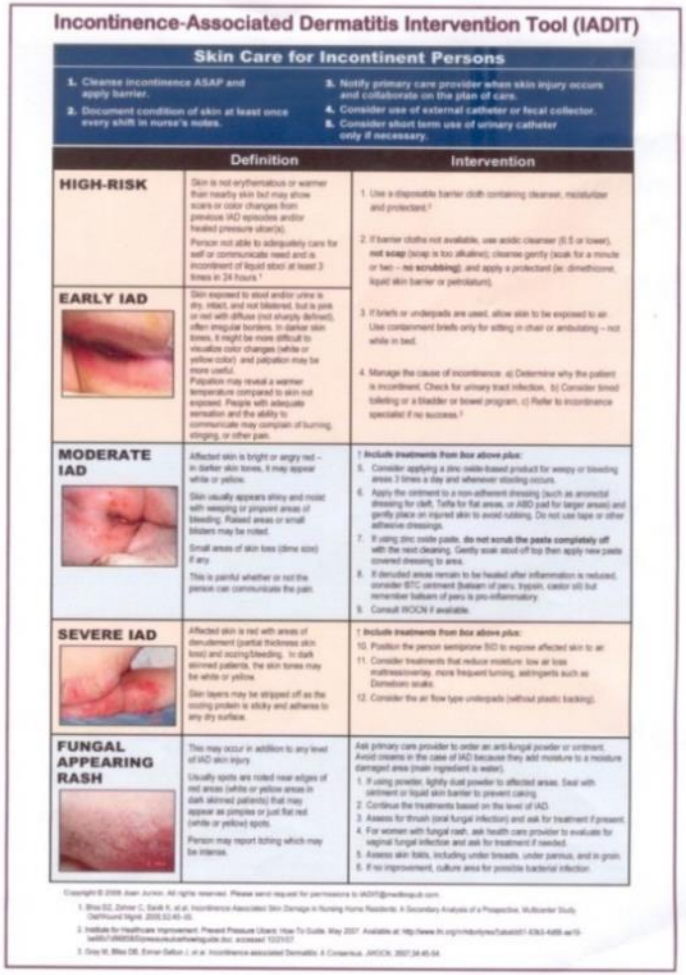
* Not pressure related
* Caused by irritation from stool or urine
* Protect skin
* Formerly known as excoriation



IAD tool

Identification Tips

- Pt is incontinent of stool, urine or both
- Diffuse
- Itchy



Incontinence-Associated Dermatitis Intervention Tool (IADIT)

Skin Care for Incontinent Persons

1. Cleanse incontinence ASAP and apply barrier.
2. Document condition of skin at least once every shift in nurse's notes.
3. Notify primary care provider when skin injury occurs and collaborate on the plan of care.
4. Consider use of external catheter or fecal collector.
5. Consider short term use of urinary catheter only if necessary.

