



NMNEC Concept: Tissue Integrity

Mega Concept: Health and Illness

Category: Protection and Movement

Concept Name: Tissue Integrity

Concept Definition:

The structural intactness of tissues and conditions that impair tissue integrity.

Scope and Categories:

- **Scope:**

Tissue integrity can range from an intact state, which protects the body, to various levels of impairment. Disrupted tissue integrity ranges from a superficial epidermal injury to deeper tissue injuries (Hagler, 2017). The damaged areas may include: cornea, mucous membrane, integumentary, or subcutaneous tissues (NANDA, 2019).

- **Categories:**

- Intention: intentional (surgical) or unintentional (trauma)
- Skin integrity: closed or open
- Length of healing time: acute or chronic
- Level of contamination: clean or contaminated
- Depth: superficial, partial thickness, full thickness, or penetrating
- Pressure ulcers: stage I, stage II, stage III, stage IV, unstageable, or suspected deep tissue injury
- Circulation: arterial or venous (Wilkinson and Treas, 2015).

Risk Factors:

Impaired tissue integrity may affect any individual.

- **Populations at High Risk:**

- Age: infants and elderly due to thin, fragile skin
- Those with underlying illnesses or disease (anemia, diabetes, immunocompromised)

- **Individuals at High Risk:**



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- Individuals who are immobile.
- Individuals with lifestyles or occupations with higher exposures to mechanical equipment, irritating substances, infections, or radiation.
- Individuals who have had surgery.
- Individuals at risk due to underlying medical conditions, i.e., diabetes mellitus (Wilkinson and Treas, 2015).

Physiologic Processes and Consequences:

- **Processes:**

- Wounds may heal by regeneration as well as by primary, secondary, or tertiary intention.
- The phases of wound healing are inflammatory (cleansing), proliferative (granulation), and maturation (epithelialization).
- Depending on the wound and stage of healing, the drainage may be serous, sanguineous, purulent, or any combination (Wilkinson and Treas, 2015).
- Risk factors for pressure ulcers include:
 - Advanced age
 - Contractures
 - Elevated body temperature
 - Immobility
 - Impaired circulation
 - Incontinence
 - Low diastolic blood pressure
 - Mental deterioration
 - Obesity
 - Pain
 - Prolonged surgery
 - Certain medical disorders
- Factors that delay wound healing may include:
 - Inadequate blood supply
 - Nutritional deficiencies
 - Infection
 - Smoking
 - Mechanical friction
 - Advanced age
 - Obesity
 - Medical disorders (e.g., diabetes mellitus or anemia)



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- Medications (e.g., corticosteroids) (Lewis, et al, 2017)

- **Consequences:**
 - Impaired tissue integrity may lead to fluid loss, hypothermia, infection, pain, or body image disturbances (Hagler, 2017).
 - Complications of wound healing may include:
 - Adhesions
 - Contractures
 - Evisceration
 - Dehiscence
 - Fistula
 - Infection
 - Hemorrhage
 - Hypertrophic scars (Lewis, et al, 2017)

Assessment:

- **Subjective:**
 - History of past and current conditions, current medications taken, known allergies, recent exposures, and family history.
 - History of skin care practices, elimination patterns, and mobility (NANDA, 2019).

- **Objective:**
 - Inspection: Color and integrity, especially over bony prominences
 - Palpation: Temperature, moisture, and turgor
 - Wounds: Location, type, size, color, drainage, and pain (Wilkinson and Treas, 2015).

- **Laboratory and Diagnostic Tests:**
 - Laboratory tests may include:
 - Levels of protein
 - Red blood cells (RBCs)
 - Iron
 - Coagulation factors
 - Glucose
 - Thyroid as well as wound cultures (Wilkinson and Treas, 2015)
 - Diagnostic tests may include:
 - Immunofluorescence



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- Biopsies
- Patch testing (Hagler, 2017)

Clinical Management:

- **Primary Prevention:** Health promotion related to readiness for enhanced management of therapeutic regimen
 - Patient and caregiver education about healthy habits for hygiene, nutrition and fluid intake, elimination, and protection from environmental exposures (National Pressure Ulcer Advisory Panel, 2019).

- **Secondary Prevention:** Screening for risk for impaired skin or tissue integrity
 - Perform skin surveillance for suspicious lesions or tissue breakdown.
 - Utilize a skin assessment scale, i.e., Braden Scale for Predicting Pressure Sore Risk (Hagler, 2017).
 - For immobile patients reposition frequently, transfer carefully, and provide protective support surfaces (NANDA, 2019).

