Wound Assessment and Treatment

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Disclosure Information

• I have no conflict of interest to disclose
Objectives: The learner will be able to

1. identify strategies used for assessing wounds

2. identify concepts used for treatment of chronic wounds

3. name at least 3 products used to promote healing in chronic wounds
Wound Assessment Strategies
Overall assessment
- Reasons for admission
- Review co-morbidities / systemic factors affecting wound healing
- Nutritional status
- Social Determinants of health
Patient History

- Reason for Admission
- Disease processes
- Medications
- Nutritional Status
- Vascular studies - ABI
- Body habitus
- Previous wound history

- Therapies received
- Radiation
- Functional support
- Discharge home?
Physical Exam

- Head to toe skin assessment
  - Rashes
  - Pressure points
  - Scars
  - Edema, capillary refill, hemosiderin staining
  - Callus formation in DM
  - BMI
Causes of wound:

- Surgical
- Traumatic
- Neuropathic
- Vascular
- Mixed
- Pressure related
- Fungating
Wound Assessment

- Location
- Age of wound
- Size and Shape
- Tunnelling, undermining, fistulas
- Exudate color, amount, consistency
- Surrounding skin discolored, edema, erythema
- Wound edges: attached or rolled
Wound assessment cont’d

• Maceration of edges
• Erythema, epithelialization, eschar
• Necrotic tissue: yellow, black or brown %
• Odor of wound
• Wound bed: granulation tissue
• Tenderness to touch, temperature, tautness
Measurement

- Linear measurements of greatest length 12 o'clock to 6 o'clock or nearest
- Width perpendicular
- Depth, undermining, tunnels
TIME Framework
T is for Tissue

- Description: wound bed
- Color: Pink, yellow, grey, brown, green
- Thickened?
- Normal for this anatomical site?
I- is for infection or Inflammation

Differentiate infection from normal granulation tissue

Odor: mostly pseudomonas smells like ammonia

Do not culture: The only way to know is to take a deep tissue sample or

Gold standard for r/o osteomyelitis is bone biopsy
Infection and inflammation
• For those wounds that fall between the cracks
• For those wounds that are way too wet
• In wounds the treatment rule is:
  • If it is too wet, dry it- and if it is too dry, wet it
Really? Wound Vac?
Challenges with New anatomy
Managing moisture
E- Edges


• Wounds heal from the edges

• If a signal goes to the wound saying edges are healed- wound will be stalled

• The treatment involves debridement
Bonus photo: edges & moisture
Goals for Product choice

• Regular assessment entire patient- engage pt
• TIME assessment of wound
• Keep wound bed clean and moist
• Keep surrounding skin clean and dry
• Few dressing changes as will allow- (no wet-dry)
• Decrease pain and edema
• Change plan of care every 2 weeks if stalled
• Keep it simple
Concepts to Promoting healing

- Important Aspects of Wound Healing or goals of care
  - Wound cleansing/ odor control
  - Wound debridement strategies
  - Treatment of infection/ bioburden
  - Maintaining moisture balance for epithelialization
  - Management of wound pain
Cleanse before application
Wet wounds - exuding+++  

- Apply NPWT if draining more than 100 cc a day  
- Use super absorbent dressings  
  - If deep wound-fill wound with hydrofiber or calcium alginate  
    - Aquacel ag, Melgisorb, or Mesalt  
- Use peri-wound protection - No sting barriers  
- Cavilon,
Indications

- Dehiscence of wounds
- Necrotizing fasciitis (wound/defects following surgery)
- Pressure ulcers: stage III and IV
- Failed flaps
- Split thickness skin grafts (before/after graft is applied)
- Chronic wounds: diabetic, arterial, venous, and radiation
Application of NPWT

https://youtu.be/ucHAM_ZElzs
Contraindications

- Necrotic tissue with eschar present in greater than 20% of wound (debridement is required before application of NPWT)
- Malignancy in wound
- Untreated osteomyelitis
- Non-enteric, unexplored, and non-visible fistula
- When wound bed is not visible (those like deep cavity or tunneling wounds)
- Exposed bowels, organs, bones, nerves, ligaments, tendons, and anastomotic sites (unless ordered by a MD with use of contact layer product like Adaptic, Mepitel One and/or Versaform.
- Directly over an artery
- Sensitivity to silver (V.A.C. granufoam silver dressing only), acrylic adhesives
**Product Category:** IONIC SILVER HYDROFIBER DRESSING

