The Medical-Surgical Nurse's Survival Guide to Wound Care and Pressure Ulcers

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Learning Objectives

- Describe the most common pressure ulcers and wounds seen in the medical surgical areas
- Identify interventions to prevent pressure ulcers
- List common treatments and dressings for pressure ulcers
- Describe the legal consequences for pressure ulcer development

Pressure Ulcers (PU)

- “A pressure ulcer is:
  - A 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.” (NPUAP, 2007).
  - (other names: Bedsores deadulitl ulcer, Pressure sore)

History of Pressure Ulcers

- Previous treatment
- 1992 Preventing Pressure Ulcers in Adults
- Prediction tools: Braden Scale
- What has changed?

1992 Pressure Ulcers in Adults Publication

1992 Pilot Sites

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**Why is PU prevention Important?**

- **Cost:**
  - CMS will not reimburse if develop in the hospital (Never event)
  - Cost of care 1 HAPU: $20,900-$151,700
  - Estimated cost of treating PU is $11 billion a year
  - PU is preventable
- **Patient Complications:**
  - 60,000 PU related deaths/yr.
  - Discharge to LTC: 3x higher than all other dx
  - Abscesses, bacteremia, cellulitis, fistulas, osteomyelitis

*(orthonurse.org, Practice Points, Pressure Ulcer 2012)*

**Prevalence and Incidence**

- What is your unit’s pressure ulcer incidence?
- What is your unit’s prevalence of pressure ulcers?

**Knowledge Review**

**STAGE THESE ULCERS**

**What is the largest organ of the body?**

- **Answer:** Skin
- **Functions:**
  - Infection Control: First line of Defense
  - Thermo-regulation/sensation
- **Layers:**
  - Epidermis
  - Dermis – vascular and innervated
  - SQ, muscle, tendon/bone
- **Changes with age**

**Impaired Skin Integrity:**

**Risk Factors for PU**

- Dehydration
- Incontinence
- Increased age
- Medications
- Poor nutrition
- Immobility
- Multiple co-morbidities
- Smoking

*(orthonurse.org, Practice Points, Pressure Ulcer 2012)*

**Causative Factors**

- Pressure
- Shear
- Friction
- Moisture

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Assess the Risk!  
Use a Risk Assessment Tool!

- Braden Scale or Norton Scale
- Braden Scale 6-23
  • Age 8 and up
  • <19 = Risk

<table>
<thead>
<tr>
<th>Safety/Prevention</th>
<th>1 Completely bedridden</th>
<th>2 Very limited</th>
<th>3 Slightly limited</th>
<th>4 No limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture</td>
<td>1 Completely wet</td>
<td>2 Very wet</td>
<td>3 Occasionally wet</td>
<td>4 No impairment</td>
</tr>
<tr>
<td>Activity</td>
<td>1 Bedrest</td>
<td>2 Chair</td>
<td>3 Walks</td>
<td>4 Walks, frequency</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>1 Completely insensitive</td>
<td>2 Very limited</td>
<td>3 Slightly limited</td>
<td>4 No isolation</td>
</tr>
<tr>
<td>Nutrition</td>
<td>1 Very poor</td>
<td>2 Probably inadequate</td>
<td>3 Adequate</td>
<td>4 Excellent</td>
</tr>
</tbody>
</table>
| Friction and shear| 1 Problem             | 2 Potential problem | 3 No apparent problem | 4

Braden Scale

- Scores range from 6-23
  - 15-18 = mild risk
  - 13-14 = moderate risk
  - 10-12 = high risk
  - 6-9 = very high risk
- Pressure - sub-scores effected:
  - mobility, activity and sensory perception
- Tissue tolerance - sub-scores effected:
  - moisture and friction/shear

Skin Assessment

- Assess skin daily for:
  - Temperature
  - Color
  - Texture/Barrier, integrity
  - Moisture status daily
- Do not turn the individual on an area that is still reddened after being turned
  - Redness indicates that the body has not recovered from the previous pressure