	Definition	Intervention
HIGH-RISK	Skin is not erythematous or warmer than nearby skin but may show scars or color changes from previous IAD episodes and/or healed pressure ulcer(s). Person not able to adequately care for self or communicate need and is incontinent of liquid stool at least 3 times in 24 hours.[1]	1. Use a disposable barrier cloth containing cleanser, moisturizer and protectant.[2] 2. If barrier cloths not available, use acidic cleanser (6.5 or lower), **not soap** (soap is too alkaline); cleanse gently (soak for a minute or two – **no scrubbing**); and apply a protectant (ie: dimethicone, liquid skin barrier or petrolatum). 3. If briefs or underpads are used, allow skin to be exposed to air. Use containment briefs only for sitting in chair or ambulating – not while in bed. 4. Manage the cause of incontinence. a) Determine why the patient is incontinent. Check for urinary tract infection. b) Consider timed toileting or a bladder or bowel program. c) Refer to incontinence specialist if no success.[3]
EARLY IAD	Skin exposed to stool and/or urine is dry, intact, and not blistered, but is pink or red with diffuse (not sharply defined), often irregular borders. In darker skin tones, it might be more difficult to visualize color changes (white or yellow color) and palpation may be more useful. Palpation may reveal a warmer temperature compared to skin not exposed. People with adequate sensation and the ability to communicate may complain of burning, stinging, or other pain.	
MODERATE IAD	Affected skin is bright or angry red – in darker skin tones, it may appear white or yellow. Skin usually appears shiny and moist with weeping or pinpoint areas of bleeding. Raised areas or small blisters may be noted. Small areas of skin loss (dime size) if any. This is painful whether or not the person can communicate the pain.	† **Include treatments from box above plus:** 5. Consider applying a zinc oxide-based product for weepy or bleeding areas 3 times a day and whenever stooling occurs. 6. Apply the ointment to a non-adherent dressing (such as anorectal dressing for cleft, Telfa for flat areas, or ABD pad for larger areas) and gently place on injured skin to avoid rubbing. Do not use tape or other adhesive dressings. 7. If using zinc oxide paste, **do not scrub the paste completely off** with the next cleaning. Gently soak stool off top then apply new paste covered dressing to area. 8. If denuded areas remain to be healed after inflammation is reduced, consider BTC ointment (balsam of peru, trypsin, castor oil) but remember balsam of peru is pro-inflammatory. 9. Consult WOCN if available.
SEVERE IAD	Affected skin is red with areas of denudement (partial thickness skin loss) and oozing/bleeding. In dark skinned patients, the skin tones may be white or yellow. Skin layers may be stripped off as the oozing protein is sticky and adheres to any dry surface.	† **Include treatments from box above plus:** 10. Position the person semiprone BID to expose affected skin to air. 11. Consider treatments that reduce moisture: low air loss mattress/overlay, more frequent turning, astringents such as Domeboro soaks. 12. Consider the air flow type underpads (without plastic backing).
FUNGAL APPEARING RASH	This may occur in addition to any level of IAD skin injury. Usually spots are noted near edges of red areas (white or yellow areas in dark skinned patients) that may appear as pimples or just flat red (white or yellow) spots. Person may report itching which may be intense.	Ask primary care provider to order an anti-fungal powder or ointment. Avoid creams in the case of IAD because they add moisture to a moisture damaged area (main ingredient is water). 1. If using powder, lightly dust powder to affected areas. Seal with ointment or liquid skin barrier to prevent caking. 2. Continue the treatments based on the level of IAD. 3. Assess for thrush (oral fungal infection) and ask for treatment if present. 4. For women with fungal rash, ask health care provider to evaluate for vaginal fungal infection and ask for treatment if needed. 5. Assess skin folds, including under breasts, under pannus, and in groin. 6. If no improvement, culture area for possible bacterial infection.

