

# Dermatology and Wound Care

Feb 8, 2020

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## Objectives

- Determine which wounds need referral for sutures or antibiotics
- Describe the cells and steps in wound healing
- Discuss the role of bacteria in normal wound healing
- Describe optimal strategies to promote wound healing and reduce down time
- Discuss dressings and materials that can assist in wound care strategies.

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## Kahoot

- Questions 1-6

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## Wound Cleaning

- Remove all foreign bodies
- Generally tap water or saline are most effective
  - Chlorhexidine and Iodine can be used for highly contaminated wounds
  - Hydrogen peroxide should be used sparingly as it can cause tissue necrosis and impede wound healing.
- Achieving 8 PSI when irrigating wounds has been shown to be effective in reducing bacterial load
  - Moderate pressure with 60 cc syringe
  - High pressure (Greater than 20 PSI) can cause tissue damage.
  - Use 50-100 mL per cm of wound

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## Wound Closure

- Wound closure outcomes is a function of blood supply and tension
  - Face and scalp do well due to high blood supply and low tension
  - Extremities and trunk do worse due to decreased blood supply and increased tension.
- Rates of infection follow a similar relationship to blood flow.

Wound location and infection rates [2]

Location	Infection rate (n)
Arm/forearm	15.3% (157)
Back	8.3% (12)
Chest/abdomen	11.8% (17)
Ear/nose	3.6% (28)
Face	3.9% (383)
Foot/heel	12.5% (21)
Hand/finger	5.7% (192)
Scalp	1.7% (233)
Thigh/leg	23.0% (87)

Nicks et al. Int J Emerg Med. 2010

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- Kahoot 7 - 13

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### When is referral needed?

- More than ¼ inch deep, jagged edges, gape open
- Wounds extending to fat or muscle
- Deep wounds over a joint, on hands, or fingers
- Wounds on face that may leave large scars
  - Cosmetic
- Wounds continuing to bleed significantly after 15 mins

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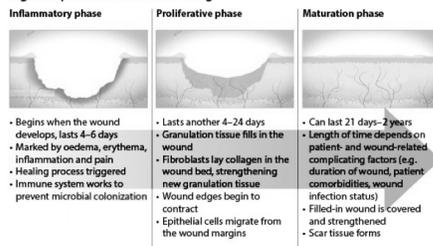
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### Wound healing

Figure 1 | Phases of wound healing



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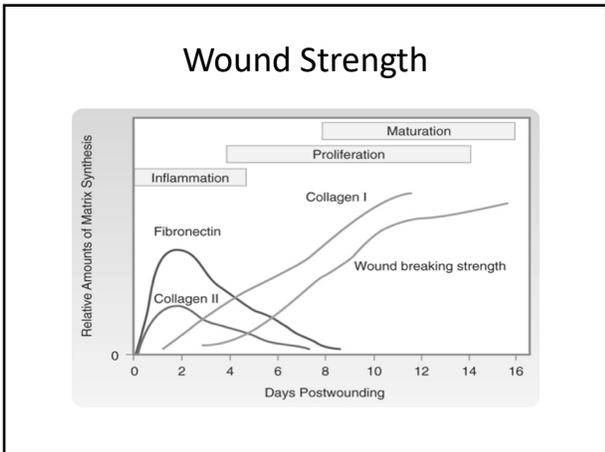
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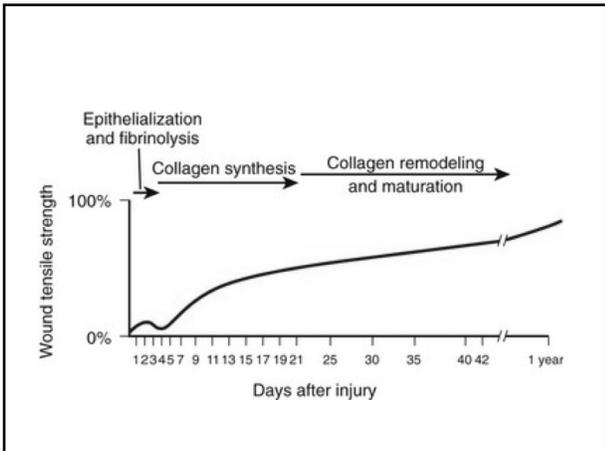
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### Wound Healing

- Excessive UV exposure can impede wound healing and cause increased pigmentation and worsening of scars
- The use of diligent sun protection including the use of sunscreens for minimum of 3-6 months may improve wound healing and scar appearance.

