



# Wound Management in the Elderly

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# Skin Condition

- **Key quality indicator**
  - To the family
  - To the regulators
  - To other healthcare providers



# Cost of Skin Breakdown

- To the facility
- To the healthcare system
- To the patient



# Documentation

## Absolutely important

- Assessment
- Reassessment
- Follow-up care
- Aspects of care that can't be changed
- Supportive measures – nutrition, consults, rehab
- Physician communication



# Alterations in Skin Integrity among Geriatric Population

- Pressure Ulcers
- Skin Tears
- Lower Extremity Ulcers
  - Venous
  - Arterial
  - Neuropathic
- Incontinence-related Skin Breakdown



# Assessing Risk for Skin Breakdown

- Risk Assessment Tools
  - Braden Scale Score
  - Norton Score
- Policy to define when risk assessment is repeated
- Interventions/Protocol to address risk elements

# Support Surfaces

- Old Terms - Pressure Reduction and Pressure Relief
- New term – Pressure Redistribution
  - The ability of a support surface to distribute load over the contact areas of the human body..

# Support Surfaces

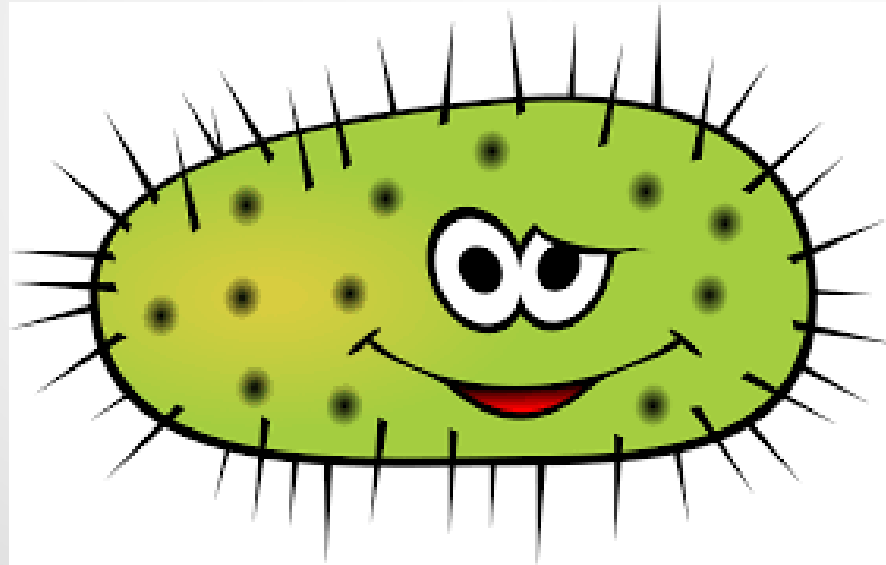
- Components – air, foam, fluid, gel, etc.
- Features – alternating pressure, air fluidized, low air loss, multi-zoned
- Categories – active or reactive, powered or not, overlay or mattress
- **Regardless of support surface, patients will always need to be turned.**



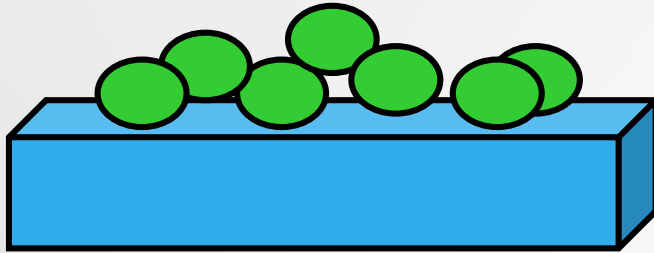
# Types of support surfaces



What about bacteria in wounds?

