

Certified Wound Healing Specialist

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WOUND HEALING**

1. A patient complains of unrelenting, burning pain 4 hours after the application of a chemical debriding agent. The nurse should understand that wound pain may:
 - A. Lead to wound hypoxia, which impairs wound healing and increases infection rates
 - B. Stimulate fibroblast production and contribute to granulation tissue formation
 - C. Initiate the healing cascade, which leads to contraction and epithelialization
 - D. Decrease wound inflammation, which could limit wound phase progression

2. Which of the following is an appropriate intervention for stage I pressure ulcers?
 - A. Reposition the patient frequently
 - B. Use a donut-type device
 - C. Massage the reddened area
 - D. Keep the head of the bed elevated

3. How often should a transparent film dressing covering a dermal ulcer be changed?
 - A. Every day
 - B. Every 8 hours
 - C. When fluid collects over the lesion
 - D. When fluid extends beyond wound edges

4. Which of the following factors is NOT likely to contribute to developing a postoperative complication of wound dehiscence?
 - A. Corticosteroids
 - B. Diabetes
 - C. Hypertension
 - D. Morbid obesity
 - E. Smoking

Question 5 & 6: Apligraf® and Dermagraft® are biological advanced therapies that are similar in that they both contain a specific cell type and were previously called skin substitutes.

5. Pick the cell type found in both devices (Apligraf® and Dermagraft®):
 - A. Keratinocytes
 - B. Fibroblasts
 - C. Stem cells
 - D. Langerhans's cells
 - E. Macrophages

6. What is the current terminology used to classify both devices (Apligraf® and Dermagraft®):
 - A. FFGs (Fetal Foreskin Grafts)
 - B. CTSs (Cell & Tissue Substitutes)
 - C. HEPs (High End Products)
 - D. CTPs (Cellular & Tissue Based Products)

7. The rationale for using hyperbaric oxygen in treating patients with a diagnosis of gas gangrene include all of the following EXCEPT:

- A. HBO is bactericidal to other bacteria in wounds
- B. Inhibits production of alpha toxin
- C. Aids in demarcation of healthy from nonviable tissue
- D. Enhances antibiotic effectiveness
- E. Eliminates the need for surgical intervention

Question 8 & 9: A 70-year-old woman with a recent left hip fracture has been admitted to the hospital for operative intervention. During her postoperative recovery serial skin assessments identify that she has developed a Stage II pressure ulcer.

8. Which of the following best describes her ulcer?

- A. Black eschar
- B. Full thickness skin loss
- C. Partial thickness skin loss
- D. Nonblanchable erythema
- E. Loss of skin and subcutaneous tissue

9. Based on the clinical scenario which is the mostly likely anatomical location of the pressure injury?

- A. Occiput
- B. Thoracic
- C. Sacrum
- D. Trochanter (opposite the fracture)
- E. Calcaneus

10. Radiation has a variety of destructive effects on tissue which can negatively impact wound healing. Which of the following is NOT considered a potential compromising side effect of therapeutic radiation therapy?

- A. Endothelial cell injury
- B. Collagen degradation
- C. End arteriole damage
- D. Tissue hypoxia
- E. Damage of cellular DNA

Questions 11, 12 & 13. In mid-August a patient with paraplegia returns to the wound care clinic. She has developed a pressure ulcer over the ischial tuberosity. This is the second ulcer that has developed in this exact location within the past year. The patient is actively employed as a safety officer in steel factory which she complains is very warm during the summer. She reports a 15 pound weight loss (current weight 185 pounds) over the past 3 months, but states she “has been trying to lose some weight”.

11. Which of the following is the most likely explanation for the recurrence of the ulcer?

- A. Insufficient protein intake
- B. Ineffective moisture control (perspiration)
- C. Insufficient oxygen to lower extremities
- D. Inadequate pressure reduction
- E. Inadequate wound care follow-up

12. Which intervention absolutely mandatory as part of her care plan?

- A. Obtain a nutritional consult
- B. Initiate dietary supplements
- C. Both A and C
- D. Provide a letter to mandate air conditioned work environment
- E. Evaluation of her wheel chair and cushion

13. Which best describes her current nutritional status?

- A. No compromise
- B. Mild involuntary weigh loss
- C. Moderate involuntary weigh loss
- D. Protein Energy Malnutrition
- E. Malnourished

14. A 45 year old paraplegic presents with a stage IV pressure ulceration. Exposed bone and necrotic muscle is noted. She has a low grade fever but no evidence of cellulitis. Appropriate initial management includes all of the following EXCEPT:

- A. Pressure redistribution
- B. Nutritional support
- C. Antibiotic therapy
- D. Surgical debridement
- E. Admission and tissue flap closure

15. Which of the following has the most beneficial effect on the healing of venous leg ulcers?

- A. High protein diet
- B. Reduction of edema
- C. Non-selective debridement
- D. Increased calcium intake
- E. Venous ablation therapy

16. Regarding personal protective equipment and Infection Control Standards, which of the following statements is INCORRECT?

- A. When personal protective equipment is removed, it should be placed in an appropriately designated area or container for storage, washing, decontamination, or disposal.
- B. Surgical or examination gloves may be washed or decontaminated for reuse if the integrity of the glove has not been compromised.
- C. Masks in combination with eye protection devices must be worn whenever splashing of blood or other potentially infectious material is likely.
- D. Personal protective equipment must be worn whenever working with a patient identified as having a wound colonized with MRSA or VRE.

17. A TCPO₂ and a CPP (capillary perfusion pressure) of 50mm Hg are considered:

- A. Adequate for healing
- B. Marginal ischemia or slight impairment
- C. Severe Ischemia
- D. CLI critical limb ischemia
- E. Inconsistent readings and need to be repeated

18. Which of the following statements is MOST accurate related to collagen synthesis and tissue oxygen tension?

- A. Collagen is produced by fibroblasts at tissue oxygen tensions measuring 15mmHg
- B. Collagen is produced by fibroblasts at tissue oxygen tensions measuring 25mmHg
- C. Collagen is produced by fibroblasts at tissue oxygen tensions measuring 35mmHg
- D. Collagen is produced by osteoblasts at tissue oxygen tensions measuring 25mmHg
- E. Collagen is produced by osteoblasts at tissue oxygen tensions measuring 35mmHg

Questions 19 & 20. A patient is being evaluated for a possible pressure ulcer. The patient is febrile and unresponsive but moans when the area is palpated. The skin examination finds a blister filled with viscous yellow fluid.

