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Wound Assessment Part 1

R. B. TURNBULL JR. MD WOC NURSING EDUCATION PROGRAM

"Treat the whole patient, not just the hole in the patient."

The effective management of any wound involves the holistic care of the whole individual. This begins with that holistic assessment and a complete evaluation of the wound itself. Wound assessment and documentation then are critical components of the nursing management plan. This module focuses on wound assessment and the components of such.

Learning Objectives

- Use assessment findings to optimize wound healing
- Differentiate between partial vs. full-thickness damage
- Describe the steps to preparing the wound for healing
- Summarize assessment findings for documentation to the medical record

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Our specific learning objectives for this lesson include using assessment findings to optimize a holistic wound management plan, discuss wound classifications, compare wound measurement options, and summarize assessment findings for medical record documentation.

Introduction

- Assessment drives the plan of care
- Use standardized documentation tools
- Wound evaluation is a complex task

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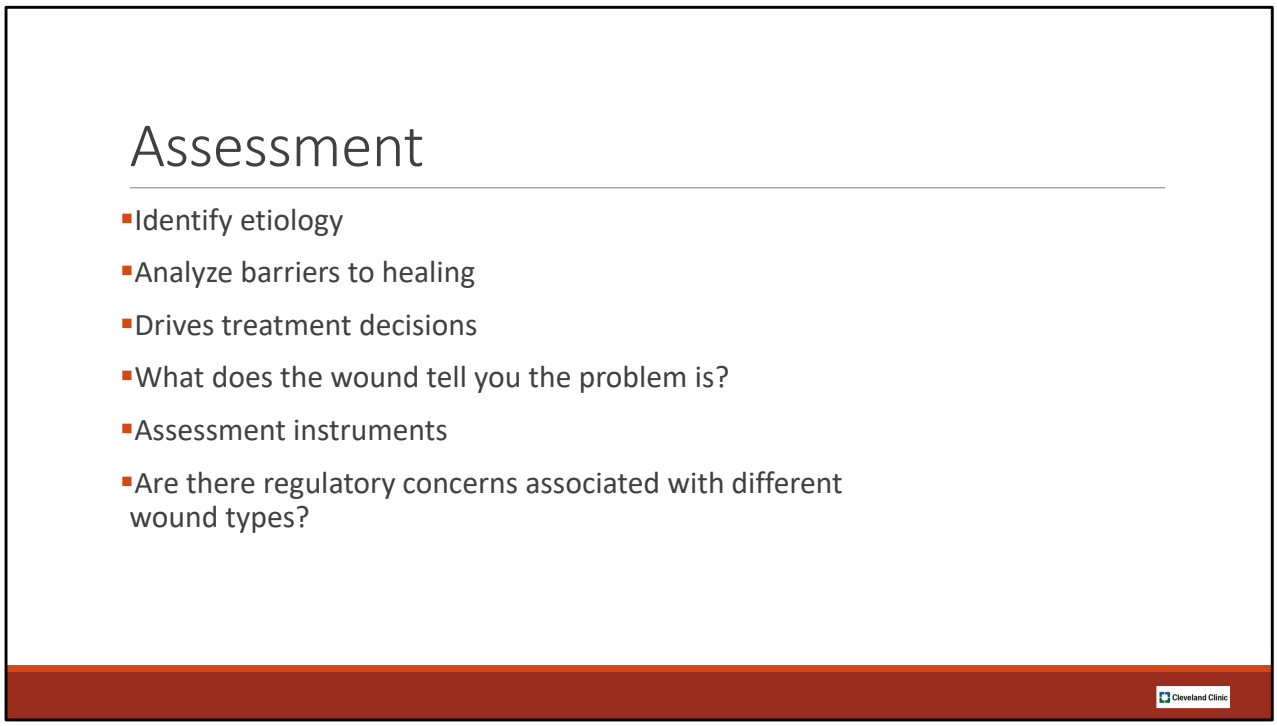
An objective assessment provides important clues in determining the etiology of a wound and related co-morbid conditions that can impair the healing process. It is imperative to establish an accurate baseline followed by serial assessments to evaluate first whether the wound has the potential to heal, and 2nd, if it is progressing toward wound closure, or if deterioration has occurred along the way. Using a systematic holistic assessment strategy provides the wound specialist important information to include in establishing and executing a plan of care. Careful consideration should be given to the type of wound or wound etiology, whether the wound is healable, what specific interventions should be included to promote a healing environment, and whether the situation warrants a referral to another specialist. In other words, assessment will provide the clinician the necessary information to determine which topical treatments and dressings will best provide a healing environment, where adjunctive management options should be included, and at what point other team members need to be included along the way.



