



Pressure Injury (Ulcer) Staging

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Pressure Injury Staging

I. Definition

A. Interesting Facts

1. An estimated 2.5 million patients are treated each year in US acute care facilities for pressure injuries (ulcers).^{1,2}
2. An estimated 60,000 US patients die each year of pressure injury (ulcer) complications.¹⁻³
3. According to the Agency for Healthcare Research and Quality, there are more than 17,000 pressure injury (ulcer) related lawsuits filed annually (second only to wrongful death lawsuits).⁴

B. Terminology

1. Through history terms include: decubitus ulcer (from Latin decumbere, “to lie down”), decubitus oinosus, Decubiti, pressure sore, bedsore, plaster ulcer, pressure area, and pressure ulcer.⁵
2. April 2016 the National Pressure Ulcer Advisory Panel (NPUAP) announced a change in terminology. Recommending the term “pressure injury” to replace the term “pressure ulcer”.⁶ NPUAP states: “The change in terminology more accurately describes pressure injuries to both intact and ulcerated skin. In the previous staging system Stage 1 and Deep Tissue Injury described injured intact skin, while the other stages described open ulcers. This led to confusion because the definitions for each of the stages referred to the injuries as “pressure ulcers”.⁶
 - a. The National Pressure Ulcer Advisory Panel (NPUAP) is an independent American organization established in 1986.⁷ This non-profit organization deals with prevention, management and research on pressure injuries (ulcers) and serves as a resource to health care professionals, government, the public, and health care agencies.⁷
 - b. The National Pressure Ulcer Advisory Panel held a (consensus) meeting of over 400 professionals in Chicago on April 8-9, 2016. Dr. Mikel Gray of the University of Virginia guided the Staging Task Force. The purpose of the conference was to analyze and discuss rationale for changes in the NPUAP pressure ulcer staging system. After the conference new definitions and terminology changes were announced.
 - c. The European Pressure Ulcer Advisory Panel (EPUAP) is discussing the NPUAP change in terminology and has not yet made a decision whether to adopt the ,pressure injury ‘term and the new pressure ulcer classification.⁸

C. Definition

1. NPUAP new 2016 definition: “A pressure injury is localized damage to the skin and/or underlying soft tissue usually over a bony prominence or related to a medical or other device. The injury can present as intact skin or an open ulcer and may be painful. The injury occurs as a result of intense and/or prolonged pressure or pressure in combination with shear. The tolerance of soft tissue for pressure and shear may also be affected by microclimate, nutrition, perfusion, co-morbidities and condition of the soft tissue.”⁶

II. Causes of Pressure Injuries (Ulcers)

- #### A. A number of contributing or confounding factors are associated with pressure injuries (ulcers); the primary of which is impaired mobility.⁹
1. Being bedfast, chair fast or a reduction in frequency of movement or ability to move is usually described as having a mobility limitation.⁹
 2. Mobility and activity limitations can be considered a necessary condition for pressure injury (ulcer) development. In the absence of these conditions, other risk factors should not result in a pressure injury (ulcer).⁹