- **Tertiary Prevention:** Treatment of impaired skin or tissue integrity
 - Wound closures may include:
 - Adhesive strips
 - Sutures
 - Staples
 - Surgical glue
 - Negative pressure closure
 - Compression
 - Wound care may include:
 - Cleansing
 - Irrigating
 - Dressing
 - Maintaining a wound drainage device
 - Heat or cold therapy
 - Collaborative treatments may include:
 - Surgical options
 - Hyperbaric oxygen therapy
 - Tissue growth factors
 - Hydrotherapy, (Wilkinson and Treas, 2015)
 - Nutrition therapy



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- Pharmacotherapy (Hagler, 2017)

Interrelated Concepts:

- Perfusion: The vascular system brings oxygenated blood to the tissues and removes metabolic waste products.
- Mobility: Immobility causes increased pressure on the skin which may lead to breakdown.
- Nutrition: The intake of nutrients is essential to maintain tissue integrity and for wound healing.
- Elimination: Incontinence, especially bowel, can lead to excoriation of superficial skin layers.
- Sensory Perception: These are necessary to sense an injury and to take corrective action.
- Infection: Micro-organisms may cause harm by releasing toxins, invading body tissues, and increasing the metabolic demands of the tissues (Wilkinson and Treas, 2015, pp. 832-834).

Model Case:

Mrs. Ramona Garcia, a 76-year-old female, is admitted to a medical unit with pneumonia. She reports that she has been sleeping sitting upright for the past week due to difficulty breathing. After her breathing is stabilized, the nurse briefly turns Mrs. Garcia to assess her skin. The nurse notes a four centimeter reddened area that does not blanch on her left buttock over the ischial tuberosity. Recognizing a stage I dermal ulcer due to prolonged pressure, the nurse collaborates with the patient, family, and health care team to prevent further skin breakdown. The plan of care for Mrs. Garcia includes frequent repositioning, adequate nutrition, hygiene measures, and the use of pressure-relieving devices (Hagler, 2017).

Exemplars:

New Mexico Nursing Education Consortium (NMNEC) Required Exemplars:

- Pressure ulcers:
“An estimated 1 million people in the United States have pressure ulcers: about 15% of hospitalized patients, 10% of home care patients, and 20% of long-term care patients” (Wilkinson and Treas, 2015, p. 840).



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According to the Healthcare Cost and Utilization Project, 1032.4 pressure ulcer-related hospitalizations occurred per 100,000 persons aged 65 years and older in 2010. A Healthy People 2020 objective is to reduce the rate of pressure ulcer related hospitalizations among older adults (Office of Disease Prevention and Health Promotion, 2019).

- **Cutaneous Traumas:**

Abrasions and lacerations are superficial traumatic injuries to the epidermis, dermis, and subcutaneous layers or to mucus membranes. Superficial injuries to highly vascular areas such as the scalp and oral mucosa may bleed extensively. The major risk of epidermal and dermal injury is the loss of a protective barrier, increasing the possibility of infection by contact with pathogens (Hagler, 2017). Healthy People 2020 objectives for injury and violence prevention include reducing emergency department visits and hospitalizations for nonfatal injuries (Office of Disease Prevention and Health Promotion, 2019). Abrasions, blisters, chemical irritants, ecchymosis, hematomas, and lacerations are results of trauma.

- **Surgical Incisions:**

Surgical wounds can be classified as clean, clean contaminated (a wound involving normal but colonized tissue), contaminated (a wound containing foreign or infected material), or infected (a wound with pus present). Clean wounds should be closed immediately to allow healing by primary intention. Contaminated and infected wounds should not be closed, but rather left open to heal by secondary intention. In treating clean contaminated wounds and clean wounds that are more than six hours old, delayed primary closure should be utilized (World Health Organization, 2019).

Optional Exemplars:

- Skin integrity
- Wound healing
- Ostomy care
- Skin disorders:

In 2008, there were 4.4 occupational skin diseases or disorders per 10,000 full-time workers, according to the Survey of Occupational Injuries and Illnesses by the Department of Labor. A Healthy People 2020 occupational safety and health objective is to reduce occupational skin diseases or disorders among full time workers.



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References

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World Health Organization (2005). Wound management. Retrieved from <https://www.who.int/surgery/publications/WoundManagement.pdf>

Resources

Braden Risk Assessment Scale @ www.bradenscale.com/images/bradenscale.pdf

Wound, Ostomy, and Continence Nurse's Society @ <http://www.wocn.org/>