19. Using the NPUAP staging system, this is best classified as:

- A. Stage I
- B. Stage II
- C. Unstageable
- D. Infected
- E. Suspected deep tissue injury

20. Which of the following is BEST initial therapy?

- A. Call a Code
- B. Surgical Consultation for I-n-D (incision and drainage)
- C. WBC labeled bone scan to evaluate for osteomyelitis
- D. ID Consultation for antibiotics
- E. Simply continue pressure ulcer protocol

21. Use of four layer compression therapy to treat a venous ulcer is CONTRAINDICATED in a patient with:

- A. Heavy exudate
- B. Fibrin slough
- C. Peripheral edema
- D. Arterial insufficiency
- E. History of deep venous thrombosis in childhood

22. The key layers of the skin from the external surface to the deeper layers are most accurately listed by which of the following?

- A. Epidermis, basement membrane, dermis and hypodermis
- B. Epidermis, hypodermis, basement membrane and dermis
- C. Epidermis, hypodermis, dermis and basement membrane
- D. Epidermis, basement membrane, hypodermis and dermis

23. Which of the following statements about wound care is TRUE?

- A. Hydrocolloids absorb more exudate than alginate dressings
- B. Transparent dressings are contraindicated in the presence of eschar
- C. Wound fillers can be used to fill undermining and tunnels
- D. Silver-impregnated dressings are indicated when critical colonization is suspected

24. Which of the following statements accurately characterizes colonization of a wound?

- A. Colonization is associated with a fever and local inflammation of the wound
- B. Colonization is manifested by delaying healing
- C. Colonization is diagnosed with a culture result of 10^5 organisms/grams of tissue or more
- D. Colonization is often present and not indicative of an infection

25. Wet to dry, hydrotherapy, irrigation and pulsatile lavage are forms of what type of debridement?

- A. Autolytic
- B. Mechanical
- C. Moisture based
- D. Selective debridement
- E. Sharp/surgical

26. Hyperbaric oxygen is effective in wound-healing enhancement due to which of the following physiologic mechanisms?

- A. Stimulates fibroblastic proliferation
- B. Enhances collagen production
- C. Proangiogenic
- D. Stimulates epithelialization
- E. All of the above

27. What process best represents the cellular activity in the early or initial phase of wound healing?

- A. Leukocytes ingest bacteria
- B. Fibroblasts create collagen
- C. Platelets degranulate and release cytokines
- D. Macrophages release vasodilators
- E. Angiocytes form granulation tissue

28. A person with arterial lower extremity ulcers will commonly have a history of which of the following?

- A. Dependent edema
- B. Distal paresthesia
- C. Decreased pain with leg elevation
- D. Intermittent claudication
- E. Rutherford Grade IV findings

Question 29 &30: A patient presents with of progressive destruction of the bones and joints in the foot, which over time results in the collapse of the arch and a rocker bottom appearance to the foot.

29. Which of the following BEST describes this condition?

- A. Diabetic neuropathy
- B. Diabetic osteomyelitis
- C. Charcot's joint
- D. Lisfranc Injury
- E. Claw toe deformity

30. Which intervention should be considered early in this patient's management?

- A. Admission for surgical exploration/debridement
- B. Aggressive antibiotic therapy
- C. Immobilization of extremity
- D. Custom orthotic boot
- E. Amputation

31. Which of the following is a component of the Braden Scale?

- A. Patient age
- B. Moisture
- C. Diabetic control
- D. Wound infection
- E. Arterial assessment

32. A patient with a pressure ulcer of the right lateral malleolus is seen in the wound clinic. Examination during prior visits showed wound erythema, undermining of wound edges, and exudate. Findings at the time of the current visit show that the wound is contracting with healthy granulation tissue, reduced undermining and neodermis at the margins. Which of the following stages of wound healing BEST describes the wound today?

- A. Hemostasis
- B. Inflammation
- C. Proliferation
- D. Regeneration
- E. Maturation

33. The presence of replicating microorganisms adherent to the wound in the absence of injury to the host is referred to as:

- A. Wound contamination
- B. Wound colonization
- C. Local wound infection
- D. Systemic wound infection
- E. Critical colonization

34. A female patient with metastatic breast cancer is admitted with a fungating mass that measures 12cm x 10cm in the left breast. To assist with palliative care and pain management, the nurse should recommend applying:

- A. Wet-to-Dry dressing
- B. Petroleum-impregnated gauze
- C. Betadine gauze
- D. Enzymatic debridement ointment

35. Leukocytes plays a key role during which of the following phases of wound healing?

- A. Hemostasis
- B. Inflammatory
- C. Proliferative
- D. Regenerative
- E. Remodeling

Question 36 and 37: A patient with a long history of severe Rheumatoid Arthritis controlled only by methylprednisolone and methotrexate presents to the wound clinic for evaluation of a recent traumatic wound.

36. She should be advised that she is at risk for compromised would healing due to:

- A. Depression of the Inflammatory Phase and enhanced leukocyte activity
- B. Stimulation of the Inflammatory Phase and enhanced leukocyte activity
- C. Stimulation of the Inflammatory Phase and suppressed leukocyte activity
- D. Depression of the Inflammatory Phase and suppressed leukocyte activity

37. Reasonable initial wound care treatment plan should include:

- A. Immediate discontinuation of methylprednisolone
- B. Immediate discontinuation of methotrexate
- C. Initiation of basic wound care with close follow-up
- D. Initiation of basic wound care and TNF-alpha inhibitors
- E. Emergent referral to Rheumatology before implementing wound care protocol

38. All of the following are appropriate indications for performing transcutaneous oxygen evaluation on a hyperbaric patient EXCEPT:

- A. Assess perfusion at the patient's wound
- B. Evaluation of tissue response to 100% oxygen
- C. Discriminate between small and large vessel disease
- D. Determine loculation of focal arterial stenosis
- E. Determine the level of amputation

39. Which one of the following Braden Scale total scores should trigger implementation of a pressure ulcer prevention protocol?

- A. 30
- B. 23
- C. 19
- D. 17
- E. 14

40. According to CMS policy, all of the following criteria must be met prior to the initiation of HBOT in the management of the diabetic foot ulcer EXCEPT?