- B. Pressure is the compression or squeezing together of soft tissue (especially over bony prominences), caused by weight or tension.
 - 1. These forces cause blood vessels to collapse resulting in an ischemic response and, potentially, tissue necrosis.
 - 2. Pressure-Related damage can occur within minutes to hours and the time frame and intensity will vary from person to person.¹⁰⁻¹⁴
 - a. Tissue hyperemia (Blanchable erythema or redness) - 30 minutes or less¹⁴
 - b. Tissue ischemia (Deeper redness with damage of the underlying tissue) – 2-6 hours of unrelieved pressure^{13,14}
 - c. Necrosis (Destruction of tissue) > 6 hours unrelieved pressure¹⁴
- C. Shear
 - 1. An internal, opposing motion of tissue layers and bone.
 - 2. Shear is caused by gravity pushing down on the body and resistance (friction) between the patient and a surface, such as the bed or chair. e.g. elevation of head of bed, and sliding down in chair.¹⁵
 - 3. Shearing forces stretch or even tear the blood vessels, thereby reducing the amount of pressure needed to occlude them.¹⁵
 - 4. Shearing causes undermining and tunneling.
- D. Friction
 - 1. The force of rubbing two surfaces against each other.
 - 2. Friction without pressure causes damage to the epidermis and upper dermal layers only. (Partial thickness) AKA sheet burn, skin tear.
 - 3. Friction accompanied with gravity causes shear.
 - 4. Friction injuries are often misdiagnosed as pressure injuries (ulcers).¹⁶
 - a. Friction can cause minor to substantial skin impairment, but friction alone is not a direct cause of a “pressure ulcer.”¹⁶
 - b. Friction is a risk factor that may contribute to or exacerbate pressure injury (ulcer) development due to the shear it creates.¹⁶
 - c. Friction causes the shear strain in the tissue, which can increase the risk of tissue breakdown and lead to pressure injuries (ulcers).²¹
- E. Risk Factors
 - 1. Consider the impact of mobility limitations on pressure ulcer risk.⁹
 - 2. Consider individuals with an existing pressure ulcer (any Stage) to be at risk of additional pressure injuries.⁹
 - 3. Consider adults & children with medical devices to be at risk for pressure injuries.⁹
 - a. A Medical Device Related (MDR) Pressure Ulcer is defined as a localized injury to the skin or underlying tissue as a result of sustained pressure from a medical device.^{36,37}
 - 1) Directly under diagnostic or therapeutic devices (examples: nasal cannulae tubing, braces, splints, oxygen face masks, prostheses, tape, ostomy appliances, catheters, bedpans, ID bands, TED stockings, etc.
 - 2) Insertion sites for devices
 - 3) Tend to progress rapidly as they often occur over areas without adipose tissue
 - 4) Resultant PUs typically mimic the device shape and size.^{17,18}
 - b. Several studies cite that medical devices contribute up to 35% of all hospital-acquired pressure injuries.¹⁰⁻¹²
 - c. More than 50% of pressure injuries in children are due to medical devices.^{12,19}
 - 4. Consider the general status of skin on pressure ulcer risk.⁹
 - 5. Consider the impact of the following factors on an individual’s risk of pressure ulcer development:⁹
 - a. Perfusion and oxygenation

- b. Poor nutritional status
- c. Increased skin moisture
- 6. Consider the potential impact of the following factors on an individual's risk of pressure ulcer development:⁹
 - a. Increased body temperature
 - b. Advanced age
 - c. Sensory perception
 - d. Hematological measures
 - e. General health status
- 7. A structured risk assessment should be undertaken on all individuals upon entry to health care settings, with the aim of identifying those who are at potential risk in order that individualized preventive interventions can be planned and initiated.⁹
 - a. Conduct risk assessment as soon as possible (but within a maximum of eight hours after admission) to identify individuals at risk of developing pressure injuries.⁹
 - b. Repeat the risk assessment as often as required by the individual's acuity.⁹
 - c. Conduct a comprehensive skin assessment with every risk assessment.⁹
 - d. Do not rely on the results of a risk assessment tool alone when assessing an individual's pressure ulcer risk.⁹ Risk assessment should support not replace clinical judgment.

III. Clinical Characteristics of Pressure Injuries (Ulcers)

A. Tissue Involvement Classification

- 1. All wounds are classified based upon depth of tissue destruction, and are either partial or full thickness.
- 2. Partial thickness - tissue destruction through the epidermis and part of the dermis only (Pink and painful - NEVER any yellow tissue)
- 3. Full thickness - tissue destruction through the epidermis, dermis and into the subcutaneous, possibly extending down to bone or muscle.