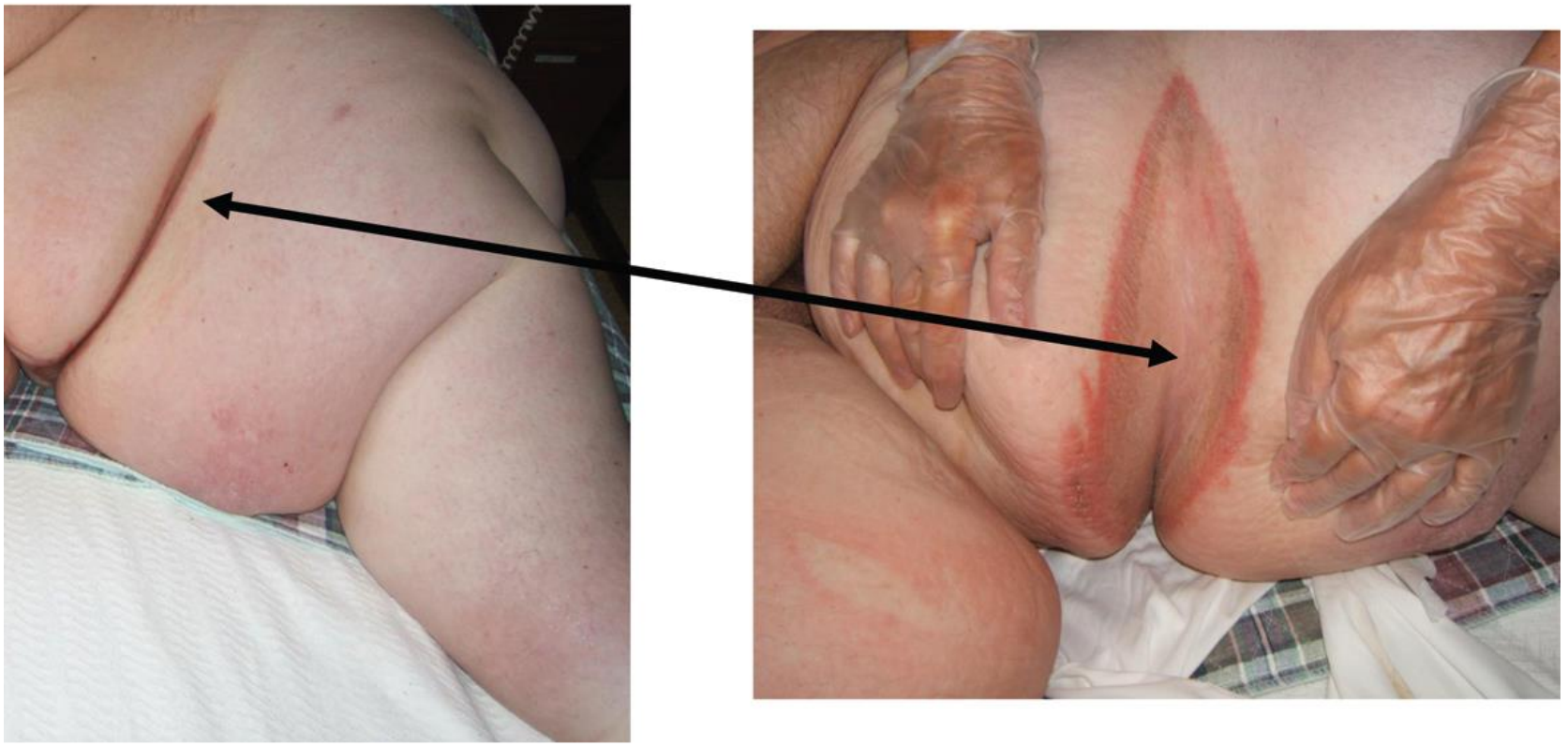
1. Bliss DZ, Zehner C, Savik K, et al. Incontinence Associated Skin Damage in Nursing Home Residents: A Secondary Analysis of a Prospective, Multicenter Study. Ostomy/Wound Mgmt. 2005;51:40–55.
2. Institute for Healthcare Improvement. Prevent Pressure Ulcers: How-To Guide. May 2007. Available at: http://www.ihi.org/IHI/Topics/PatientSafety/SeniorCare/Changes/PreventPressureUlcersHowToGuide.htm. accessed 10/21/07.
3. Gray M, Bliss DB, Ermer-Seltun J, et al. Incontinence-associated Dermatitis: A Consensus. JWOCN. 2007;34:45–54.

Intertrigo/Candidiasis

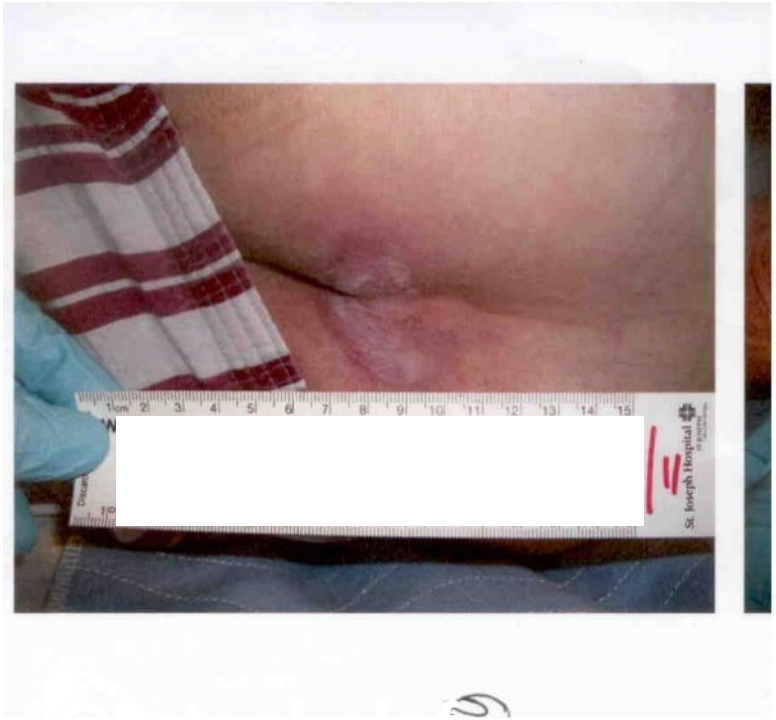
Treat with antifungal or silver impregnated cloth