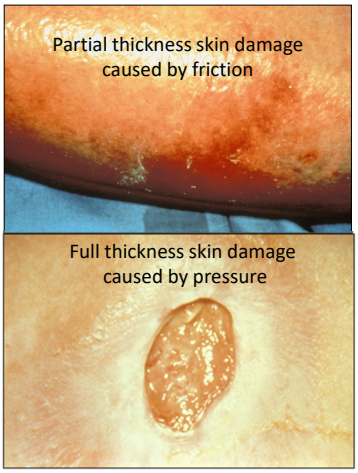
A comprehensive evaluation of the wound and the patient should include wound etiology and determining any barriers to healing. This information is used to plan care. Consider what the wound condition is and how that demonstrates the care needs. Assessment, then, guides the clinician in identifying the cause of the wound which will drive treatment decisions. It is critical to establish the baseline of the wound condition, accurately assess for response to treatment, determine the frequency of care, type of topical dressing choice, and whether the use of other adjunctive therapies are needed to enhance healing (Bates-Jensen, 2022). The healing process will differ depending on the wound type and healing barriers, and how they are managed.

Unfortunately, wound assessment and documentation are not always completed or, if completed, are not always done with consistency or reliability. This can be attributed to many factors including differences between nurses in wound assessment skill and knowledge, variations in care, and documentation policies. A variety of assessment instruments are available for use. Some measure changes in the size and tissue type within the wound while others include wound characteristics, healing trajectory, or classifications of wound types. As discussed in previous lessons, the healing process will differ depending on the wound type and healing barriers. The decision on which

assessment instrument to use will depend on factors such as level of care, regulatory requirements, wound classification, organization policies, and skill level of the clinician using the document. The use of a validated documentation tool provides consistency and reliability of wound healing evaluations. (Bates-Jensen, 2022). Wound evaluation is a complex task that combines knowledge of wound classifications, and physical and wound assessment skills with use of appropriate instruments In this lesson module, assessment parameters most commonly used in wound evaluation will be described.

Determines the plan

- Initial and comprehensive nursing assessment establishes the foundation of the plan
- Focuses on wound etiology, barriers to healing, physical wound parameters, socio-economic factors that influence the plan of care
- Is the wound healable?



(Bates-Jensen, 2022)

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An initial and comprehensive nursing assessment establishes a foundation that includes baseline information about the wound itself and the physical environment, considers the cause of the wound, identifies and addresses barriers to healing, and any physical and psychosocial concerns that could impact the current and long term healing goals. Remember, acute wounds will heal in a predictable fashion; generally without complication and with minimal scarring. It is the chronic wound that has been affected by factors such as poor blood perfusion, infection, or a disease process. This becomes the challenge for the wound specialist in identifying topical and systemic care needs, and in determining whether healing is progressing. The chronic wound then can be defined as one which fails to progress through the normal and physiologic healing phases, thus not coming to closure and self-repair.

Consistency

- Standardized approach provides a clear picture over time
- Serial assessments provide early clues to problems and supports clinical judgment
- Wound considerations
  - Wound measurements, exudate, tissue type, periwound skin
- Holistic considerations
  - Blood supply, infection, nutrition, comorbid conditions (e.g. diabetes)
  - Topical care considerations
  - Is the wound stalled? Referral needed?

(Bates-Jensen, 2022)

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Effective planning uses a holistic and standardized approach to assessment. Serial assessments supports sound clinical judgment, provides for early identification of a problem in the healing or tissue repair process, and will signal the need to change treatment strategies. Measurement of wound size, tissue type in the wound, presence of undermining, amount and quality of exudate (drainage), and condition of the surrounding skin form the basis of wound assessment (Bates-Jensen, 2022). Additionally, the ability of a wound to heal can be considered through adequate blood supply to the wound, nutritional status of the patient, identification of co-morbid diseases, and optimization of the wound bed through topical care (Baranoski et al., 2020). Wounds which do not show progress within the first few weeks of care should be considered stalled, and be reevaluated for any issues that are impacting the healing process. Some of these impediments include, but not limited to, infection, comorbid disease, appropriateness of the topical care, and the need for referrals. Common barriers to healing include hyperglycemia, infection, unmanaged underlying wound cause, uncontrolled comorbid diseases, and poor tissue perfusion.

What is the Goal of Treatment?