- Source: WOCN

Assessment

- Acute care
  - On admission and reassess at least every 24-48 hours
  - ICU pts have been shown to develop pressure ulcers within 72 hours of admission to the ICU, especially heel ulcers
  - “Immobility is the most significant risk factor for pressure ulcer development.” WOCN

Prevention

- Nutritional Support
  - Prevent dehydration
  - Monitor albumin
  - Monitor weight

- Skin Care
  - Mild soaps
  - Under-pads: one at a time
  - Avoid massaging bony prominences
  - Teach patients about pressure ulcer prevention

- Moisturize skin
  - Use skin emollients to hydrate dry skin
  - Reduces risk of skin damage
- Protect the skin from excessive moisture
  - Barrier product in order to reduce the risk of pressure damage

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Moisture
Constantly moist, moist or occasionally moist on Braden Scale

"Moisture from incontinence can contribute to pressure ulcer development by macerating the skin and increasing friction injuries."

Linens
- Minimize linen under buttocks.
  - Use of multiple layers of underpads and linens may decrease the pressure reducing capacity of the foam or air mattress.

Diapers
- Diaper Use:
  - Not recommended
  - Increases risk for IAD (Incontinence Associated Dermatitis)
  - Heat plus occlusion of moisture makes the skin more at risk for breakdown
  - Avoid with incontinent liquid stool
  - Holds the enzymes against the skin
  - Avoid with cutaneous fungal infection
  - Grows in warmth & moisture.
- Limit use to incontinent patients while ambulating

Fecal Incontinence
If incontinent of liquid stool consider:
- Moisture barrier with zinc, or
- External fecal incontinence collector or Consider Internal bowel management system (rectal tube)

Clean AND PROTECT Skin
Use moisture barrier after every incontinent episode

Preventative Dressings
- Apply sacral dressing for PREVENTION
- Apply if patient has:
  - Recent cardiac arrest
  - Vasopressor
  - Medications for 48 hrs
  - SHOCK (septic, hypovolemic, cardiogenic)
  - Anticipated operative procedure lasting more than 4 hours

Prevention
- Equipment
  - Heel floats
  - Cushions
  - Weight shifting
  - HOB
  - Pressure reducing surfaces- chair and bed
Blood flow to skin is blocked where skin is pressed against transparent surface.

Activity: Chair
• Change position in the chair
• Lower head and raise feet and reposition
  – QIH
  – Allows blood to flow to sacrum
• Use 4” foam wheelchair cushion or Waffle chair cushion to redistribute weight in the chair

Activity: Bed
• Turn Q2-4 hours
  – Includes pts who are on special mattresses.
• Turn 30 degrees
  – Avoids positioning on trochanter or sacrum.
  – Even unstable pts can usually tolerate a small shift of 15 degrees.
• Do Not use rolled up blankets to position pt.
  – Causes more pressure to the skin than the mattress or pillow.
• Bedside report
  – Ask when the pt was last turned.

Turning
From: UIHHSS Competency 2011

Friction & Shear
• Avoid elevating head of bed more than 30 degrees
  • Unless required for respiratory reasons.
• Use lift sheet and other devices to avoid dragging the skin.
• Do not use blankets under pts as pull sheets
  • Too rough on the skin.
• Pulling vigorously on the buttocks during turning may cause Gluteal Cleft Skin Damage. Moisture and shear contribute.

Effects of shearing forces
On buttocks when pt is pulled laterally (unless) On upper back when head of bed is elevated

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**Prevent Heel Ulcers**

- If pt cannot reposition lower extremeties:
  - Place pillow under legs from mid-calf to ankle to keep heels off bed.
  - The pillow should raise the heels just enough so a piece of paper can be passed between the heels and the bed.
  - Separate knees and ankles with pillow.
  - Use pressure reducing boots.