Check skin folds

Intertrigo



Moisture associated skin damage (MASD) aka Moisture related skin damage (MRSD)



Moisture Damage Reference sheet

Type of MASD	Moisture Source	Brief Description	Examples
Incontinence Associated Dermatitis	Urine Liquid stool	Erythema and inflammation of the skin, sometimes accompanied by erosion or denudation caused by exposure to urine or stool	 
Intertriginous Dermatitis	Perspiration	Erythema and inflammation of the skin inside and adjacent to skin folds, sometimes accompanied by erosion or denudation, caused by exposure to chronic perspiration	
Periwound moisture associated dermatitis	Exudate	Erythema and inflammation of the skin within 4 centimeters of the wound edge, sometimes accompanied by erosion or denudation caused by exposure to wound exudate, infection, and/or traumatic removal from adhesive materials.	 
Peristomal moisture associated dermatitis	Urinary or fecal effluent	Erythema and inflammation of the skin around a stoma, at times accompanied by denudation caused by exposure to stool or urine occluded under the skin barrier of the pouching system	 

Treatment Principles & Options

TIME Principles

* **T**issue Non-viable or deficient
* **I**nfection or Inflammation
* **M**oisture Imbalance
* **E**dge of wound non-advancing or undermining or rolled

Types of Debridement

* Autolytic
* Enzymatic/Chemical
* Mechanical
* Sharp

Enzymatic debriding agents

Agent	Enzyme source	Advantages	Disadvantages	Precautions
Collagenase	Strain of *Clostridium histolyticum*	• Approved by the United States FDA for the debridement of chronic wounds and burns • Selective for collagen • Generally pain-free delivery • May be combined with a variety of other topical dressings	• Effectiveness compared with other forms of debridement may be questionable • Prescription based upon wound area • High cost • Relatively slow-acting	• Moist wound environment required for activation • Topical silver dressings significantly inhibit collagenase activity
Papain	Papaya	• Provides relatively "aggressive" enzymatic debridement • Generally pain-free delivery • May be combined with a variety of other topical dressings	• Not readily available in the United States • Nonselective (ie, will cleave any protein containing cysteine) • Relatively slow-acting	• Agent is often combined with a chlorophyll-complex that causes green wound discoloration following application • Need to avoid adjacent healthy tissues
Bromolain	Pineapple	• Relatively rapid-acting • Selective for non-viable tissue	• Removal from base of wound required after several hours • Inhibits platelet function but is reversible	• Evidence of efficacy is based on acute wounds or burns, not chronic wounds

FDA: Food and Drug Administration.

Data from:

1. *Ramundo J, Gray M. Collagenase for enzymatic debridement: a systematic review. J Wound Ostomy Continence Nurs 2009; 36:S4.*
2. *Kravitz SR, McGuire J, Zinszer K. Management of skin ulcers: understanding the mechanism and selection of enzymatic debriding agents. Adv Skin Wound Care 2008; 21:72.*

Managing moisture balance

Principles of Dressing selection

* The ideal healing environment for wound treatment is moist wound healing
  * Too moist=absorptive dressing
  * Too dry= add moisture

Wound Packing

Wound Packing Tips

- Pack firmly using one piece of roll gauze or packing gauze- depending on wound size
- Use cotton tipped applicator or tongue depressor if needed
- If wound is large enough to have multiple pieces tie together so it is one continuous piece
- Make sure to place date, time and initials on outer dressing

Wound Assessment Tool

* Bates-Jensen wound assessment tool
  * 4 pages long
  * Mostly used in skilled nursing facilities
  * Covers many attributes seen in many wound types

Treatment Plan

* How do we cleanse wound?
* Dressing choice based on treatment goal
* Acute versus chronic wound
* Resources
* Pain

Summary

* Wound Infection-use antimicrobial dressing
* Maceration of wound edges-Protect peri-wound skin- Avoid having moist gauze in contact with skin
* Cavity/Dead space- pack firmly to fill
* Necrotic tissue- Debride
* Rolled wound edges must be treated