Davidson JM et al. JID 2003.

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- Kahoot 13 - 21

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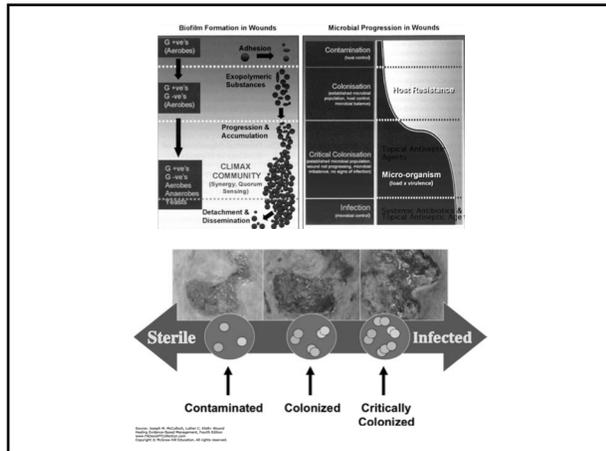
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### Wound Healing

- Maintain environment conducive to cells of the body to repair the wound
  - These cells live best under appropriate levels of water tension and temperature.
- Minimize impediments to healing
  - Physical Trauma
  - Decreased oxygen tension
  - Caustic materials
  - Bacterial overgrowth

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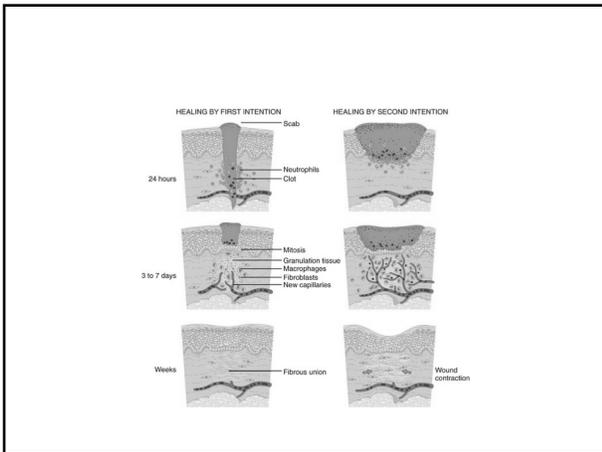
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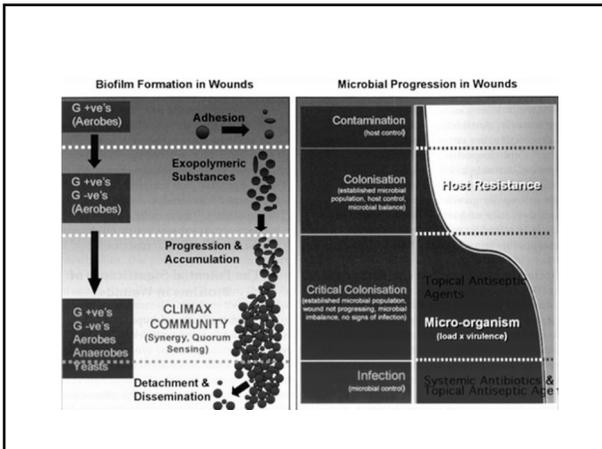
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### Ideal Dressing

- Absorb excess fluid and maintain a moist environment
- Protect wound from mechanical or caustic damage
- Prevent bacterial invasion and proliferation
- Does not macerate surrounding healthy tissue
- Is inexpensive, readily available, and easy to change.