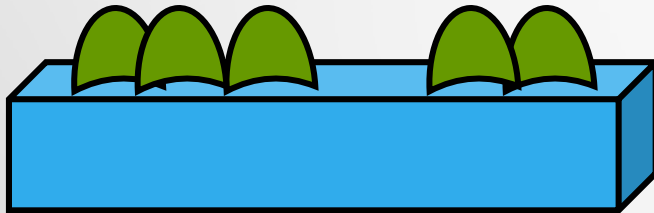


# Bacterial Levels in the Wound



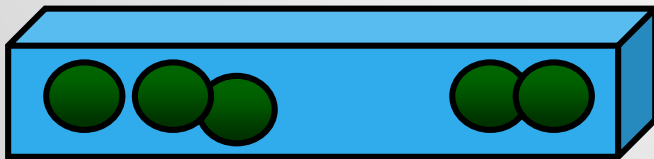
## Contamination

bacteria **present** on surface



## Colonization

bacteria **attach** to tissue and **multiply**



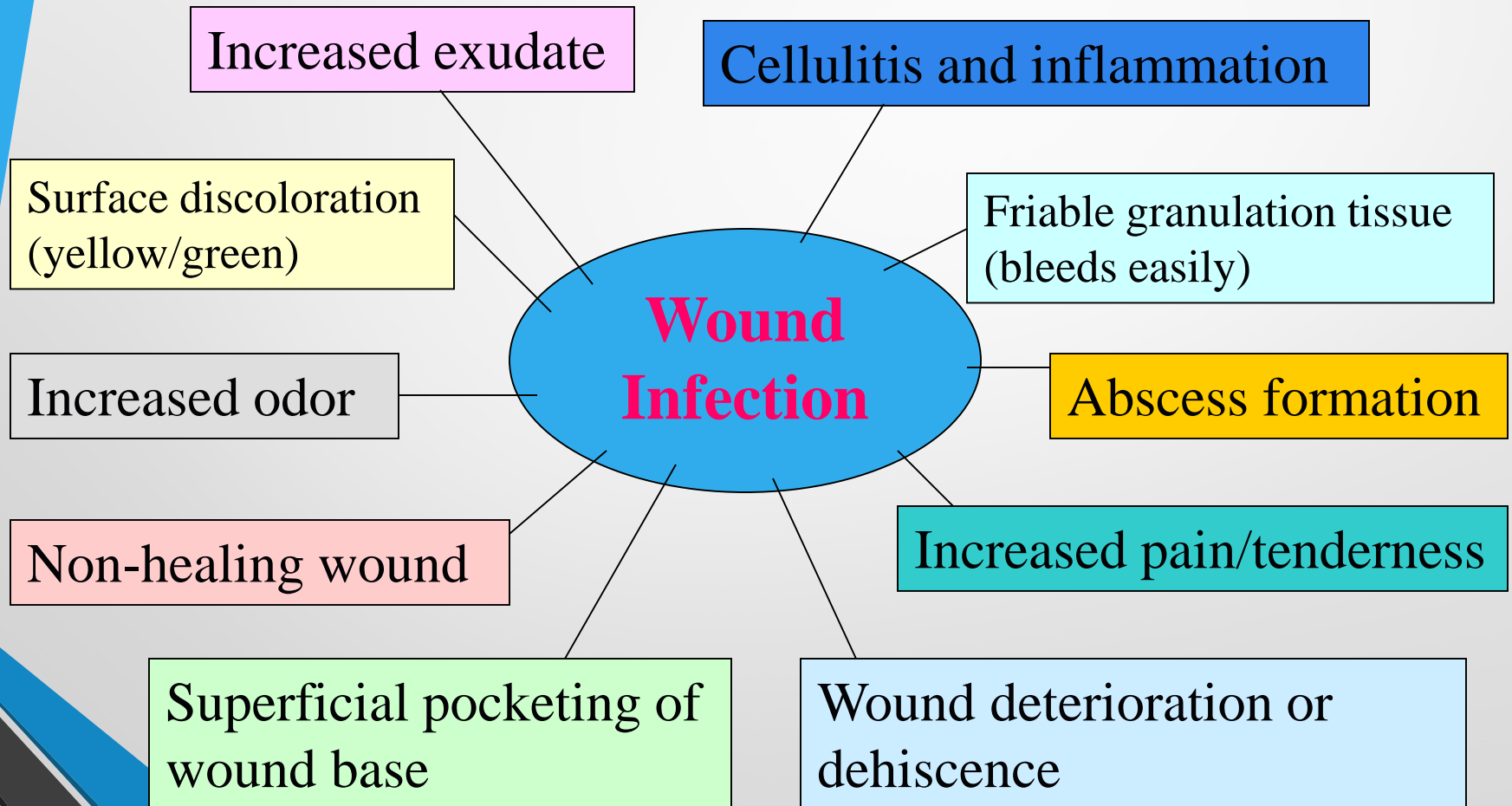
## Infection

bacteria **invade** healthy tissue and **overwhelm** immune defenses

# Assessing for Infection

- Inflammation vs Infection
- Watch for changing in drainage, fever, local pain, signs of sepsis (hypotension, ^ pulse rate, ^ respirations)
- Localized pain may be only sign of infection with immunocompromised patient
- Look for infection when blood glucose elevated with no explanation

# Criteria for identifying infection in chronic wounds



(Falanga, 1997)

# Infection

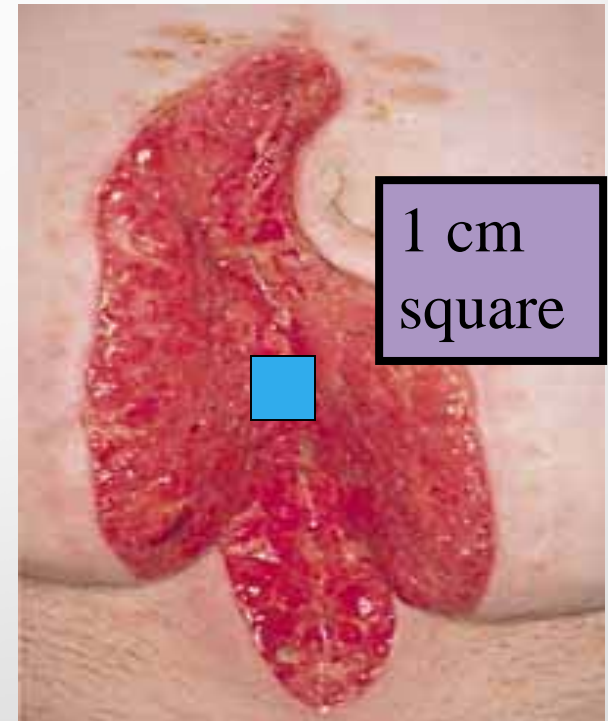
- Colony counts  $> 10^5$  per gram of tissue
- Prolongs the inflammatory phase
- Destroys surrounding tissue
- Retards epithelialization and collagen deposition
- Interrupts the wound healing cascade

# Infection

- IFFE - Induration, Fever, Erythema, Edema
- When and how to culture
  - Cleanse wound with saline, press with swab in 1 cm square area to express fresh exudate
- Follow-up on cultures
- Antibiotics - topical vs. systemic

# Swab culture techniques (Best Practice)

- Levine technique
  - Clean wound prior to culture
  - Moisten swab with saline
  - Rotate swab over a 1 cm square area with sufficient pressure to express fluid from wound tissue
  - Has been correlated to tissue biopsy results



(Levine, 1976)



What about wound cleansing?



# Which wounds need cleansing?

- “Dirty” wounds – wounds caused by bites, trauma with foreign objects or debris
- Infected wounds
- Debate over clean granulating wounds – post surgical wounds, leg ulcers, other chronic wounds

# Avoid Antiseptics

- Povidone Iodine – (Betadine) – Use solution only – 1% or 10% is acceptable
- Hydrogen peroxide – damages healing wounds, do NOT use in deep wounds – no safe dilution
- Sodium hypochlorite – Dakin's solution – safe dilution is .025% (not .25% usually ordered)
- Acetic Acid – no safe dilution