- A. Vascular status is optimized
- B. Diabetic control is maximized
- C. Nutritional status is addressed
- D. Amputation is inevitable
- E. Off-loading has been achieved

41. To assess for sensory neuropathy, the wound nurse should:

- A. Observe how the patient walks
- B. Conduct a monofilament testing of the plantar surface of the foot
- C. Trace the outline of the patient's foot on a sheet of paper and compare it to the outline of their shoe
- D. Examine the foot for deformities such as hammer or claw toes
- E. Assess for skin dryness and cracking

42. Which component of the blood significantly contributes and actively participates in hemostasis by helping to seal injured blood vessels?

- A. Plasma cells
- B. Platelets
- C. Platelet Derived Growth Factor
- C. Pluripotent Stem cells
- D. Leukocytes

43. The most common predisposing risk factor leading to the development of a diabetic foot ulceration is:

- A. Callus
- B. Cigarette smoking
- C. Foot Deformity
- D. Neuropathy
- E. Tissue ischemia

44. Which of the following wound and dressing combinations BEST illustrates an appropriate indication and utilization of autolytic debridement?

- A. A granular wound and an alginate dressing
- B. An infected wound and a hydrocolloid dressing
- C. A wound with dry eschar and an alginate dressing
- D. A wound with fibrin slough and a hydrocolloid dressing
- E. A wound with fibrin slough and a gauze dressing

45. Which of the following defines a RLE ABI (right lower extremity ankle brachial index):

- A. Higher of the right ankle pressure (PT or DP) divided by the higher arm pressure (right or left arm)
- B. Higher of the right ankle pressure (PT or DP) divided by the arm pressure (right arm)
- C. Higher arm pressure (right or left arm) divided by the higher of the right ankle pressure (PT or DP)
- D. Right arm pressure divided by the higher of the right ankle pressure (PT or DP)
- E. Highest ankle pressure (right or left ankle) divided by the higher arm pressure (right or left arm)

46. A patient with a diabetic neuropathy has an ulcer on the plantar surface of the foot. The patient has regularly returned to the clinic for wound care and blood glucose monitoring. After 15 weeks, the wound is healed. Which of the following should the nurse include in the teaching plan?

- A. Daily foot soaks
- B. Bi-weekly foot evaluation
- C. Over-the-counter orthotics
- D. Daily inspection of the feet
- E. Open toed shoes to prevent sweating and maceration

47. Which of the following characterize the molecular environment of the chronic wound?

- A. High levels of growth factors
- B. Increased levels of proteases (MMPs)
- C. Decreased levels of proteases (MMPs)
- D. Excessive levels of protease inhibitors (TIMPs)
- E. Excessive collagen synthesis

48. Which of the following is the most important assessment parameter in a patient with a lower extremity ischemic ulcer?

- A. Extent of necrosis
- B. Presence of neuropathy
- C. Presence of pedal pulses
- D. Ankle-brachial index
- E. Wound tumor necrosis factor

49. Initiation of a clinical strategy to optimize which of the following factors is considered the primary therapy for healing a patient with venous insufficiency ulceration?

- A. Bioburden
- B. Compression
- C. Moisture
- D. Nutrition
- E. Offloading

50. Which of the following is NOT typically considered a factor which leads to wound chronicity?

- A. Vascular insufficiency
- B. Hyperglycemia
- C. Myotonic hypertrophy
- D. Renal insufficiency/failure
- E. Bacterial contamination

51. The bluish-gray color of skin associated with the lack of oxygen is called:

- A. Anemia
- B. Cyanosis
- C. Erythema
- D. Urticaria
- E. Desquamation

52. When conducting a preliminary assessment of a patient's nutritional status, which of the following indicates probable need for nutritional support?

- A. Serum albumin of 3.0 g/dL
- B. Prealbumin of 30 mg/dL
- C. Transferrin of 300 mg/dL
- D. Retinol-binding protein 3.0 mg/dl
- E. Total lymphocyte count of 3,000 cells per mm³

53. Which of the following therapies when utilized as a single modality intervention is generally associated with the fastest healing times and greatest percentage of healed diabetic foot ulcers in a 12 week time period?

- A. Regranex®
- B. Apligraf®
- C. Total Contact Casting
- D. Dermagraft®
- E. Negative Pressure Wound Therapy

54. A 62 year-old patient with acute myelocytic leukemia is undergoing chemotherapy. During the skin assessment, the right heel is covered with dry eschar. Which of the following is the most appropriate intervention?

- A. Remove the eschar with sharp debridement
- B. Apply an enzymatic debriding agent
- C. Maintain as dry eschar
- D. Apply a Total Contact Cast
- E. Surgical intervention (Palpable pulses and Normal ABIs)

55. In addition to topical wound care, which of the following is MOST important in treating non-healing arterial ulcers?

- A. Offloading
- B. Limb elevation
- C. Edema control
- D. Revascularization
- E. Hyperbaric Oxygen Therapy

56. What type of lymphedema arises from congenital defects in the lymph system?

- A. Primary lymphedema
- B. Elephantitis
- C. Secondary lymphedema
- D. Filariasis
- E. Hereditary lymphedema

57. All of the following are accurate pairings of causes and classification of types of lymphedema EXCEPT:

- A. Morbid obesity / Secondary lymphedema
- B. Congenital / Primary lymphedema
- C. Parasitic / Secondary lymphedema
- D. Radiation / Primary lymphedema
- E. Lymph node resection / Secondary lymphedema

58. Which physical properties of short stretch bandages allow them to be effective in reducing edema in a patient with a diagnosis of chronic venous insufficiency?

- A. Low working pressure, low resting pressure
- B. Low working pressure, high resting pressure
- C. High working pressure, low resting pressure
- D. High working pressure, high resting pressure
- E. High resistance, dynamic recoil

59. Cellular senescence is best defined by which of the following:

- A. Cells are non-viable
- B. Cells are unable to divide
- C. Cells are unable to migrate
- D. Both B & C
- E. All of the Above

60. The treatment of a patient with a nonhealing wound includes a global perspective and management of the patient's chronic underlying conditions and disease states. This is facilitated by classification of the wound based on:

- A. Appearance
- B. Characteristics
- C. Condition
- D. Etiology
- E. History

61. The Braden Scale is used to stratify patients at risk for Pressure Ulcers. Several parameters are graded during this assessment including sensory perception, activity, and mobility. Which is the correct number and description of the other factors evaluated?