- Healing
- Maintenance or symptom control
- Life saving
- Limb preservation
- Pain control
- Preparation for graft or flap
- Cost/Insurance

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What is the goal of treatment? Is it always to heal? Is it the only goal? Perhaps the goal will be lifesaving as in the case of necrotizing fasciitis. For the lower extremity complicated by arterial insufficiency and diabetes, the goal may be to save the limb. Pain management is also important for compliance and comfort. Perhaps it is a pressure injury being prepared for surgical closure. The issue of who is paying for the whole case is also important and you will find yourself in situations where this has a direct effect on how the wound will be managed. For example, the payor may not approve or cover the treatment products. This results in either the patient self-paying or a change in the plan of care. Let's not forget managing co-morbid conditions because without doing so the healing trajectory will be at best delayed. In palliative wounds, the goal is not necessarily to achieve wound closure, rather to manage odor, pain, bleeding, and to contain exudate. All of this will be covered in more detail in other lessons.

Wound Assessment

- Holistic approach
- Determine etiology
- Environmental
  - Intrinsic
  - Extrinsic
- Patient considerations
  - Physical (self-care or care giver)
  - Psychosocial (depression, substance abuse, other)
  - Financial (what product is covered?)

- Local & systemic symptoms
- Wound specifics
- What interdisciplinary team members should be involved?
  - Vascular
  - Surgical
  - Dietitian
  - Social Services
  - PT/OT
  - Diabetic specialist

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Using a holistic approach to assessment takes into account any intrinsic and extrinsic concerns that either are or will become a barrier to healing. Prior to determining the nursing plan of care to manage a wound, assessing for and addressing etiology, nutritional deficits, infection, psychosocial issues (including who is the caregiver) and financial issues (who pays), and anything else that could interfere with healing, will provide the wound specialist with a comprehensive view of how to individualize the plan of care. Failure to address these issues can result in further healing delays or other complications. Important to remember as well is that as the nurse specialist, you are never alone in providing care. Depending on what disease entities or healing barriers exist, it is important to understand the need to involve other health team members and understand when to refer. As you assess your patient, consider what will best meet this person's needs and meet the goals of care.

Medical record review

- Review for relevant history
- Clues of etiology
- Identification of co-morbid conditions and medications
- Nutritional deficiencies (check dietitian notes)
- Other considerations: need for debridement, infection concerns, topical care needs, financial considerations

(Bates-Jensen, 2022)

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The assessment process begins with a review of the medical record and a head to toe assessment of body systems. Obtaining a medical and surgical history of the patient provides valuable clues to the nature and cause of the wound. Consider how co-morbid conditions such as diabetes mellitus, immunosuppression, vascular insufficiency, nutritional deficiencies, and medications can impact or alter the phases of healing (Beitz, 2022; Bates-Jensen, 2022). For example, hyperglycemia has the potential to affect the normal immune response thus decreasing the ability of leukocytes to decrease the bacterial load and attract fibroblasts to the wound bed. Vascular complications such as arterial or venous insufficiency can be both the cause and healing barrier in lower extremity wounds. Of additional importance is preparing the wound for healing. Assessment drives treatment decisions including the need for debridement, management of infection, topical care, and adjunctive treatment to support the healing process (Bates-Jensen, 2022).

Duration of the wound

- Length of time the wound has been present
  - Acute vs chronic
  - Healable
  - Referrals
- Consider underlying cause, disease states, contributing factors
  - Pressure, vascular, immune system, infection, skin cancer
  - Necrosis, malnutrition, limited resources to care for wound
- What additional intervention is needed?
- Evaluate treatment plan every one to two weeks

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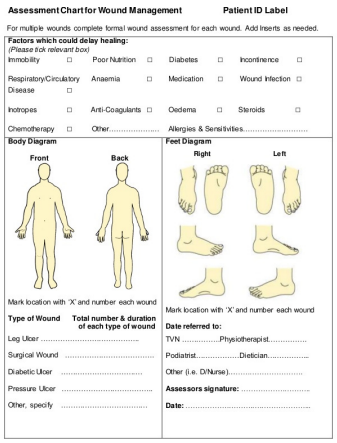
The duration of the wound provides an idea of where the wound should be on the healing trajectory. If the patient has a new surgical or other acute wound, a predictable healing rate can be expected. An incision or acute wound that is not following the healing trajectory needs intervention, including investigation and management of any contributing factors, such as infection, pressure, or malnutrition. A chronic wound such as a pressure injury or vascular ulcer also requires additional intervention if the wound is not demonstrating healing or resolution within a selected time frame. The treatment plan should be evaluated every one to two weeks for any needed adjustments (Bates-Jensen, 2022).

Prepare wound for accurate assessment

- Cleanse wound of debris, drainage, etc.
- Residue from dressings can be malodorous, appear purulent, confused with an infectious process
- Unobstructed view of the wound
- Use of flowcharts and wound assessment tools



Assessment Chart for Wound Management **Patient ID Label**

For multiple wounds complete formal wound assessment for each wound. Add Inserts as needed.