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### Moist Environment

- Primary Dressing
  - Allow drainage for moist wounds, keep moist for dry wounds
    - Vaseline gauze, others.
- Secondary Dressing
  - Absorbent
    - Gauze, ABD pads
- “Tertiary Dressing”
  - Holds dressing in place
    - Paper Tape, Adhesive
  - Provides compression if needed (lower extremities)
    - Compression socks

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### Wound Care

- 1. Remove any visible debris and rinse thoroughly with water
- 2. Determine if wound needs referral
  - Sutures, damage to underlying structures, high risk of infection (heavily contaminated, bites)
- 3. Pat dry with clean gauze/towel
- 4. Apply Vaseline or Vaseline soaked gauze to act as primary dressing
- 5. Apply gauze, or ABD if significant drainage
- 6. Secure with adhesive bandages, tape, paper tape, coban, etc.

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### If highly concerned for infection

- Consider referral for evaluation and culture if necessary
- Irrigation that does not impede wound healing
  - No Hydrogen Peroxide
  - Topical antibiotics only under specific circumstances
    - Prefer Mupirocin

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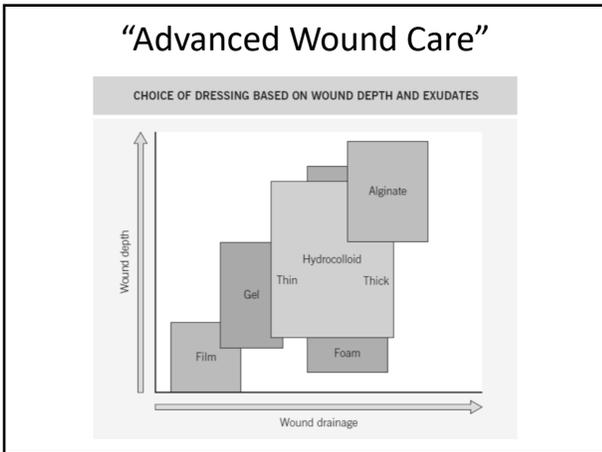
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- What is manuka honey or medihoney?
  - Honey has such a high concentration of sugar that it makes it very difficult for bacteria to grow.
  - There is some data that shows other properties of honey that may aid in wound healing
  
- Bottom Line: Not bad, you can use it on wounds. Medihoney can be found in pharmacies and grocery stores. However vaseline can accomplish similar results, for the majority of wounds at a much lower cost.

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- What about mederma or scar reducing creams?
  - Massage is effective at reducing scars
  - Hydrating the skin and reducing antioxidants can also reduce scars
  
- Bottom Line: Go for it. The best way to improve a scar is.
  - Excellent wound care, keeping wound and the eventual scar moist. Vaseline, etc.
  - Protecting scar from the sun
  - Silicone sheeting for linear and raised scars
  - Massage
  - Mederma or similar products may help a little with many of these factors.
  - If scars are very bothersome see a dermatologist. Scar revision can be performed

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- I always heard its important to let a wound “breathe”
  - Physiologic levels of moisture and temperature allow inflammatory and regenerative cells to heal a wound.
  - If wounds are excessively wet, reduce the moisture in a different way. Living cells have a hard time growing across a crusty wound.
- Bottom Line: If wounds are excessively wet, reduce the moisture a different way. Wounds should be immobilized, covered, and kept moist.

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- What about hydrogen peroxide and topical antibiotics?
  - In **healthy individuals** with uncontaminated wounds, it is rare that excessive bacteria are playing a negative role in wound healing when the wound is appropriately cleaned
  - Hydrogen peroxide is used to prevent wound from healing too fast, or “hypergranulating”. Which is rarely an issue in acute wounds
  - Some estimates suggest allergy to topical antibiotics are as high as 20%. This can complicate wound healing and may lead to secondary infection, and is not helpful under many circumstances
- Bottom Line: Under the majority of circumstances neither of these are helpful, and are often harmful.

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### Wound Care

- 1. Remove any visible debris and rinse thoroughly with water and mild soap
- 2. Determine if wound needs referral
  - Sutures, damage to underlying structures, high risk of infection (heavily contaminated, bites)
- 3. Pat dry with clean gauze/towel
- 4. Apply Vaseline or Vaseline soaked gauze to act as primary dressing
- 5. Apply gauze, or ABD if significant drainage
- 6. Secure with adhesive bandages, tape, paper tape, coban, etc.

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## Questions???



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