- A. 5 Categories / Friction-shear and Moisture
- B. 5 Categories / Friction-shear and Pressure Intensity
- C. 6 Categories / Friction-shear, Moisture and Nutrition
- D. 6 Categories / Friction-shear, Moisture and Pressure Intensity
- E. 6 Categories / Friction-shear, Moisture and Pressure Duration

62. Diabetic Foot Ulcers are also more commonly called:

- A. Ischemic Ulcers
- B. Hyperglycemic Ulcers
- C. Neuropathic Ulcers
- D. Traumatic Ulcers
- E. Vasculitic Ulcers

63. Wound infection is directly related to which of the following?

- A. Percentage of necrotic tissue and Number of organisms in the wound
- B. Percentage of necrotic tissue and Virulence of organisms in the wound
- C. Patient age and Percentage of necrotic tissue in the wound
- D. Patient age and Number of organisms in the wound
- E. Number of organisms and Virulence of organisms in the wound

64. A detailed history is performed during the initial consult and evaluation of a patient presenting with lower extremity swelling and a superficial lateral ulcer. The initial working diagnosis is venous insufficiency. It is likely that the patient will provide pertinent positives during the review of systems. Which one of the following is not likely to be reported a prior condition and risk factor?

- A. Deep vein thrombosis
- B. Obesity
- C. Previous surgery
- D. Thrombocytopenia
- E. Family history of VLU

65. Cellular and Tissue Based products (CTPs) are claimed to enhance wound healing via several mechanisms. Which of the following is the primary mechanism of action?

- A. Delivery of cytokines
- B. Inhibition of platelet aggregation
- C. Permanent engraftment
- D. Stimulation of senescent cells
- E. Release of stem cells

66. Which of the following conditions is associated with high mortality rates and is characterized by progressive cutaneous necrosis occurring more commonly in patients with end state renal disease on dialysis?

- A. Pyoderma gangrenosum
- B. Calciphylaxis
- C. Cutaneous renal pathology
- D. Calcium vasculopathy
- E. Buerger's disease

67. Which of the following tissues is considered not to contribute to the composition of lean body mass?

- A. Muscle
- B. Skin
- C. Subcutaneous
- D. Visceral organ
- E. Blood proteins

68. Which of the following is NOT suggested as a benefit of sharp debridement in the management of a wound care patient?

- A. Decreases wound bioburden
- B. Enhances perfusion
- C. Removes mechanical barriers to healing
- D. Stimulates proliferation of senescent cells
- E. Reestablishes the acute wound environment

69. Which of the following BEST defines primary role of the macrophage and phase of wound healing where it has significant activity?

- A. Inflammatory / Stimulation of angiogenesis
- B. Inflammatory / Formation of extra cellular matrix
- C. Inflammatory / Removing debris and bacteria
- D. Proliferative / Formation of extra cellular matrix
- E. Proliferative / Removing debris and bacteria

70. Palliative wound care for patients with end of life conditions focuses on all of the following EXCEPT:

- A. Advanced wound therapy
- B. Quality of life
- C. Dignity with self-image
- D. Pain management
- E. Odor control

71. Which of the following statements about standards of care, practice, guidelines, policies, and procedures is FALSE?

- A. Reviewed at regular intervals and amended to reflect new information and research
- B. Based on research, published literature and professional society guidelines
- C. Reviewed at intervals corresponding to JACHO inspections
- D. Represent patient orientated outcomes
- E. Reflect Best Practice Standards

72. Given the understanding of the physiology related to the development of deep tissue injury (DTI) and the definition of DTI published by the NPUAP, a deep blue-purple bruise looking area over the sacrum on an immobile patient that was not observed on the admission skin assessment but appears 24 hours later would be:

- A. Classified as an acute medical wound
- B. Properly documented as a Stage I pressure ulcer
- C. Properly document as a Stage IV pressure ulcer
- D. Related to an injury that occurred prior to admission
- E. Appropriately referred to Risk Management as an avoidable event

73. A patient returns to the wound care clinic with a change in the subjective and objective findings related to their wound. The patient is started on antibiotics based on concern for a local wound infection. Which of the following listed findings will most likely be noted?

- A. Pain, Watery Drainage, Erythema, Edema, Purulence
- B. Pain, Warmth, Erythema, Crepitans, Purulence
- C. Pain, Warmth, Erythema, Edema, Purulence
- D. Pain, Warmth, Bullae, Edema, Purulence
- E. Pain, Warmth, Erythema, Edema, Necrosis

74. Which of the following correctly describes the Levine Technique for wound culturing?

- A. Rotate the swab over a 1 cm square area of viable wound tissue with sufficient pressure to express fluid from within the wound
- B. Rotate the swab over a 1 cm square area of necrotic wound tissue with sufficient pressure to express fluid from within the wound
- C. Rotate the swab over entire wound base with sufficient pressure to express pus from within the wound
- D. Obtain a tissue specimen using a sterile scalpel
- E. Aspirate the wound fluid using a 21H needle and a 10 cc syringe

75. Which one of the following practices is not appropriate as policy for a skin tear prevention program?

- A. Use proper positioning, turning, lifting, and transferring patients
- B. Utilize pillows and blankets to support limbs
- C. Padding for bed rails, wheel chairs, and other equipment
- D. Use of detergent soaps and water, or alcohol and solvents based waterless cleansers
- E. Pat skin dry versus rubbing and avoid scrubbing the skin when bathing

76. Removable cast walkers may offer advantages over the total contact cast for all of the following reasons EXCEPT?

- A. Easily removed for self-inspection of the wound
- B. Eliminates the element of "forced adherence" by the patient to keep the walker on during ambulatory activity
- C. Allows the patient to sleep more comfortably
- D. Allows the patient to shower
- E. Allows for dressing changes and application of topical therapies requiring frequent administration

77. Which of the following is the most common initiating factor resulting in the formation of a venous ulcer?

- A. Infection
- B. Peripheral arterial disease
- C. Trauma
- D. Lipodermatosclerosis
- E. Chronic lymphedema

78. What type of debridement is achieved by the utilization of semi-occlusive or occlusive dressings to contain wound fluid?