B. Tissue Types seen in Pressure Injuries (Ulcers)

- 1. Epidermis
 - a. External skin surface
 - b. Very thin, approximately 0.07 to 0.12 mm (the thickness of plastic wrap)²⁰
 - c. Dry, dull (not shiny), and usually smooth²⁰
 - d. Avascular
 - e. Example: Intact serum-filled blisters often have a roof of thin epidermis²⁰
- 2. Dermis
 - a. Located directly beneath the epidermis, the dermis is highly vascular and supports & nourishes epidermis
 - b. Averaging 1 mm thick (the thickness of a credit card) over most of the body; thickness varies from 0.3 mm on the eyelid to 3.0 mm on the back²⁰
 - c. The dermis contains hair follicles; sweat, sebaceous, and apocrine glands; and blood vessels.
 - d. Dermis exposed in a wound appears wet (glistening or moist) and pink or red²⁰
- 3. Subcutaneous Tissue
 - a. Pale yellow, waxy, globular and oily, and glistens²⁰
 - b. When it dries, fat congeals (crystallizes) and turns to tan or yellow-brown, a common presentation in open wounds²⁰
- 4. Muscle
 - a. Healthy muscle is pink to dark red, firm, highly vascular, striated.
 - b. Visible muscle may be confused with granulation tissue. The primary difference between the two is that muscle is smooth and healthy granulation tissue is bumpy.²⁰

- c. Ischemic muscle is dull red, cyanotic or pale, and mushy.²⁰
 - d. Necrotic muscle liquefies and produces dark brown, odorous drainage.²⁰
 - e. Wound with exposed muscle will not heal until it becomes covered by granulation tissue.²⁰ Re-epithelialization will not occur over muscle because no basal lamina is present for epithelial cells to migrate across until granulation tissue has formed.²⁰
5. Tendon
- a. Gleaming yellow or white, shiny when healthy, strong fibrous tissue, attaches muscle to bone; tendon springs back when touched.
 - b. Attaches muscle to bone²⁰
 - c. Once the tendon is exposed to the environment, it dries, and the sheath often will not survive.²⁰
6. Ligament
- a. Connective tissue which attaches bone to bone; seen in or near joints
 - b. Ligaments appear ribbon-like, striated, and pearly white²⁰
 - c. The striations feel like tape with embedded threads²⁰
 - d. Ligaments are broader, flatter, and more loosely woven than tendons.²⁰
7. Bone
- a. Shiny, hard, milky white appearance when healthy; slick to the touch.
 - b. If the periosteum is present, the bone is smooth, if periosteum missing, the bone feels somewhat rough.²⁰
 - c. Unhealthy bone is flaky or mealy and will have a gray cast or appear brown or black.²⁰
 - d. Rough or mushy bone suggests the presence of osteomyelitis.²⁰
 - e. Bone that is exposed or allowed to dry out may die.²⁰
8. Necrotic Tissue
- a. Injury and ischemia (lack of blood flow) to the skin results in necrotic tissue.
 - b. Necrotic tissue is dying or dead tissue. As the tissue dies, it changes color and consistency, and adherence to the wound bed. The necrotic tissue that forms is either called eschar or slough.
 - c. Slough – yellow, green, grey, nonviable (necrotic) tissue, usually lighter in color, thin, wet stringy
 - 1) Slough is a mixture of serum proteins (fibrin, albumin, immunoglobulin) and denatured matrix proteins (collagen)²⁰
 - 2) Indication of full-thickness injury
 - 3) As slough ages, it becomes thicker.
 - 4) Slough can be many colors, depending on its bacterial composition. White slough indicates bacterial colonization is scant, yellow or green indicates greater count of bacterial composition, and brown also may include hemoglobin.²⁰
 - d. Eschar – black, brown, dry, nonviable (necrotic) tissue, dry, hard, and leathery
 - 1) Eschar is black or brown, colored by hemoglobin in the wound tissues
 - 2) Indication of full-thickness injury
 - 3) Caused by tissue death, eschar covers the surface of the wound and is initially soft, but begins losing moisture rapidly and becomes dehydrated with the surface becoming hard and dry.
 - 4) Stable Eschar
 - a. Intact; Firmly adherent to surrounding skin
 - b. No inflammation, No drainage
 - c. Is NOT indurated (hardened), fluctuant (fluid moving under the tissue), crepitant (tissue feels crunchy upon palpation) or painful²⁰
 - d. Eschar does not feel boggy or soft