Factors which could delay healing:
(Please tick relevant box)

Immobility ☐ Poor Nutrition ☐ Diabetes ☐ Incontinence ☐
Respiratory/Circulatory Disease ☐ Anaemia ☐ Medication ☐ Wound Infection ☐
Inotropes ☐ Anti-Coagulants ☐ Oedema ☐ Steroids ☐
Chemotherapy ☐ Other..... Allergies & Sensitivities.....

Body Diagram

Front Back

Mark location with 'X' and number each wound

Type of Wound **Total number & duration of each type of wound**

Leg Ulcer .....
Surgical Wound .....
Diabetic Ulcer .....
Pressure Ulcer .....
Other, specify .....

Feet Diagram

Right Left

Mark location with 'X' and number each wound

Date referred to:

TVN .....Physiotherapist.....
Podiatrist.....Dietician.....
Other (i.e. D/Nurse).....
Assessors signature: .....
Date: .....

(Bates-Jensen, 2022)

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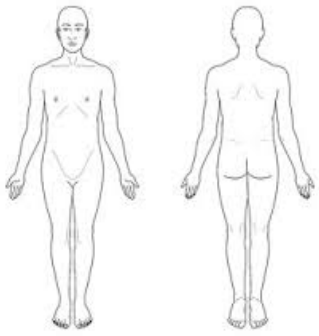
Prior to assessment, the site should be cleansed of wound debris, drainage, and dressing residue. Residue from dressings can be malodorous and appear purulent which can easily be confused with an infectious process. Cleansing provides an unobstructed view of the wound, helps prepare the wound bed for topical care, and offers the clinician an accurate picture of the wound condition (Bates-Jensen, 2022). Flowcharts and wound assessment tools are valuable in assuring consistency in a comprehensive assessment and facilitate documentation that reflects a true representation of healing.

Where exactly is the wound located?

- Anatomical location provides clues to etiology
- Considerations
  - Differences in tissue layers by anatomical position
    - Nose, ear, occipital area – no subcutaneous tissue
    - Heels are particularly vulnerable
  - Accuracy in documenting the exact location
  - Location can point to potential underlying disease states affecting the wound management plan



(Bates-Jensen, 2022)

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An important parameter in assessment is anatomical location. This is important in terms of wound cause as it impacts treatment selection including any adjunct treatments. For example, a wound above the medial maleolus may suggest a venous insufficiency ulcer, and wounds located over a bony prominence suggests a pressure injury.(Bates-Jensen, 2022). If the etiology is known, further assessment in relation to the cause should be explored. For example, the pressure injury wound should include an assessment of pressure causes. An arterial insufficiency wound should include an evaluation of tissue perfusion.

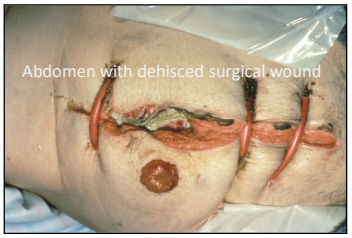
Depending on the classification or wound type, the wound stage or grading system should be included ((Bates-Jensen, 2022). An example of this is a pressure injury. Pressure injuries are classified according to stages and depth of tissue injury involved. This staging system, defined by the National Pressure Injury Advisory Panel (NPAIP), only applies to pressure injuries. It is also important to consider the depth of damage involved. Partial versus full-thickness tissue damage is the most commonly used classification, and can be applied to most other classification types (Beitz, 2022; Bates-Jensen, 2022). The color or tissue type of the wound bed signifies the need for debridement, perfusion status, and potential for an infectious process. Wound measurements include length, width, depth. Undermining provides important

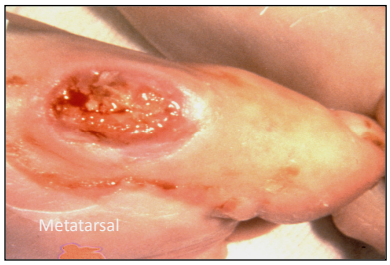
information on healing and treatment choices. Additional elements to assess include the quality and quantity of exudate, the condition of the wound margins and surrounding skin, and any pain associated with the wound (Beitz, 2022; Bates-Jensen, 2022).

Location

Location

Location





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The location of the wound is important to determining cause, potential depth of tissue destruction, and topical treatment options. Depending on the location, a shallow wound could also demonstrate full thickness tissue loss. Likewise, a deep wound could involve a depth of subcutaneous tissue. Location matters. Consider the cases here on this slide. How would you determine cause, depth of damage, what dressing to use, and how to secure the dressing?