- A. Autolytic
- B. Enzymatic
- C. Mechanical
- D. Hyperosmolar
- E. Hyperkeratotic

79. Which of the following distinguishes a wound colonized with bacteria from one that is infected?

- A. An infected wound will have a positive swab culture
- B. An infected wound will have purulent exudate
- C. An infected wound will have replicating organisms present in viable tissue
- D. An infected wound will always have necrotic tissue
- E. An infected wound will always have slough

80. Which of the following statements is MOST accurate concerning basal cell carcinoma?

- A. Is usually associated with AIDS
- B. Is usually associated with an infection
- C. Always presents as a nodular lesion
- D. Can erode and become an ulcer
- E. Commonly found on the plantar aspect of the foot or palmar aspect of the hand

81. Inaccurate ankle brachial pressure index may be associated with all of the following conditions EXCEPT:

- A. Calcified arteries
- B. Calf circumference of less than 20 cm
- C. Diabetes
- D. Lower extremity edema
- E. Obesity

82. Chronic arterial occlusion may result in the development of ischemic lower extremity ulcers. All of the following clinical features are commonly associated with these ulcers EXCEPT:

- A. Hyperpigmentation
- B. Severe pain
- C. Minimal edema
- D. Tissue necrosis
- E. Located distally

83. Which of the following bandages provides nonelastic (support) compression therapy?

- A. Zinc oxide impregnated bandage (Unna Boot)
- B. 2-layer cohesive bandage (cotton/Coban)
- C. Long-stretch bandage (SurePress)
- D. 4-layer bandage (Profore)
- E. Thrombo embolic stocking (Teds)

84. The silver cation, Ag⁺, is a very potent antimicrobial agent because it can do all of the following, EXCEPT:

- A. Bind cellular organelles
- B. Bind to bacterial cell DNA
- C. Bind to bacterial proteins
- D. Interfere with bacterial replication
- E. Inhibit uptake of essential amino acids

85. A patient presents with a 4 month history of an enterocutaneous fistula which drains 700-1000cc's daily depending on oral intake. The skin around the fistula has broken down and is painful. Appropriate management strategies include ALL of the following EXCEPT:

- A. Nutritional consult
- B. Control drainage with bag or suction system
- C. Ostomy Nurse consultation
- D. Negative pressure wound therapy
- E. Topical zinc to peri fistula tissues

86. As a diagnosis of exclusion, chronic wounds of a factitial etiology are typically:

- A. Associated with rare autoimmune conditions
- B. Self-imposed injuries
- C. Preceded by a red rash
- D. Associated with dry, scaly scabs
- E. Associated with venous insufficiency

87. Which of the following describes the erroneous practice of changing the wound stage in order to reflect the changing depth noted as the wound heals?

- A. Progressive staging
- B. Back staging
- C. Reverse staging
- D. Revised staging
- E. Down staging

88. An elderly, bed ridden patient is evaluated for a dry, gangrenous, non-infected calcaneal ulcer. The most appropriate initial primary dressing is:

- A. Hydrocolloid
- B. Foam
- C. Gauze
- D. Biologic
- E. Enzymatic

89. The use of crutches as an effective off-loading therapy for foot ulcerations is limited and often not implemented due to all of the following reasons EXCEPT?

- A. The contralateral limb may be at risk of ulceration by increasing pressure to the unaffected side
- B. Patients often lack the upper body strength to use their crutches properly or without discomfort
- C. Crutches can not be adjusted to accommodate the majority of patients heights
- D. Patients often do not have the endurance to tolerate the use of crutches for extended periods
- E. Patients lack the will power to use crutches when they do not perceive any limitation of function in their ulcerated limb

90. The role of fibroblasts in wound healing include all of the following EXCEPT:

- A. Formation of extracellular matrix
- B. Collagen deposition
- C. Angiogenesis
- D. Down regulation of growth factors
- E. Collagen remodeling

91. Which of the following represents the strongest level of evidence in support of a given treatment strategy or therapeutic device?

- A. Case reports
- B. Expert opinion
- C. Retrospective reviews
- D. Prospective randomized trials
- E. Consensus statements

92. In a diabetic patient who presents with a non-healing foot ulcer due to compromising factors including protein energy malnutrition (recent unintended weight loss of 5-10%) the best way to manage the nutritional status is by:

- A. Initiating and encouraging oral feeding of protein and specific essential nutrients
- B. Starting an IV and beginning total parenteral nutrition
- C. Initiating adjuvant therapy with growth hormone and/or anabolic steroids
- D. Debriding the wound to reduce infection and secretion of systemic stress molecules that exacerbate catabolism
- E. Placing a feeding tube and initiating high calorie enteral nutrition

93. The first immune cells to arrive at a wounded site are:

- A. Macrophages
- B. Neutrophils
- C. Platelets
- D. T lymphocyte
- E. Endothelial progenitor cells

94. A 84 year-old patient with dementia presents with a foul smelling ulceration in the sacral region. During the prior three weeks the nursing home staff has been treating the wound application of a hydrocolloid changed every 3 days. The ulcer is now covered with a soft and boggy black eschar and is draining a malodorous yellow-brown fluid. Which of the following would be the BEST approach for general management?

- A. Obtain swab culture
- B. Initiation of intravenous antibiotics
- C. Application of enzymatic debriding agents
- D. Sharp debridement
- E. Diverting colostomy

95. There are several indications for tissue biopsy to evaluate a wound for an atypical etiology, which of the following is NOT an appropriate indication for wound biopsy?

- A. Atypical location from that of a common chronic wound
- B. Unusual appearance of the wound
- C. Unresponsive to appropriate therapy
- D. Recent significant change in a chronic wound
- E. Findings suggestive of acute infection

CSWS PHOTO EXAMINATION

Photo 1

STOP *Employees: Read carefully before entering*

To Enter This Room			
	Wear Gown	Wear Gloves	
Before Leaving This Room			
	Remove Gloves	Remove Gown	Hand Sanitizer or Wash Hands
Contact Precautions: Personal Protective Equipment (PPE)			
<p>Put on in this order:</p> <ul style="list-style-type: none"> • Isolation gown – fasten at neck and tie at waist • Gloves – should cover cuffs of gown 	<p>Remove in this order:</p> <p><i>Before leaving the room</i></p> <ul style="list-style-type: none"> • Remove gloves – discard • Remove gown – untie back of gown and remove, do not touch outside front of gown – discard in waste basket inside of room • Use alcohol hand rub to clean hands or wash with soap and water 	<p><i>Leaving the room</i></p> <ul style="list-style-type: none"> • Exit room • Wash hands (soap/water or alcohol hand rub) 	

96. PQ 1 (Photo 1 – Refer to this Photo to answer the question)

While working in the Wound Care Center you see this placard on the outside of an examination room. The patient has been placed in the room by one of your staff members and the door is closed. What should you do next?

