

**Vanderbilt University Medical Center**  
**Emergency General Surgery Service**  
Surgical Residency Rotation and Curriculum

**UNIT 8      WOUND HEALING**

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**UNIT OBJECTIVES:**

1. Demonstrate an understanding of the physiology of wound healing.
2. Demonstrate the ability to manage complex wound care in a variety of settings.

**COMPETENCY-BASED KNOWLEDGE OBJECTIVES:**

**Junior Level:**

1. Describe the physiological process of normal wound healing.
2. Explain the effect of the following factors on wound healing:
  - a. Nutrition
  - b. Pathologic metabolic states (including diabetes mellitus)
  - c. Hematologic status
  - d. Radiation
  - e. Immune response
  - f. Growth factors
  - g. Super oxide radical formation
  - h. Pharmacologic manipulation
  - i. Infection/sepsis
  - j. Chemotherapeutics
  - k. Trauma
3. Describe the steps of normal of wound healing, including:
  - a. Inflammation
  - b. Epithelialization
  - c. Granulation tissue formation
  - d. Contracture/contraction
4. Discuss the pathophysiology of delayed wound healing due to microbial physiology, virulence, and host defenses.
5. Discuss the principles of aseptic technique in uncomplicated cases related to the following procedures:
  - a. Incision making
  - b. Debridement
  - c. Wound closures
  - d. Dressings
6. Explain the principles of wound care as they relate to:
  - a. Debridement
  - b. Traumatic wounds
  - c. Medication infiltration
  - d. Chronic wounds
  - e. High pressure injection injury
7. Summarize the principles of wound protection and subsequent healing using:
  - a. Dressings

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- (1) Occlusive
- (2) Non-occlusive
- b. Other wound dressing materials
  - (1) Collodium                      (5) Dakin's solution
  - (2) Petroleum gauze              (6) Acetic acid solution
  - (3) Xeroform                      (7) Silvadene, Sulfamylon
  - (4) Scarlet Red                    (8) Iodine, Bacitracin
- c. The concept of "moist wound healing"
- d. Adjunctive therapies: hyperbaric oxygen, electrical stimulation, vacuum assisted wound management, pulse irrigation
- 8. Discuss potential problems in complicated wound healing, including radiation.
- 9. Define and describe the causes of postoperative wound complications such as:
  - a. Dehiscence
  - b. Evisceration
  - c. Fasciitis and abscess formation
- 10. Describe the microbiology of gangrene and necrotizing fasciitis.
- 11. Explain the principles associated with the selection of appropriate incisions applying surgical anatomy to include:
  - a. Blood supply
  - b. Lines of tension
  - c. Access
  - d. Strength
  - e. Cosmesis/aesthetics
- 12. Describe the rationale for selection of appropriate wound closure and reconstruction as it relates to wound healing in:
  - a. Primary and delayed primary closure
  - b. Secondary healing
  - c. Skin graft, split and full thickness
- 13. Assess the properties and uses of different types of suture material, including those that are absorbable and non-absorbable.
- 14. Analyze the therapeutic options for treatment of abnormal or delayed wound healing because of:
  - a. Host resistance      d. Radiation
  - b. Infection              e. Ischemia
  - c. Diabetes mellitus
- 15. Discuss treatment choices for the following wound healing problems:
  - a. Dehiscence
  - b. Infection
  - c. Hernia
- 16. Describe the use of pressure relief devices and beds to prevent pressure ulcerations.

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**COMPETENCY-BASED PERFORMANCE OBJECTIVES:**

**Junior Level:**

1. Evaluate the progress of wound healing.
2. Apply all types of dressings.
3. Make and close common incisions in the outpatient clinic, outpatient emergency department, and in the operating room.
4. Remove complex dressings.
5. Debride and care for wounds of low to intermediate complexity.
6. Apply all types of complex dressings.
7. Make and close incisions of low to intermediate complexity.
8. Debride complex wounds and provide post-debridement care of such wounds.
9. Manage wounds of low to intermediate complexity, and alter therapy as indicated.
10. Manage the care of various complex wound complications such as dehiscence, wound infections, and incisional hernias.