Other Wound Types

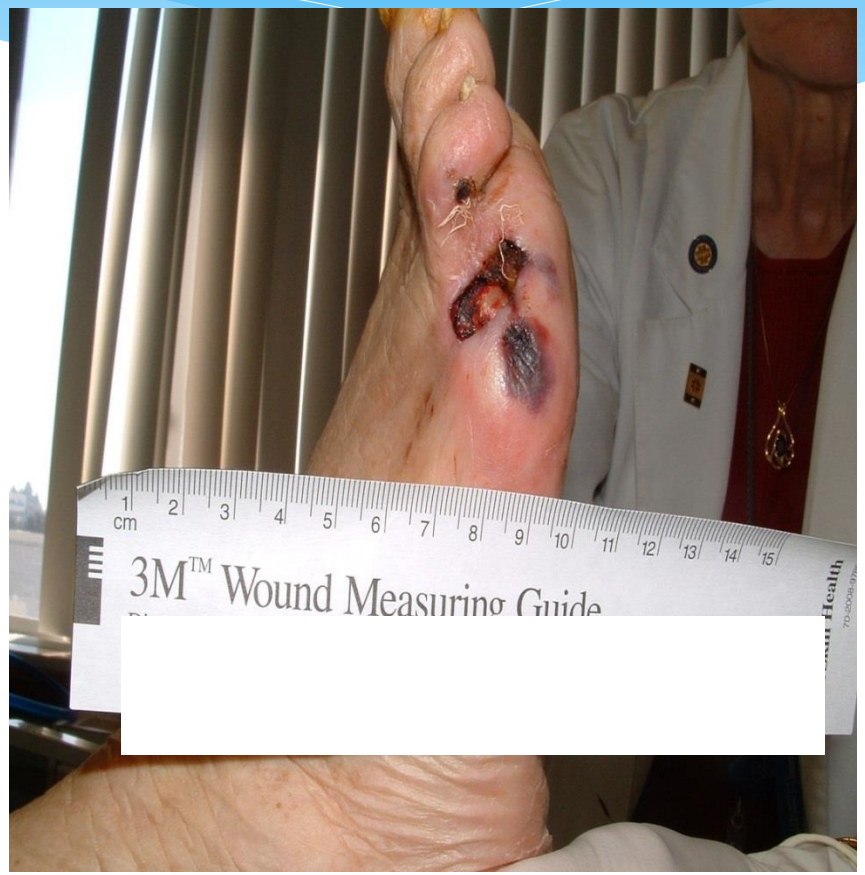
Other Wound Types

* Arterial
* Venous
* Neuropathic/Diabetic
* Skin Tears

Arterial Ulcer

Characteristics

- Absent or diminished pulses
- Pain on elevation
- Taut, shiny skin
- Thickened toenails
- Absence of hair
- Small, dry lesions with well-defined borders (punched out)
- Located distally