- A. Notify security to gain access
- B. Do not enter the room for any reason
- C. Knock on the door before entering
- D. Put on a protective gown and gloves before entering
- E. Wait for housekeeping to clean the room before entering

Photo 2



97. PQ 2 (Photo 2 – Refer to Photo 2 to answer this Question)

The patient you are caring for is being debrided by the physician. For the purposes of documentation and billing, what is the MOST appropriate description of the procedure being performed?

- A. Selective Mechanical debridement of necrotic tissue
- B. Non Selective Mechanical debridement of fibrin
- C. Sharp Excisional debridement of necrotic tissue
- D. Sharp Selective debridement of necrotic tissue
- E. Sharp Excisional debridement of fibrin

98. PQ 3 (Photo 2 – Refer to Photo 2 to answer this Question)

Based on the appearance of this patient's wound select the BEST description of the etiology and MOST likely primary factor that is compromising healing:

- A. DFU / Offloading
- B. Surgical / Offloading
- C. DFU / Ischemia
- D. Surgical / Ischemia
- E. DFU / Infection

99. PQ 4 (Photo 2 – Refer to Photo 2 to answer this Question)

Debridement of this wound was limited due to pain, thus nonviable tissue remains. All of the following management strategies would be acceptable for this patient upon discharge from this visit EXCEPT:

- A. Alginate
- B. Hydrogel with Silver
- C. Hydrocolloid
- D. Hydrofiber
- E. NPWT

Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



100. PQ 5 (Photo 3, 4, 5, 6, 7, 8 – Refer to Photos 3, 4, 5, 6, 7, 8 to answer this question)

Please select the photo that is the BEST example of a Venous Insufficiency Ulcer.

- A. Photo 3
- B. Photo 4
- C. Photo 5
- D. Photo 6
- E. Photo 7
- F. Photo 8

101. PQ 6 (Photo 3, 4, 5, 6, 7, 8 – Refer to Photos 3, 4, 5, 6, 7, 8 to answer this question)

Please select the photo that is the BEST example of a Pressure Ulcer.

- A. Photo 3
- B. Photo 4
- C. Photo 5
- D. Photo 6
- E. Photo 7
- F. Photo 8

102. PQ 7 (Photo 3, 4, 5, 6, 7, 8 – Refer to Photos 3, 4, 5, 6, 7, 8 to answer this question)

Please select the photo that is the BEST example of a Diabetic Ulcer.

- A. Photo 3
- B. Photo 4
- C. Photo 5
- D. Photo 6
- E. Photo 7
- F. Photo 8

103. PQ 8 (Photo 3, 4, 5, 6, 7, 8 – Refer to Photos 3, 4, 5, 6, 7, 8 to answer this question)

Please select the photo that is the BEST example of an Arterial Ulcer.

- A. Photo 3
- B. Photo 4
- C. Photo 5
- D. Photo 6
- E. Photo 7
- F. Photo 8

104. PQ 9 (Photo 3 – Refer to Photo 3 to answer this Question)

Which of the following describes the BEST approach to the management of this patient?

- A. TCOM Examination, then ABI Testing, then BKA
- B. ABI Testing, then Bone Scan, then Digit Amputation
- C. TCOM Examination, then Angiogram, then Digit Amputation
- D. ABI Testing, then Bone Scan, then Angiogram
- E. ABI Testing, then Digit Amputation, then Hyperbaric Oxygen Therapy

105. PQ 10 (Photo 7 – Refer to Photo 7 to answer this Question)

Which of the following describes the BEST initial approach to the management of this patient?

- A. Compression Therapy
- B. ABI then Compression Therapy
- C. Gel Topical ONLY, Compression is contraindicated
- D. Gel Topical following Tissue Biopsy
- E. Immediate Hospitalization with Infectious Disease Consultation

106. PQ 11 (Photo 3, 4, 6, 7 – Refer to Photos 3, 4, 6, 7 to answer this Question)

The utilization of Intermittent Pneumatic Compression would be MOST appropriate for this patient:

- A. Photo 3
- B. Photo 4
- C. Photo 6
- D. Photo 7
- E. Photo 6 and 7

107. PQ 12 (Photo 3, 4, 5, 6, 7, 8 – Refer to Photos 3, 4, 5, 6, 7, 8 to answer this question)

Please select the photo that is the BEST example of a patient that would have offloading as a primary treatment incorporated into their care plan?

- A. Photo 3
- B. Photo 4
- C. Photo 5
- D. Photo 6
- E. Photo 7
- F. Photo 8

108. PQ 13 (Photo 3, 4, 5, 6, 7, 8 – Refer to Photos 3, 4, 5, 6, 7, 8 to answer this question)

Please select the photo that is the BEST example of a patient that would have pressure redistribution as a primary treatment incorporated into their care plan?

- A. Photo 3
- B. Photo 4
- C. Photo 5
- D. Photo 6
- E. Photo 7
- F. Photo 8

Photo 9



Photo 10



Photo 11

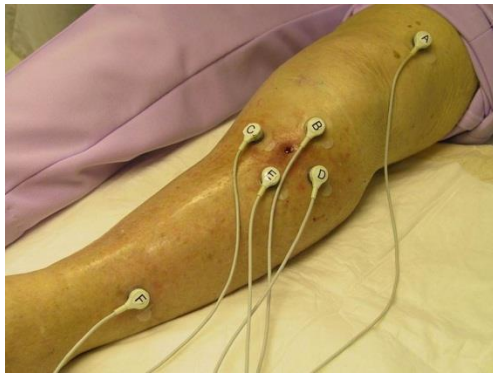


Photo 12



109. PQ 14 (Photos 9, 10, 11, 12 – Refer to Photos 9, 10, 11, 12 to answer this question)

You are supervising a new technician who has just completed her Transcutaneous Oxygen Training. Which of the following photos show good technique and placement of the electrodes?