**Wound Management Goals**

- Eliminate the Cause
- Infection control/prevention
- Remove dead tissue tissue
- **Moisture** absorb/donate
- Eliminate dead space
- Control odor
- Protect wound/peri-wound skin
- Eliminate/minimize pain

**Summary**: clean, moisture, protect

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**Decision: Which wound Product?**

- Hydrogels
- Foam dressings
- Hydrocolloid
- Negative Pressure Therapy

**Decision Tree for Wound Product**

- Compatible with the wound
- Ease of use
- Cost effective
- Will stay in place
- Provides the environment for healing

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**Pressure Ulcers: Stage I**

- **Intact** skin
- **Non-blanchable** redness over a bony prominence.
- Darkly pigmented skin may not have visible blanching (surrounding area may have different color)
- The area may be painful, firm, soft, warmer or cooler as compared to adjacent tissue.
- May indicate “at risk persons”

**Stage I Non-blanchable erythema**

Intact skin: Partial Thickness

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Stage 1 Treatment

- Cleansers: Use for intact skin
- Dressing: OTA unless friction and shear
  - Film dressing to areas at risk for friction and shear
  - Hydrocolloid to areas at risk for friction and shear i.e. Medical device
  - Diaper rash cream/moisture barrier
- Pressure Relief: remove source of pressure
  - Consider low air loss bed for low Braden sub-scores of activity and mobility
  - Consider for patient with comorbid conditions

Stage 2 Treatment

- Cleansers: saline (avoid products for non-intact skin)
- Dressing Type: promote wound healing
  - Hydrogels, Hydrocolloids
- Pressure Relief: alternating mattress depending on the mobility and activity sub scores of Braden

Pressure Ulcers: Stage 2 Partial thickness: loss of dermis

- Presents as a shallow open ulcer with a red pink wound bed, **without slough**.
- May also present as an intact or open/ruptured serum-filled or serosanguinous filled blister.
- Shiny or dry shallow ulcer without slough or bruising*
- This category should not be used to describe skin tears, tape burns, incontinence associated dermatitis, maceration or excoriation.
*Brusing indicated suspected deep tissue injury

Pressure Ulcers: Stage 3 Full thickness skin loss

- Full thickness tissue loss.
- Subcutaneous fat may be visible
- Bone, tendon or muscle are not exposed. Not visible or directly palpable.
- Slough may be present but does not obscure the depth of tissue loss.
- May include undermining and tunneling.
- Depth varies by anatomical location.
  - The bridge of the nose, ear, eyelid and nasolabial fold do not have adipose subcutaneous tissue and category/stage III pressure ulcers are possible.
  - In contrast, areas of significant adiposity can develop extremely deep category/stage III pressure ulcers.

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Stage 4

- Full thickness tissue loss with exposed bone, tendon or muscle visible or directly palpable.
- Slough or eschar may be present.
- Often includes undermining and tunneling.
- The depth of a Category/Stage IV pressure ulcer varies by anatomical location.
- Category/Stage IV ulcers can extend into muscle and/or supporting structures (e.g., fascia, tendon or joint capsule) making osteomyelitis or osteitis likely to occur.

Stage IV: Full thickness wound, through SubQ with exposed bone/tendon

Stage 3 & 4 Treatment

- Cleansers: Cleanse with NS
- Dressing: Dressing for management of exudate
  - Alginate for moderate to heavy exudate
  - Foam for minimal to moderate exudate
  - Hydrogel for dry necrotic wounds
- Pressure Relief: alternating mattress based on mobility and activity sub-scores
- Stage 4: debride is necessary

Unstageable

- Full thickness tissue loss in which actual depth is unknown
  - Wound bed is obscured by slough (yellow, tan, gray, green or brown) and/or eschar (tan, brown or black)
- True depth cannot be determined until enough slough and/or eschar are removed to expose the base of the wound
- Stable Eschar: dry, adherent, intact without erythema or fluctuance (on the heels serves as “the body's natural (biological) cover” and should not be removed)

Treatment for Unstageable

- Cleanse: with NS
- Dressing type: for exudate level
  - Debridement: sharp is fastest and necessary if infected to prevent sepsis
  - Enzymatic: use of enzymes to eat away dead tissue, slow and costly
  - Autolytic: bodies own antibodies to break down dead tissue
- Pressure relief

Unstageable: True depth is unknown/obscured by slough/eschar

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Suspected Deep Tissue Injury (DTI)

- Purple or maroon localized area of discolored intact skin or blood-filled blister
- The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue.
- Difficult to detect in individuals with dark skin tones.
- Evolution may include a thin blister over a dark wound bed. The wound may further evolve and become covered by thin eschar.
- Evolution may be rapid exposing additional layers of tissue even with optimal treatment.