- e. Stable eschar may serve as a barrier to prevent bacterial invasion, a benefit in ischemic limbs²⁰
 - 5) Unstable Eschar
 - a) Unstable eschar may be boggy, spongy, with drainage, peri-ulcer edema, erythema, warmth, tenderness, and/or pain. ²⁰
 - b) Unstable eschar increases the risk of systemic infection, sepsis, and amputation. Presence of purulence, fluctuance, crepitus, and/or malodor indicate possible infection. ²⁰
- 9. Epithelial tissue
 - a. Deep pink to pearly pink, light purple from edges in full thickness wounds
 - b. Grows from the wound edges to cover wound
 - c. May form islands in superficial wounds
 - d. Initially the epidermal layer is only a few cell layers thick and the new tissue appears translucent²⁰
- 10. Granulation tissue
 - a. Beefy red, puffy, bumpy, moist, shiny;
 - b. Mounded bubbly appearance due to perfusion of new capillary loops or "buds"
 - c. Typically grows from the base of a wound
 - d. Lack of blood flow or infection can cause granulation tissue to appear paler²⁰
 - e. If too much pressure or trauma is applied, granulation tissue darkens²⁰
 - f. Granulation tissue does not mature into epithelium. ²⁰ As a wound heals, a layer of epidermis will cover the granulation tissue.
- 11. Non-granulating tissue
 - a. Absence of granulation tissue; wound surface appears smooth as opposed to granular. For example, in a wound that is clean but non-granulating, the wound surface appears smooth and red as opposed to berry-like²¹
- 12. Hypergranulation tissue
 - a. Granulation tissue forms above the surface of the surrounding epithelium
 - b. Delays epithelialization
 - c. Healthy over-granulation tissue presents as an overgrowth of moist, pink/red tissue that may bleed easily whereas unhealthy over-granulation tissue presents as either a dark red or a pale bluish-purple uneven mass rising above the level of the surrounding skin, which also bleeds very easily.^{22,23}
 - d. Exact cause is unknown, theories include excessive moisture, infection, prolonged inflammatory phase, growth factors cellular imbalance, etc. ^{22,23}
- C. Pressure Injury (ulcer) Characteristics
 - 1. Location - At any site, most frequently over bony prominences
 - 2. Distribution - Isolated individual lesions
 - 3. Shape - Rounded, crater-like shape, can resemble shape of object that caused the pressure
 - 4. Depth – Varies; partial or full thickness
 - 5. Wound Bed – Varies; erythema, slough, eschar, granulation tissue, epithelial tissue, bone, ligaments, tendons
 - 6. Margins – Smooth, regular edge; demarcated
 - 7. Surrounding Skin - Varies; often the peri-wound has non-blanchable erythema or, in dark-skinned clients, a deepening of natural color.
 - 8. Associated Findings
 - a. Pressure and/or shear must be present.
 - b. Pain variable with each individual. Assess for deterioration of the ulcer or possible infection when the individual reports increasing intensity of pain over time.⁹

IV. Pressure Injury (Ulcer) Staging System

A. Staging System

1. Pressure Injury (Ulcer) Staging system - Assessment system that classifies pressure injuries based on anatomic depth of soft tissue damage. Developed by the National Pressure Ulcer Advisory Panel (NPUAP) as method of communication between health care providers.
 - a. During the NPUAP 2016 Staging Consensus Conference that was held April 8-9, 2016. The stages were revised based on questions received by NPUAP from clinicians.⁶
 - b. The term “pressure injury” replaces “pressure ulcer”; more accurately describes pressure injuries to both intact and ulcerated skin.⁶
 - c. Arabic numbers are now used in the names of the stages instead of Roman numerals.⁶
 - d. Changes were also made to the description of each individual stage, but the underlying definition of each stage remains the same with the exception of Deep Tissue injury.
 - 1) The term “suspected” has been removed from the Deep Tissue Injury diagnostic label.⁶
 - 2) Key change: Intact or non-intact skin (epidermal separation revealing a dark wound bed or blood filled blister)⁶
2. Basics of Staging
 - a. Based upon the deepest tissue injury/destruction through the layers of the skin
 - b. The deepest a pressure injury (ulcer) will be is when there is visible/palpable: bone, tendon/ligament or muscle.
 - c. Cannot be accurately staged until the deepest viable tissue layer is visible/palpable.