- A. Photo 9
- B. Photo 10
- C. Photo 11
- D. Photo 12

110. PQ 15 (Photos 9, 10, 11, 12 – Refer to Photos 9, 10, 11, 12 to answer this question)

Transcutaneous Oximetry Testing can be affected by several variables. Which of the following combinations of clinical scenarios BEST illustrates a clinical variable that might cause inaccurate TCOM measurement?

- A. Photo 9 / Edema
- B. Photo 10 / Edema
- C. Photo 11 / Edema
- D. Photo 11 / Cellulitis
- E. Photo 12 / Cellulitis

Photo 13



Photo 14



Photo 15



Photo 16



111. PQ 16 (Photos 13, 14, 15, 16 – Refer to Photos 13, 14, 15, 16 to answer this question)

The wound care order reads “Apply Foam Dressing to Wound Base”. You are asked to apply the dressing. Please indicate which one of the above categories of dressings should you use?

- A. Photo 13
- B. Photo 14
- C. Photo 15
- D. Photo 16

112. PQ 17 (Photos 13, 14, 15, 16 – Refer to Photos 13, 14, 15, 16 to answer this question)

The wound care order reads “Apply Hydrocolloid Dressing to Wound Base”. You are asked to apply the dressing. Please indicate which one of the above categories of dressings should you use?

- A. Photo 13
- B. Photo 14
- C. Photo 15
- D. Photo 16

113. PQ 18 (Photos 13, 14, 15, 16 – Refer to Photos 13, 14, 15, 16 to answer this question)

The wound care order reads “Apply Alginate Dressing to Wound Base”. You are asked to apply the dressing. Please indicate which one of the above categories of dressings should you use?

- A. Photo 13
- B. Photo 14
- C. Photo 15
- D. Photo 16

114. PQ 19 (Photos 13, 14, 15, 16 – Refer to Photos 13, 14, 15, 16 to answer this question)

The wound care order reads “Apply Hydrogel to Wound Base”. You are asked to apply the dressing. Please indicate which one of the above categories of dressings should you use?

- A. Photo 13
- B. Photo 14
- C. Photo 15
- D. Photo 16

115. PQ 20 (Photos 13, 14, 15, 16 – Refer to Photos 13, 14, 15, 16 to answer this question)

Which of the above categories of dressings can be utilized for autolytic debridement?

- A. Photo 13
- B. Photo 14
- C. Photo 15
- D. Photo 16
- E. All of the above

Photo 17



116. PQ 21 (Photo 17 – Refer to Photo 17 to answer this question)

You are assisting in the evaluation and documentation of wound assessment of this patient. What finding is being illustrated?

- A. Necrotic Tissue
- B. Wound Tunneling
- C. Wound Depth
- D. Wound Undermining
- E. Wound Epiboly

117. PQ 22 (Photo 17 – Refer to Photo 17 to answer this question)

You are assisting in the evaluation and documentation of wound assessment of this patient. What is the BEST description of this wound?

- A. Stage II Pressure Ulcer with moderate necrotic tissue
- B. Stage III Pressure Ulcer minimal necrotic tissue and healthy granular base
- C. Stage III Pressure Ulcer with moderate necrotic tissue and exposed muscle
- D. Stage IV Pressure Ulcer with moderate necrotic tissue and exposed muscle
- E. Stage IV Pressure Ulcer minimal necrotic tissue and healthy granular base

Photo 18



118. PQ 23 (Photo 18 – Refer to Photo 18 to answer this question)

A patient presents to the Wound Care Clinic for initial consultation. The above wound has been present for 4 years, but recently has significantly increased in size. This wound would BEST be classified into what group of wound etiologies?

- A. Necrotic
- B. Arterial
- C. Atypical
- D. Diabetic
- E. Pressure

119. PQ 24 (Photo 18 – Refer to Photo 18 to answer this question)

You are motivated by efficiency and want to “have everything ready for the doctor”. Based on your evaluation and assessment of this patient, what would you anticipate will be needed in the room by the physician after she has evaluated the patient?

- A. Hyperbaric Oxygen teaching video
- B. Scalpel and surgical tray
- C. Transcutaneous oxygen unit
- D. Biopsy kit
- E. Admission paperwork

Photo 19



Photo 20

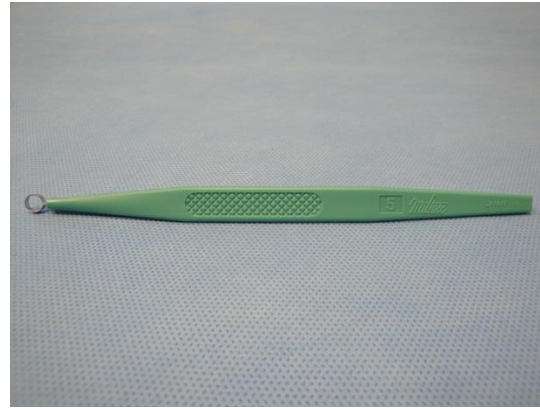


Photo 21



Photo 22



120. PQ 25 (Photos 17, 19, 20, 21, 22 – Refer to Photos 19, 20, 21, 22 to answer this question)

After evaluating the patient illustrated in Photo 17, the physician determines that wound debridement is appropriate. Which of the illustrated instruments is NOT typically used for debridement of necrotic soft tissues?

- A. Photo 19
- B. Photo 20
- C. Photo 21
- D. Photo 22
- E. All are used

121. PQ 26 (Photo 17 – Refer to Photo 17 to answer this question)

Examination of the wound following debridement of the patient illustrated in Photo 17, the physician states that the sacral bone is now palpable. The MOST appropriate diagnosis of this wound would be?

- A. Sacral Pressure Ulcer Deep
- B. Sacral Pressure Ulcer Unstageable
- C. Sacral Pressure Ulcer Stage III
- D. Sacral Pressure Ulcer Stage IV
- E. Sacral Pressure Ulcer Wagner Stage IV

Photo 23



122. PQ 27 (Photo 23 – Refer to Photo 23 to answer this question)

A patient presents to the Wound Care Clinic for a follow up evaluation. After removing the dressing and cleansing the wound, you are asked to describe the appearance of the wound. How would this wound be BEST described?

- A. Necrotic, Fibrin
- B. Necrotic, Granular
- C. Healthy, Marginal
- D. Healthy, Granular
- E. Proliferative, Fibrin

123. PQ 28 (Photo 23 – Refer to Photo 23 to answer this question)

Close inspection of the margins of this wound reveals a thin border of tissue which is pale white semi-translucent but well adherent to the wound. Which of the following terms BEST describes this tissue?