**Primary Product Name:** Aquacel Ag

**Primary Manufacturer:** ConvaTec

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Primary Function</th>
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<tr>
<td>• Ionic silver bonded to a hydrofiber</td>
<td>• Topical broad spectrum antimicrobial for heavy bacterial contamination of wound</td>
</tr>
<tr>
<td>• Reduces the microbial burden at the wound surface</td>
<td>• Often used in combination with systemic antibiotic therapy</td>
</tr>
<tr>
<td>• Silver dressings are active only in a moist environment</td>
<td></td>
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<td>• Turns into a grey gel within the wound</td>
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<th>Indications for Use</th>
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<td>• Stalled wound healing or wound deterioration where microbial overgrowth is suspected</td>
<td>• Silver allergy or hx of reaction to silver</td>
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<td>• Venous Stasis Ulcers</td>
<td>• Do not use during MRI</td>
</tr>
<tr>
<td>• Diabetic/Neuropathic Ulcers</td>
<td>• Do not place in radiation field during treatment</td>
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<tr>
<td>• Surgical/ Trauma wounds</td>
<td>• May cause stinging</td>
</tr>
<tr>
<td>• Burns/ Grafts/ Donor Sites</td>
<td>• May cause transient discoloration of skin if dressing too dry</td>
</tr>
<tr>
<td>• Pressure Ulcers</td>
<td>• Not compatible with oil based or petroleum, or zinc products</td>
</tr>
<tr>
<td>• Deep cavity wounds</td>
<td>• Not compatible with enzymatic debriding agents</td>
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- Not compatible with Dakin’s Solution or Ascetic Acid
- Not compatible with other topical antimicrobials
**Product Category:** Calcium Alginate Dressing  
**Primary Product Name:** Melgisorb  
**Primary Manufacturer:** Molnlycke

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| Absorbent calcium alginate dressing, soft alginate fibers formed into a non-woven material | Highly absorbent  
Does not adhere to moist wound site  
Maintains moist environment  
Reduces the risk of maceration  
Minimizes trauma and pain |

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| Pressure sores  
Venous and arterial ulcers  
Diabetic ulcers  
Donor sites  
Post-operative wounds  
Dermal lesions and other trauma wounds | Known sensitivity to product  
Not indicated for dry wounds or surgical implantations |

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<th>Use/ Clinical Features</th>
<th>Utilization/ Frequency of Use</th>
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| Use to absorb wound drainage and minimize risk of maceration to surrounding skin  
Use as primary dressing  
Minimize pain and trauma | Change rate is every 1-3 days  
Use as primary dressing on draining wounds |
**Product Category:**
Hypertonic Saline Dressing, Dry

**Primary Product Name:**
Mesalt

**Primary Manufacturer:**
Molnlycke

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<td>Crystalline hypertonic sodium chloride impregnated non-woven gauze dressing.</td>
<td>Debride yellow slough</td>
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<td>Fill open wound space</td>
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<tr>
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<td>Decrease hypergranulation tissue</td>
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**Indications for Use**
- Venous Stasis Ulcers
- Pressure Ulcers
- Surgical Wounds
- Dermal Wounds
- Trauma Wounds
- Wounds with heavy yellow slough

**Contraindications**
- Do not use on wounds presenting only healthy granulation tissue.
- Do not use on dry eschar
- Inability to tolerate potential stinging.

**Use/Clinical Features**
- Excellent debriding agent.
- Requires secondary absorbent dressing (e.g. ABD pads).
- May irritate peri-wound skin: apply moisture barrier around wound.