# Characteristics of “safe” wound cleansers

- pH balanced
- Non-cytotoxic
- Long shelf life

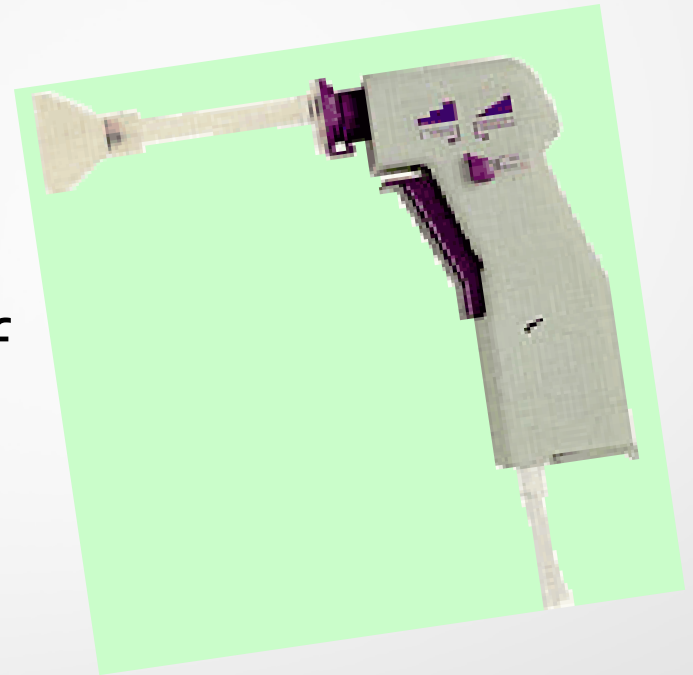


# Examples of safe wound cleansers

- Normal Saline
- Commercially available “wound cleansers” – not the same as “skin cleansers”
  - Smith & Nephew – Dermal Wound Cleanser
  - Bard – Biolex Wound Cleanser
  - ConvaTec – Saf-clens
  - Medline – Skintegrity
  - Etc.....

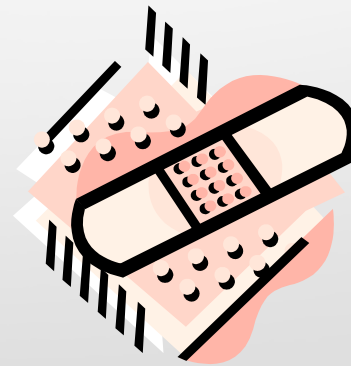
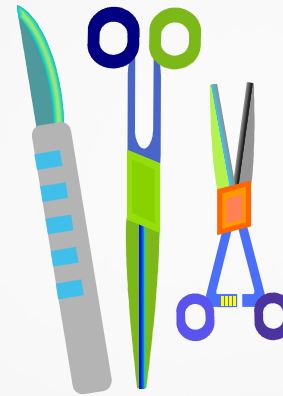
# Necrotic Wounds

- Consider whirlpool or pulse lavage for cleaning
- May use “harsh” agents if healing is not the objective – may help with odor control
  - Dakin’s solution



# Debridement Options

- Sharp debridement – scalpel or scissors
- Mechanical debridement – wet-to-dry dressings and whirlpool/pulse lavage
- Chemical debridement – enzymatic agents
- Autolytic debridement – occlusive dressing allows body to debride itself



# Principles of Topical Therapy

- Debride non-viable tissue
- Treat infection
- Gently pack open space
- Manage drainage
- Maintain moist wound surface
- Protect from trauma
- Insulate – maintain body temperature



# Factors to consider

- Filler needed or just a cover dressing?
- Amount of drainage expected?
- Occlusion needed?
- Adhesive safe or not?
- Cost/frequency of change/availability?
- Goal desired?

# Gauze Dressings

- Cheap
- Require frequent dressing changes to keep moist
- Use moist-to-moist instead of wet-to-dry for healing



# Hydrocolloid Dressings

- Made of carboxymethyl-cellulose
- Surface is adhesive
- Forms a gel when drainage is absorbed
- Promotes autolytic debridement
- Use with caution in infected wounds



# Hydrofibers

- Non-woven dressing used for absorption
- Wicks drainage vertically
- Used as a filler for draining wounds
- Requires a secondary dressing
- Absorbs more than an alginate



# Calcium alginate dressings

- Derived from seaweed
- Used as a filler for moderately draining wounds
- Turns to a gel when in contact with wound fluid
- Requires a secondary dressing



# Hydrogel Dressings

- Available in gel or sheet form
- Used to hydrate a dry wound
- Sheet can be used as primary dressing
- Gel can be used with gauze
- Promotes autolytic debridement
- Reduces frequency of dressing changes
- Watch for maceration