- A. Fibrin
- B. Film
- C. Fibroblast Proliferation
- D. Marginal Neomembrane
- E. Neoepidermis

Photo 24



124. PQ 29 (Photo 24 – Refer to Photo 24 to answer this question)

A patient presents to the Wound Care Clinic for a follow up evaluation. He is being treated with the product illustrated above. Which of the following BEST describes the classification of the wound and the type product being used?

- A. Surgical Wound, Dermal Skin Substitute
- B. Surgical Wound, Cellular Tissue Based Product
- C. Diabetic Ulcer, Dermal Skin Substitute
- D. Diabetic Ulcer, Cellular Tissue Based Product
- E. Diabetic Ulcer, Artificial Skin Graft

125. PQ 30 (Photo 24 – Refer to Photo 24 to answer this question)

Associated with the procedure illustrated which treatment plan is associated with the best clinical outcomes?

- A. Wound Bed Prep / Offloading
- B. Wound Bed Prep / HBOT
- C. Wound Bed Prep / NPWT
- D. Edema Control / Offloading
- E. Edema Control / HBOT

Photo 25

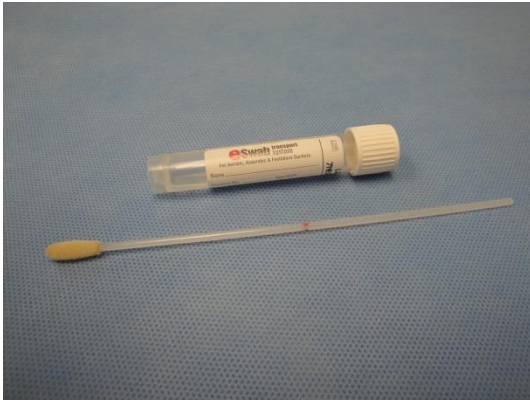


Photo 26



Photo 27



Photo 28



126. PQ 31 (Photos 25, 26, 27, 28 – Refer to Photos 25, 26, 27, 28 to answer this question)

A patient presents to the wound care clinic for initial consultation after being seen in the Emergency Department last night for increasing wound pain and low grade fever. You evaluate the wound and notice erythema and odor. To prepare the room for the physician, you anticipate needing which of the above items?

- A. Photo 25
- B. Photo 26
- C. Photo 27
- D. Photo 28

Photo 29



127. PQ 32 (Photo 29 – Refer to Photo 29 to answer this question)

You are evaluating the patient's wound illustrated above. The BEST terminology to describe the appearance of this wound would be:

- A. Fibrin-Slough
- B. Granular
- C. Eschar
- D. Infected
- E. Macerated

128. PQ 33 (Photo 29 – Refer to Photo 29 to answer this question)

This patient is being considered for application of a Cellular and Tissue Based Product (CTP). Which of the following are important considerations associated with this procedure EXCEPT?

- A. 4 weeks of prior basic wound care
- B. Offloading
- C. Wound bed preparation
- D. Optimization of vasculature
- E. Maximization of nutrition

Photo 30



129. PQ 34 (Photo 30 – Refer to Photo 30 to answer this question)

You are evaluating the patient's wound illustrated above. The patient states that she a cast applied to her lower extremity following surgical intervention on her Hallux several days ago. The cast was removed by the surgeon earlier today after she went in complaining of increasing pain over the past 24-48 hours. Subsequently she was referred to the Wound Care Clinic for evaluation. The patient states the pain is now slightly improved after removal of the cast. She is afebrile, but states that she had chills and sweats last night. Examination of the wound reveals mild tenderness with palpation, surrounding erythema and evidence of underlying fluctuance. The BEST terminology to describe the appearance of this wound would be:

- A. Fibrin
- B. Macerated
- C. Eschar
- D. Wagner II
- E. Unclassified

130. PQ 35 (Photo 30 – Refer to Photo 30 to answer this question)

Her surgeon should be called and provided with recommendations for a Plan of Care. Which of the following is the BEST immediate advice?

- A. Hospitalization for surgical debridement and exploration
- B. Infectious Disease consultation for administration of antibiotics
- C. Emergent Vascular consultation for angiography
- D. Initiate basic wound care and maintain with dry dressing and provide close follow up
- E. Initiate sharp debridement and apply enzymatic agent and provide close follow up

Photo 31



Photo 32



Photo 33



Photo 34



131. PQ 36 (Photos 31, 32, 33, 34 – Refer to Photos 31, 32, 33, 34 to answer this question)

The therapy that would most likely be used in the management of a surgical wound is shown in which photo?

- A. Photo 31
- B. Photo 32
- C. Photo 33
- D. Photo 34

132. PQ 37 (Photos 31, 32, 33, 34 – Refer to Photos 31, 32, 33, 34 to answer this question)

The therapy that would most likely be used in the management of a necrotic wound in a patient that is not a candidate for surgical intervention is shown in which photo?

- A. Photo 31
- B. Photo 32
- C. Photo 33
- D. Photo 34

133. PQ 38 (Photos 31, 32, 33, 34 – Refer to Photos 31, 32, 33, 34 to answer this question)

Based on the therapy illustrated in the above photos, which patient is MOST likely to have a positive past medical history for Deep Venous Thrombosis?

- A. Photo 31
- B. Photo 32
- C. Photo 33
- D. Photo 34

134. PQ 39 (Photos 31, 32, 33, 34 – Refer to Photos 31, 32, 33, 34 to answer this question)

The therapy that would MOST likely be used in the management of a superficial diabetic foot ulcer is shown in which photo?

- A. Photo 31
- B. Photo 32
- C. Photo 34
- D. Photo 31 & 32
- E. All of the Above

135. PQ 40 (Photos 31, 32, 33, 34 – Refer to Photos 31, 32, 33, 34 to answer this question)

Each of the above advanced therapy demonstrated in Photos 31, 32, 33, 34 is associated with a patient that is a classic example of a wound type. Which of these illustrated conditions is associated with a diagnosis that may be an appropriate indication for adjunctive hyperbaric oxygen therapy?

- A. Photo 31 Only
- B. Photo 32 Only
- C. Photo 33 Only
- D. Photo 31 and 32
- E. All of the Above