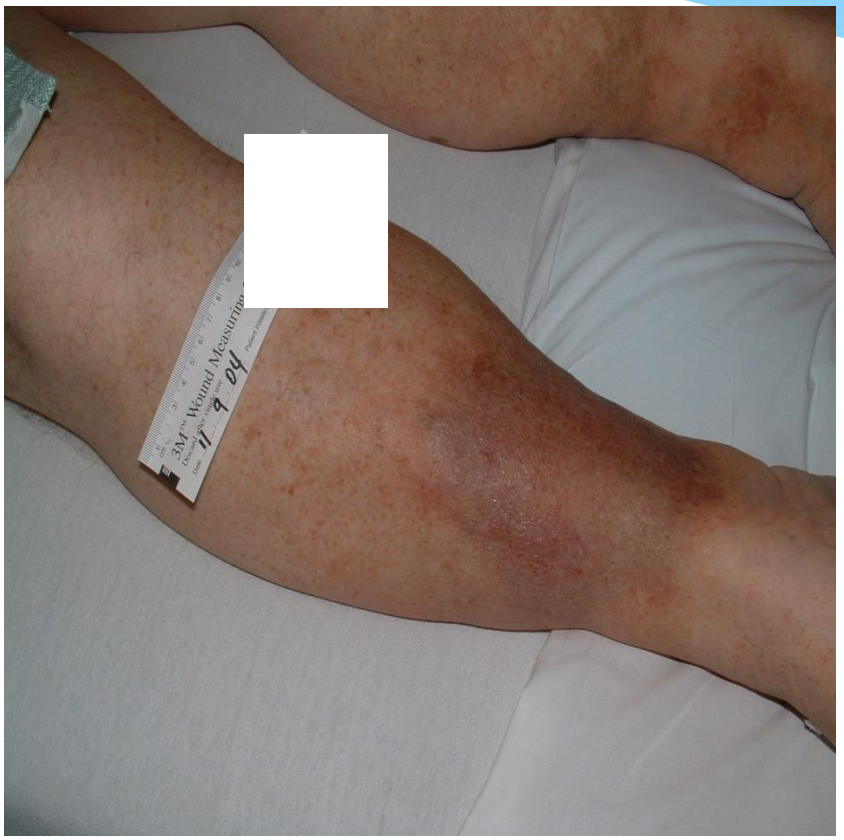


Venous Ulcer

Characteristics

- Leg hyperpigmentation- hemosideron staining
- Gaiter distribution
- Edema
- Weeping lesions
- Irregular wound edges
- Shallow
- Palpable pulses

Characteristics

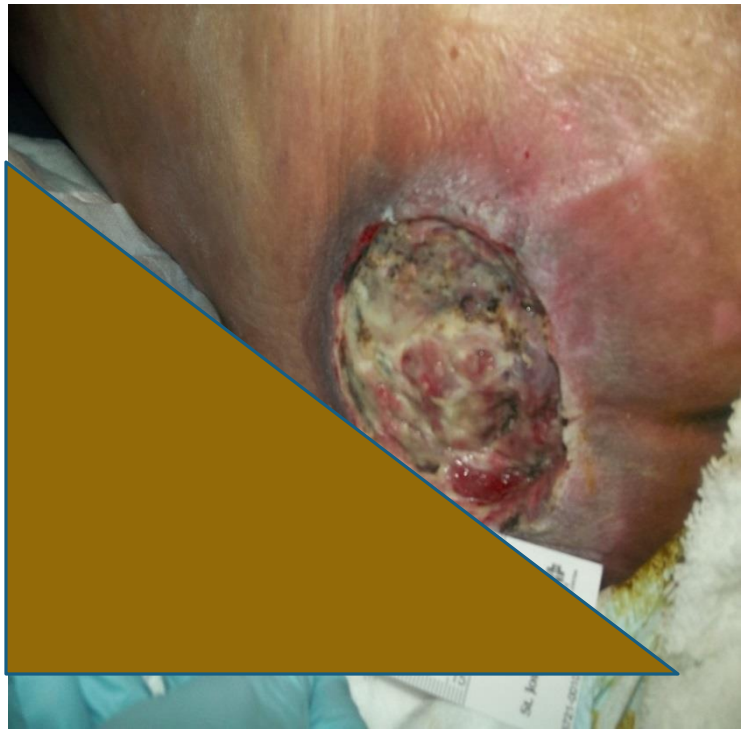


Neuropathic/Diabetic Ulcer

Characteristics

* Below the ankle: often plantar aspect of foot
* Neuropathy: sensory, motor, autonomic
* Secondary to pressure or foreign body
* Wound edges: thick callus
* Wound bed usually appears dry, unless infected

What is Common??



How would treatment differ?

How would you describe?

What is this?

Thank You

Any questions????

References

* Bergstrom, N., Braden, B., Boynton, P. & Bruch, S. (1995). Using a research-based assessment scale in clinical practice. *Nursing Clinics of North America, 30*(3), 539-551.
* Gibbons, W., Shanks, H. T., Kleinhelter, P., & Jones, P. (2006). Eliminating facility-acquired pressure ulcers at Ascension Health. *The Joint Commission Journal on Quality and Patient Safety, 32*(9), 488-496. (5/A)
* National Pressure Ulcer Advisory Panel & European Pressure Ulcer Advisory Panel. (2014). *Pressure ulcer Prevention and treatment: Clinical practice guidelines* (4/A)
* Wound Ostomy Continence Nursing Society. (2010). *Guidelines for Prevention and Management for Pressure Ulcers.*

Lymphedema


asuring
atient Initials/Nu

Squamos Cell Carcinoma