# Foam Dressings

- Available as a filler or a cover dressing
- Available with or without adhesive
- Absorbs drainage but doesn't let the wound bed dry out
- Cushions and insulates
- May stick if too little drainage



# Transparent Dressings

- Very thin polyurethane sheet with adhesive
- Impermeable to water and bacteria
- Allows slow evaporation
- Use in superficial wounds with little exudate
- Can be used over other dressings





# Contact layer

- Woven or perforated polymer net that prevents adherence to wound bed
- Use in clean wounds
- Requires a secondary dressing
- Adaptic, Xeroform or Vaseline gauze
- Also silicone sheets, Wound Veil



# Collagen dressings

- Available as sheets, particles, pads and rope
- Indicated for refractory wounds
- Collagen incorporated into wound as structure for healing
- Use in moist wounds
- Requires a secondary dressing



# Composite dressings

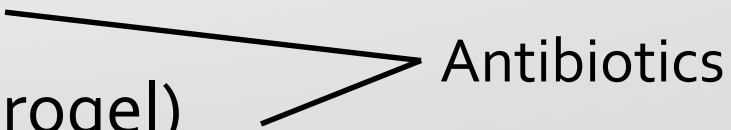
- Combinations of two or more of the previously mentioned dressings
- Consider make-up and desired goals



# Antimicrobial Dressings

- Used to treat wounds that have “stalled” when an increased bioburden may be the problem
- Used to treat wounds clinically known to be infected (in conjunction with systemic antibiotic therapy)
- Sometimes used for prevention in high risk patients

# Topical antimicrobials

- Silver compounds
    - Silver sulfadiazine
    - Silver impregnated dressings
  - Cadexomer iodine (Iodosorb & Iodoflex)
  - PHMB impregnated dressings (Kerlix AMD)
  - Sodium hypochlorite solution (Anasept)
  - Manuka honey (Medihoney)
  - Mupirocin (Bactroban)
  - Metronidazole gel (Metrogel)
- Antibiotics
- 

# Silver Dressings

- Believed by many to provide an environment conducive to the preparation of the wound bed for healing by controlling the bio environment (bacteria)
- The evidence base is still in its infancy (really), but early reports point toward accelerated healing when other factors are corrected (i.e., malnutrition, necrotic tissue, etc.)

# Silver Dressings

- Advantages:

Physicians seem to like using silver in wound care

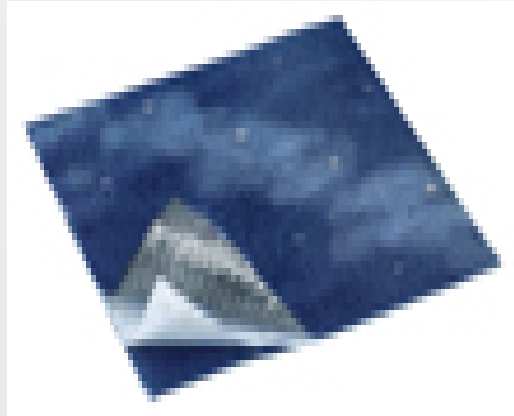
Product may be left in the wound for an extended period of time without losing efficacy (5-7 days)

- Disadvantages:

Cost (Product can range from \$10-20 per unit)

Discoloration from some products may alarm patients/caregivers

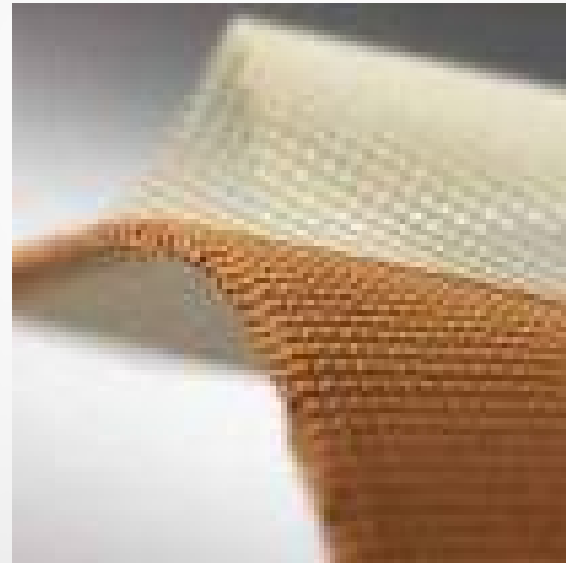
Products are often used incorrectly (changed too often) and have specific nuances