Nutritional assessment

- Adequate hydration
- Proteins, vitamins for body maintenance and for healing
- Inadequate nutrition can delay healing
- Dietitian evaluation
- Identifies interventions

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Nutrition assessment is another important component to assessing the person with a wound, and important to incorporate into the plan of care for healing (Friedrich et al., 2022). All individuals require adequate hydration, protein, and vitamin and mineral intake to maintain normal body function and skin integrity. The malnourished person is at risk for poor or delayed healing outcomes which places nutritional assessment and support a priority for wound management. Elements to consider include swallowing and chewing problems, decreased appetite, unintended weight loss, quality of nutritional intake, and laboratory data (e.g. CBC, HgbA1C). A registered dietician provides a thorough evaluation which includes body mass index, comorbid diseases, protein energy intake and hydration needs (Friedrich et al., 2022). The data collected forms the base for specific nutritional interventions based on individual requirements.

Role of nutrients in healing

Protein	Angiogenesis, collagen synthesis, contraction, immune function
Carbs	Energy, protein sparing, angiogenesis
Fats	Cell walls, intracellular structures, inflammation
Vitamin A	Epithelialization, angiogenesis, inflammatory response
B Vitamins	Cofactor in Enzymes, immune, macronutrients, ATP production
Vitamin C	Collagen synthesis, capillary wall, fibroblasts, antioxidant
Vitamin D	Calcium metabolism
Vitamin E	Antioxidant
Vitamin K	Coagulation
Copper	Cross-linking collagen
Iron	Collagen formation, immune function, oxygen transport
Zinc	Collagen formation, protein synthesis, cell membrane, immune system

(Nix, 2016)

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What nutrients are important in body function and in healing? This slide identifies many of the nutrients along with their role in wound healing. These are important to consider in terms of what supplements may be needed.

Weight loss & malnutrition

Indicators of Malnutrition
Weight loss in last 6 months • <5% = mild loss • 5% - 10% = moderate to severe loss • >10% = severe loss
Body Mass Index (BMI) • <18.5 kg/m squared = underweight • 18.5 – 24.9 kg/m squared = normal weight • 25 – 29.9 kg/m squared = overweight • >30 kg/m squared = obese
Weight <90% ideal body weight = malnutrition

(Nix, 2016)

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What then are the indicators of malnutrition? We can look at lab values to help us, however, those lab values can be deceiving in cases of dehydration and infection. Once again we need to look at the whole picture. One reliable indicator is weight loss, that is unintentional weight loss. As you can see in this slide, we are considering that loss within the last 6 months. Less than 5% equates with mild weight loss, 5% to 10% equates with moderate to severe weight loss, and more than 10% loss of body weight is considered severe. We can also look at BMI or body mass index where what should be normal is part of the equation. A person who is less than 90% of their ideal body weight is considered malnourished.

Plasma protein levels

Visceral protein refers to the amount of protein contained in internal organs			
Visceral Protein	**Malnutrition**	**Normal**	**Factors affecting reliability**
Serum albumin	<3.5 g/dl	3.5 – 5.0 g/dl	Inflammation, dehydration, over hydration
Serum prealbumin	<19.5 mg/dl	19.5 – 35.8 mg/dl	Inflammation, dehydration, over hydration
Transferrin (function of iron transport)	<100 mg/dl	230 – 390 mg/dl	Iron deficiency
Visceral protein levels are used as indicators of prognosis, severity of injury, & nutritional status in hospitalized patients.			

(Nix, 2016)

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We do of course look at lab values, keeping in mind of course that this does not tell us everything. When considering lab work, we think in terms of visceral protein levels; that is the amount of protein contained within the internal organs.

Manifestations of protein malnutrition

Malnutrition Type	Cause	Manifestations
Marasmus (Protein-calorie malnutrition)	Inadequate protein & energy	Gradual wt. loss, underweight, can progress to cachexia, visceral levels & immune function preserved
Kwashiorkor (Protein malnutrition)	Inadequate protein intake/ adequate energy intake	Well nourished in appearance, rapid onset loss of visceral proteins, skeletal mass preserved, edema
Mixed	Inadequate protein & energy intake	Common in hospitalized pts. , acute onset, rapid wt. loss, fat & muscle wasting, rapid decline visceral proteins
Obesity	Excessive energy intake	Body mass index >30 Large waist size

(Nix, 2016)

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There are physical indicators or manifestations of malnutrition. Some of these are identified here for your review.

Physical findings of nutritional deficits

Site	Signs & Symptoms	Nutritional Deficit
Skin	Cracking, petechiae, scaling,	Protein, vitamins C & A
Hair	Corkscrew hairs, easily pluckable hair	Vitamin C, protein
Muscles	Weakness	Proteins, calories
Mouth	Bleeding, atrophic tongue	Vitamins A, C, K Protein, Iron

(Kaminski & Drinane, 2014)

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Other physical findings include skin, hair, muscle, and mouth indicators. These areas, then, should be included in the assessment. When you see these manifestations, it is important to look further through lab work and quantify what you are seeing so the appropriate modifications can be made. This is where the registered dietitian is a valuable member of the team. This person is educated to make those calculations into caloric and supplement needs.