Suspected Deep Tissue Injury Treatment

- Cleansers: clean with NS
- Dressing: appropriate for protection
  - Moisture barrier to protect from moisture and shear
  - Paint area with dying agent such as Betadine to keep area desiccated
- Pressure Relief: Conversion mattress pending sub-scores of activity and mobility

DTI: Full thickness skin or tissue loss – Ecchymotic appearance
Depth unknown

Moisture Associated Dermatitis (MAD)

- Moisture/Incontinence creates Inflammation which:
  - Increases permeability
  - Decreases friction resistance
  - Decreases tissue tolerance
- Fecal Incontinence:
  - 22x more likely to develop PU

Incontinence Associated Dermatitis (IAD) or Moisture Associated Dermatitis (MAD)

- “Moisture from incontinence can contribute to pressure ulcer development by macerating the skin and increasing friction injuries.”
- Fowler, et al, 1996

Kennedy Terminal Ulcer

- Terminally ill patients
- Unavoidable skin breakdown with dying process
- On sacrum
- May be pear, butterfly or horseshoe shaped
- Usually seen in ICU or hospice
- Rapidly develops
Types of wounds

- Traumatic
- Surgical
- Arterial
- Venous
- Pressure
- Diabetic Neuropathic

Wound measurements
Based on Organization’s Guidelines

- One option
  - Longest length head-to-toe regardless of orientation
  - Longest width, side-to-side, perpendicular (90°) to length
  - Most accurate with least overestimation
- Another option Clock Method
  - Length: Measurement taken at 12:00-6:00
  - Width: Measurement taken at 3:00-9:00 orientation
  - (Langemo et al., 2008; NPUAP-EPUAP, 2009)

Assess & treat infection

- “Ischemic tissue is more susceptible for development of infection: Pressure ulcers in poorly perfused areas are at greater risk for becoming infected.” WOCN
- “Prior to the classic signs of infection, pressure ulcers that are colonized or infected may exhibit subtle signs of infection such as:
  - new or increased pain
  - delayed healing
  - poor or friable granulation tissue discoloration of wound bed tissue
  - change in odor, increased serous exudate
  - induration, pocketing, or bridging before the classic signs of infection appear.” WOCN

Antifungal Treatment

Treat the fungal infection
Wound VAC

- Recommended settings
  - Legs 75 mm Hg
  - Trunk 100 mm Hg
  - Continuous for the first 24 hours then possibly intermittent
  - 2 hours maximum off suction

- Remove and apply NS gauze prior to discharge and if off suction for more than 2 hours unless pt has a skin graft under the VAC.

Is the Wound Healing Correctly?

- Pressure ulcer assessment:
  - Location, tissue type (epithelialization, granulation, hypergranulatuion, slough/eschar), shape, size, sinus tracts/tunnels, undermining, exudate amount and type, wound edges and stage
  - Condition of periwound skin within 4cm from edge of wound

- Wounds should show evidence of healing:
  - Partial-thickness ulcers within 1-2 weeks.
  - Full thickness ulcers within 2-4 weeks.

- Goals to heal or palliation
  - manage pain
  - minimize odor
  - simplify dressing changes

Source: WOCN

Legal Issues

- Implement a prevention plan when individuals have been identified as being “at risk” of developing pressure ulcers."

- “Failing to provide appropriate prevention strategies...is a failure in the duty of care...and can be deemed as negligence...”

Review

- Identify these Wounds and treatment

Resources

- NDNQI pressure ulcer tutorial (free)
- NPUAP: printout, webinars, free and for purchase.

- Both are excellent resources

Thank YOU!

For any questions contact: jaw591987@gmail.com

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