# Cadexomer Ointment or Pads with Iodine (Iodosorb/Iodoflex)

- Iodine molecules encased in a protective matrix which breaks down as wound exudate is absorbed, allowing for a gradual release of iodine
- Absorbs exudate, contributes to the elimination of slough
- Very little in the literature to support this delivery system
- Advantages:
  - ~ prescribers are familiar with iodine
  - ~Can be left in wounds for several days
- Disadvantages:
  - ~improperly used
  - ~awareness of iodine toxicity and other contraindications are sometimes ignored



# PHMB impregnated gauze

- Polyhexamethylene Biguanide (a compound similar to chlorhexidine)
- An antiseptic that has a broad range effectiveness against gram positive and gram negative microorganisms
- Prevents infection, no claims for treatment of infection



# Sodium Hypochlorite Solution (Anasept)

- 0.057% sodium hypochlorite in an isotonic saline solution
- Clear amorphous isotonic hydrogel with 0.057% sodium hypochlorite
- maintain microbiocidal activity for at least 24 hours



# Manuka Honey (Medihoney)

- Contains active *Leptospermum* honey from New Zealand
- Effective on hard-to-heal wounds and burns
- Helps to debride wounds and keep wound beds clean of necrotic tissue
- Indicated for diabetic foot ulcers, venous leg ulcers, arterial leg ulcers, pressure ulcers (I-IV), 1st and 2nd degree burns, donor sites, traumatic and surgical wounds



# Negative Pressure Wound Therapy

- Once thought to be a “second line therapy”, is now considered by some to be a “first line” intervention.
- Advantages: seen to rapidly decrease wound dimensions in some patients and reduce costs in all care settings by reducing the overall number of dressings
- Anecdotal findings point to a reduction in wound infections
- Disadvantages: requires intensive staff education

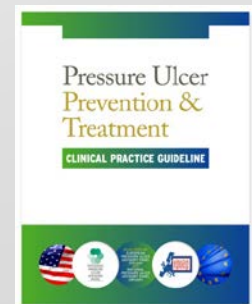
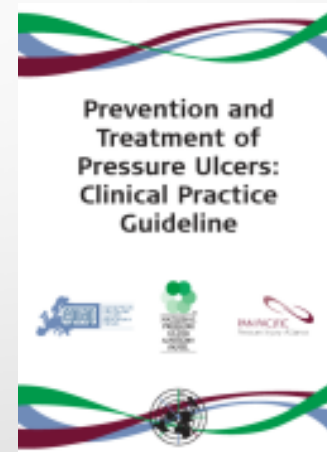


# Reassessment

- Few dressings can take a wound from beginning to healed.
- Reassess wound and adjust dressing regimen as needed.
- Policy on wound reassessment.
- Standardize wound measurement techniques or have same person measure weekly.

# Guidelines for Care

- AHRQ (formerly AHCPR) guidelines are outdated and archived
- WOCN Society has guidelines for pressure ulcers and lower extremity ulcers
- AMDA published in 2008 and reaffirmed in 2013
- 2014 NPUAP/EPUAP/PPPIA guideline





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2. Bryant, R.A. (ed.). (2012). Acute and Chronic Wounds: Current Management Concepts (4<sup>th</sup> ed.). St. Louis: Mosby.
3. Hess, C.T. (2012). Clinical Guide to Skin & Wound Care (7<sup>th</sup> ed.). Philadelphia: Lippincott Williams & Wilkins.
4. National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention and Treatment of Pressure Ulcers: Clinical Practice Guideline. Emily Haesler (Ed.). Cambridge Media: Osborne Park, Western Australia; 2014.

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6. [www.bradenscale.com](http://www.bradenscale.com) - Information about using the Braden Scale for risk assessment.
7. [www.wocn.org](http://www.wocn.org) - Website for the WOCN Society; resource for guidelines
8. [www.amda.com](http://www.amda.com) - Website for the American Medical Directors Association, resource for AMDA guidelines and online journal.