Assessing for potential problems

Vitamin Deficiency	Manifestation
B Vitamins	• Angular stomatitis, glossitis, pellegra (crepe paper appearance to skin)
Vitamin C	• Acute scurvy & the 4 "H's" – hemorrhage, hyperkeratosis, hypochondriasis, hematologic abnormalities • Chronic scurvy - purpura – skin & capillary fragility
Vitamins A, E, & K	• Reddish, scaly, pruritic skin lesion • Many times no physical manifestations – check levels
Essential Fatty Acids	• Increased inflammation, vasoconstriction, enhanced platelet aggregation
Zinc	Seborrheic-like manifestations/ reddish & flaky along lateral eyebrow and nasal labial folds
Glucosamine/ Chondroitin	Skin tenting in otherwise well hydrated patient

(Kaminski & Drinane, 2014)

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This chart here identifies some vitamins and highlights some of the potential problems one might see if the vitamin is deficient.

Supplement considerations

Micronutrient	Dosage
Multivitamin	1 tab daily
Vitamin C	500 mg daily
Vitamin D3	2000 IU BID
Zinc Sulfate	220 mg BID
Fish oil	1 gam BID
Vitamin B3	250 mg BID (with pellagra skin changes)
Glucosamine/chondroitin	600/400 mg BID (with skin changes ECM hydration)

(Kaminski & Drinane, 2014)

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When a vitamin deficiency is identified, the next step is to identify supplements and how much to supplement. But, how much is too much? In this slide, you see the recommended daily dosages

Special considerations for infants

- Skin not completely developed in structure
- Higher risk for skin injury
- Pay close attention to subtle signs of infection, etiology
- Use care in selecting topical products that do not increase skin damage
  - Aggressive adhesives, absorbable chemicals
- Do take pain management into consideration

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Wounds in the neonate require special assessment consideration by the nurse. Premature and newborn skin is not completely developed in structure as compared to older children and adults. This places the infant at higher risk for injury (Mufti et al., 2022). Assessment of these patients includes consideration to subtle signs of infection, attention to the cause of the wound, and careful selection of topical products that do not increase skin damage (e.g. aggressive adhesives). Pain management should not be ignored as pain is known to cause vasoconstriction which can impair healing. Keep in mind, the infant patient is unable to voice wound related pain. Consider changes in respiratory rate, irritability, inconsolability, facial expressions, and body posture as signs of pain (Mufti et al., 2022).

Clues to etiology

- Pressure (bony prominence or under medical device)
- Vascular (lower extremity arterial vs. venous)
- Diabetes (neuropathic pressure points)
- Moisture associated skin damage (perineal, perianal, lower abd, skin folds)
- Radiated skin (adjacent to point of tx)
- Infection

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The wound's anatomical location can give an indication of its etiology and possibly suggest interventions. If the wound is located over a bony prominence or associated with a medical device, the etiology will often be pressure related (Baranoski et al., 2020). Pressure redistribution and offloading through support surfaces will be critical. If the wound is located on the lower leg, not necessarily over a bony prominence, the wound cause is usually associated with venous insufficiency, arterial insufficiency, or neuropathy. Understanding the etiology of the wound is the first step in wound management and helps the clinician select the appropriate topical and adjunctive treatments as well as evaluate healing potential (Bates-Jensen, 2022). Another reason for documenting the wound's anatomical location is that it helps a second clinician determine whether new wounds have developed that were not previously noted (Baranoski et al., 2020). This further helps in the evaluation of the current treatment regimen and progress of the patient. This concept will be explored in more detail when we discuss different wound types by disease states. What is important to consider at this point is when you look at a wound, you always consider what the underlying cause. A wound management plan that does not include managing the disease state and underlying cause will be an incomplete plan that does not promote healing.

What tissue types/color are visualized?

- **Black** – represents dry, necrotic tissue. Could signal damaged muscle, tendon, bone
- **Yellow** – Moist, necrotic tissue, sometimes called slough. Usually associated with damaged subcutaneous tissue
- **Beefy red** – indicates new tissue & blood vessel growth & a good healing potential
- **Pink** – pale & avascular, could indicate infection &/or poor vascularization to the wound

Provides important information to depth of damage, wound bed preparation needs, & potential disease state affecting the wound healing potential.