**Utilization/Frequency of Use**
- Apply dry dressing to wound, or pack with dressing
- Apply secondary dressing.
- Change daily or more often if there is strike-thru of cover dressing
### Product Description
- Polymeric non-alcohol containing solution.
- Forms a protective film when applied.
- Colorless, transparent, rapidly drying.
- Use adhesive remover to remove product if necessary.

### Primary Function
- Protect skin from moisture and friction.

### Indications for Use
- Incontinence
- Protects damaged skin from urine, feces, wound drainage, adhesives and friction.
- Use under adhesives (facilitates adhesive removal without harm to skin).
- Seal in ostomy powder on irritated peristomal skin.

### Contraindications
- Infected skin
- Not to be used with other ointments, lotions, creams.
- Flammable - use in well-ventilated space and away from flames.
- Not for use as the only covering in situations requiring protection from bacterial contamination (e.g., IV therapy catheters).
- May cause stinging for some people.
Dry wounds

- Need debridement
- Autolytic - cover with a hydrocolloid, honey, etc
- Surgical - may not be suitable
- Enzymatic - Santyl
- May wet and add bio (maggots)
Honey Dressing

- Promotes autolysis of wounds and the removal of slough and dead tissue
- Creates a moist, healing environment in which new cells can flourish
- Neutralizing malodor (within 12 to 24 hours)
- Special order dressing from unit manager
Too Dry
Diabetic Ulcers

Definition
Wounds usually located on plantar surface of foot, metatarsal heads or under heel. Result of interacting processes, neuropathy, and micro/macro vessel disease:

- granular wound base
- deep wound bed
- hyperkeratotic rim
- low to moderate exudates
- diminished or absent sensation in foot
- well-defined edges
- foot deformities

Assessments

- Patient needs ankle brachial index (ABI) and toe brachial index (TBI) done if not done in past 6-12 months (ABIs may be falsely elevated in these patients).
- Assess for sensation and malformation to foot.
- Assess pulses.

Appearance

Interventions

1. Must modify compression level if ABI < 0.8.
2. No static compression if ABI < 0.5.
3. Reduction of pressure and shearing force to foot. Non weight bearing.
4. Orthotics (crutches, wheelchair, splints, special shoes, etc).
5. Debridement of necrotic and infected tissue necessary for healing.
6. Moist wound bed.
7. Tight glucose control.
8. Good foot care.

UC Davis Formulary Products For This Wound

Click on the product to find more information

- Aquacel Ag
- Mepilex

If wound bed is covered with necrotic tissue, use the following products

- MelaSalt
- Medihoney

Publications

- A Guide to diabetic foot ulcers
Partial Thickness Wounds

Definition

- Destruction of epidermis and part of the dermis
- Loss of superficial dermal layers not through the dermis
- Examples: Skin tear, Stage II Pressure Ulcer

Appearance

![Image of partial thickness wound]

Interventions

1. Request a physician’s order for Wound Care Nurse Consult.
2. The Primary dressing for partial thickness wound is MepitlOne
3. May apply silicone dressings or No-Sting Barrier film only.
4. Check wound site each shift.

UC Davis Formulary Products For This Wound

Click on the product for more information

- Cavilon No Sting Skin Barrier Film
- MepitlONE
Venous Wounds

Definition

Wounds usually located over the medial malleolus (gaiter area) as a result of prolonged venous hypertension:

- Undefined/irregular wound edges
- Red/ruddy wound base
- Presence of yellow fibrin
- Moderate to heavy exudates
- Hemosiderin deposits (brown discoloration)

Assessments

- Patient needs ankle brachial index (ABI) done if not done in past 6-12 months.
- Assess for DVT or DVT history
- Assess pulses and for edema

Appearance

![Venous wound](image1)

Interventions

1. Must modify compression level if ABI < 0.8.
2. No static compression if ABI < 0.5.
3. Compression, including Unna boots (for ambulatory patients only), compression stockings and pneumatic compression devices.
4. Elevation of involved extremity
5. Avoid prolonged sitting or standing.
6. Moist wound bed
7. Good foot care

UC Davis Formulary Products For This Wound

- Aquacel Ag
- Mepilex
Questions?

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