Black	Necrotic Tissue
Yellow	Sloughy Tissue
Red	Granulation Tissue
Pink	Epithelial Tissue

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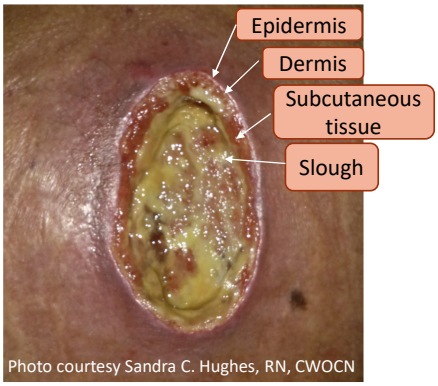
The first view of a wound demonstrates the color and tissue type. Beefy red granulation tissue indicates new tissue and blood vessel growth and a good healing potential *(*Bates-Jensen*,* 2022*)*. Necrotic tissue, is represented by moist yellow slough or dry black eschar (Baranoski et al., 2020). In this case, debridement options need to be considered as this devitalized tissue will harbor bacteria and increase an inflammatory response within the wound, thus delaying healing. Some wound beds will have a pale or avascular appearance. Wounds demonstrating this appearance are not likely to heal and should be further evaluated for the presence of infection or blood perfusion problems (Baranoski et al., 2020). In some wounds, multiple tissue types are present; including beefy red, slough, and eschar. In this case, use percentages of the tissues types in documentation to reflect what has been noted. For example, 30% granulation tissue, 30% slough, and 40% eschar (Baranoski et al., 2020).

Full vs. partial thickness tissue damage

- Can be difficult to distinguish between partial and full-thickness tissue damage
- Presence of red islets in the base of a shallow wound indicates partial-thickness tissue damage
- Presence of slough indicates full-thickness tissue damage.
- Clue: recall the depth of epidermis and dermis



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Wounds are initially classified by describing the level of tissue damage observed at the wound base and the viability of the tissue (Baranoski et al., 2020). Tissue viability is important in determining the ability of the wound to heal, whether debridement or wound bed preparation is needed, and can signal evidence of wound infection. The depth of tissue injury suggests how the wound will heal (Bates-Jensen, 2022). Wounds with partial thickness tissue loss will heal by tissue regeneration and reepithelialization, and full-thickness wounds will heal by granulation and contraction (Beitz, 2022). The deeper the tissue damage, the longer it will take for the wound to heal. There is also an increased potential for other complications such as infection. Follow up assessment of the wound bed is critical for early detection and management of complications, as well as observing for wound healing. A beefy red and granular appearance is indicative of new vessel and tissue growth, while a pale, avascular appearance suggests infection or poor blood perfusion, and the presence of necrotic tissue signals the need for debridement (Baranoski et al., 2020)
Photo courtesy Sandra Hughes, CWOCN

Recognizing the partial thickness wound

- Tissue injury involves epidermis, and/or into but not through the dermis
- Heals by epithelialization & contraction of wound margins
- Examples – clear blisters, skin tears, linear scratches, stage 1 & 2 pressure injuries
- Assessment – usually a clean, red wound base, minimal drainage
- Small red islets – represent basement membrane zone between epidermis/dermis

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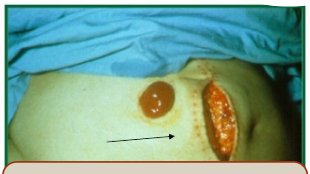
The amount of tissue lost describes the extent of tissue damage in wounds and provides information on the expected healing phases. Partial thickness skin, or tissue damage, involves epidermal tissue alone, or epidermal and dermal tissue injury (Beitz, 2022). These wounds are shallow and many times have no measureable depth. They can appear as linear scratches, clear blisters, or as a wound with a clean and red wound base. In most instances the drainage is minimal leaving a moist wound bed. In some instances, small red islets can be visualized which represent the basement membrane zone between epidermis and dermis (Beitz, 2022). Unless complicated by infection or other problem, these wounds will heal by epithelialization and regeneration.

Recognizing the full thickness wound

- Tissue injury extends through dermis, into subcutaneous tissue and/or muscle and bone
- Heals by granulation, wound contraction, and epithelialization
- Examples – blood filled blisters, dehisced surgical wound, lower extremity arterial wound, stage 3 & 4 pressure injuries
- Assessment – presents with slough/eschar, measurable depth beyond normal epidermis/dermis, potential for undermining & higher amounts of drainage
- Can visualize subcutaneous, muscle, bone tissue within the wound, or the wound be is obscured by necrotic tissue



Clean, dehisced surgical wound with full thickness tissue loss

Pressure injury with full thickness tissue loss & some necrotic tissue

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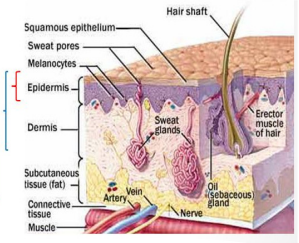
Wounds with full thickness tissue loss represent damage past the dermis, and into subcutaneous or muscle tissue, and even bone. These deeper wounds appear as blood filled blisters, deep maroon in color, such as deep tissue injury, can demonstrate undermining of the skin surface level, and be a measurably deeper wound (Beitz, 2022). It can be difficult at times to differentiate between the partial and full thickness wound. Measurements alone will not determine tissue damage, but does reflect the anatomical depth of skin. The presence of slough or eschar is a clear indicator that subcutaneous tissue, or muscle and fascia have been affected. In some instances, necrotic tissue will obscure the wound bed and the nature of damage cannot be immediately seen. Debridement will expose the full extent of the wound and prepare the wound for healing.

Anticipating the healing trajectory

- Identify tissue layers involved with the wound
- Provides important clues to wound bed preparation needs in the plan of care
- Partial thickness tissue loss or full thickness tissue loss

- Superficial
- Partial thickness
- Full thickness
- Deep wound



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Assessing the tissue layers involved provides clues to the healing trajectory (Baranoski et al., 2020). The quality of the exposed tissue provides information for wound bed preparation, such as debridement, and topical treatment selection *(*Bates-Jensen*,* 2022*)*. For example, the wound with partial thickness tissue damage may only require a dressing that keeps the wound clean, moist, and protected. While a wound with full thickness tissue loss will need a dressing the fills the depth of the wound and provides for exudate absorption. Healing potential and complications can also be detected through evaluation of tissue health.

Summary

- Essential to establish wound etiology first
- Recognize barriers to healing
- Establish treatment goals
- Documentation:
  - Assessment
  - Treatment choices driven by assessment
  - Changes along the way

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In summary, the assessment of the wound is critical in all phases of the healing process. A baseline needs to be established followed by serial assessments to determine progress or problems. Assessment begins with a medical record review and determining the cause or causative factors of the wound. What are true or potential barriers to healing? This can be anything from the cause of the wound to other co-morbid factors including malnutrition, altered lab values, and infection. All of these need to be incorporated into the plan of care and establishing goals of care. A thorough wound assessment not only establishes the baseline and the healing progression, it also determines what wound bed preparation needs to occur such as debridement, infection management, and exudate control. Document what you assess and how you intervene. In the next module we will talk more about assessment as it relates to the nursing management of wounds.

References

Baranoski, S., Ayello, E. A., Niezgoda, J., & Langemo, D. K. (2020). Wound assessment. In S. Baranoski & E. A. Ayello (Eds.), *Wound care essentials: Practice principles* (5th ed., pp. 102-130). Wolters Kluwer.

Bates-Jensen, B. M. (2022). Assessment of the patient with a wound. In L. L. McNichol, C. R. Ratliff, & S. S. Yates (Eds.), *Wound, Ostomy, and Continence Nurses Society core curriculum: Wound management* (2nd ed., pp. 56-92). Wolters Kluwer.

Beitz, J. M. (2022). Wound healing. In L. L. McNichol, C. R. Ratliff, & S. S. Yates (Eds.), *Wound, Ostomy, and Continence Nurses Society core curriculum: Wound management* (2nd ed., pp. 39-55). Wolters Kluwer.

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This ends part one of wound assessment. For more detailed information, refer to the references on this slide. Thank you for your attention.

References

Friedrich, E., Posthauer, M. E., & Dorner, B. (2022). Nutritional strategies for wound management. In L. L. McNichol, C. R. Ratliff, & S. S. Yates (Eds.), *Wound, Ostomy, and Continence Nurses Society core curriculum: Wound management* (2nd ed., pp 116-135). Wolters Kluwer.

Mufti, A., Maliyar, K., Ayello, E. A., & Sibbald, R. G. (2022). Anatomy and physiology of the skin. In L. L. McNichol, C. R. Ratliff, & S. S. Yates (Eds.), *Wound, Ostomy, and Continence Nurses Society core curriculum: Wound management* (2nd ed., pp. 12-38). Wolters Kluwer.

Nix, D. P. (2024). Skin and wound inspection & assessment. In R. A. Bryant & D. P. Nix (Eds.), *Acute & chronic wounds: Intraprofessionals from novice to expert* (6th ed., pp. 192-211). Elsevier.

Kaminski, M. V., Jr, & Drinane, J. J. (2014). Learning the oral and cutaneous signs of micronutrient deficiencies. *Journal of Wound, Ostomy, and Continence Nursing, 41*(2), 127–135. https://doi.org/10.1097/WON.0000000000000012

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