B. NEW DEFINITION: *‘Stage 1 Pressure Injury: Non-blanchable erythema of intact skin: Intact skin with a localized area of non-blanchable erythema, which may appear differently in darkly pigmented skin. Presence of blanchable erythema or changes in sensation, temperature, or firmness may precede visual changes. Color changes do not include purple or maroon discoloration; these may indicate deep tissue pressure injury.’⁶*

1. Injury to epidermis only, Skin remains intact^{6,9}
2. Non-blanchable vs blanchable
 - a. Non-blanchable – is visible skin redness that persists with the application of pressure; indicates structural damage to the capillary bed (micro-circulation).⁹
 - b. Blanchable – is visible skin redness that becomes white when pressure is applied and reddens when pressure is relieved; may result from inflammatory erythema with intact capillary bed.⁹
3. Darkly pigmented skin may not have visible blanching; its color may differ from the surrounding area, it may be painful, firm, soft, warmer or cooler as compared to adjacent tissue^{9,24}
 - a. Localized heat, edema, and change in tissue consistency in relation to surrounding tissue (e.g., induration/hardness) are important indicators of early pressure damage to the skin in individuals of darker skin tone.⁹
 - b. Noncontact infrared thermometers can detect localized increases/decreases in skin surface temperature comparable to scientific grade instruments.²⁵ Examples: MastercoolMSC52224-A Non-contact infrared thermometer, Mastercraft Digital Temperature Reader, Pro Point Infrared Thermometer

C. NEW DEFINITION: *“Stage 2 Pressure Injury: Partial-thickness skin loss with exposed dermis: Partial-thickness loss of skin with exposed dermis. The wound bed is viable, pink or red, moist, and may also present as an intact or ruptured serum-filled blister. Adipose (fat) is not visible and deeper tissues are not visible. Granulation tissue, slough and eschar are not present. These injuries commonly result from adverse microclimate and shear in the skin over the pelvis and shear in the heel. This stage should not be used to describe moisture associated skin damage (MASD) including incontinence associated dermatitis (IAD), intertriginous dermatitis (ITD),*

medical adhesive related skin injury (MARS), or traumatic wounds (skin tears, burns, abrasions)."⁶

1. Partial thickness - Damage to epidermis, dermis, or both^{9,24}
 2. Shiny or dry shallow open ulcer with a red pink wound bed, without slough or bruising. ^{9,24}
 3. Slough is made up of dead collagen matrix from the subcutaneous tissue. The presence of slough indicates full thickness tissue damage. ^{9,24}
 4. Bruising indicates suspected deep tissue injury. ^{9,24}
 5. May also present as an intact or open/ruptured serum- filled blister^{9,24}
- D. New Definition: *"Deep Tissue Pressure Injury: Persistent non-blanchable deep red, maroon or purple discoloration Intact or non-intact skin with localized area of persistent non-blanchable deep red, maroon, purple discoloration or epidermal separation revealing a dark wound bed or blood filled blister. Pain and temperature change often precede skin color changes. Discoloration may appear differently in darkly pigmented skin. This injury results from intense and/or prolonged pressure and shear forces at the bone-muscle interface. The wound may evolve rapidly to reveal the actual extent of tissue injury, or may resolve without tissue loss. If necrotic tissue, subcutaneous tissue, granulation tissue, fascia, muscle or other underlying structures are visible, this indicates a full thickness pressure injury (Unstageable, Stage 3 or Stage 4). Do not use DTPI to describe vascular, traumatic, neuropathic, or dermatologic conditions."*⁶
1. Injury results from intense and/or prolonged pressure and shear forces at the bone-muscle interface, therefore, this once the tissue opens up, it can only progress(re-stage) to Unstageable, Stage 3 or Stage 4
 2. Intact or non-intact(epidermal separation)⁶
 3. Color: Deep red, purple, or maroon; non-blanchable
 4. Blood-filled blister due to damage of underlying soft tissue from pressure and/or shear. ^{9,24}
 5. May present with a mirror image bilaterally.²⁶
 6. Deep tissue injury may be difficult to detect in individuals with dark skin tones. Visual assessment cannot be trusted in patient with dark skin, rely on assessment of skin temperature, change in tissue consistency and pain to identify sDTI.⁹
 - a. Hyperpigmentation "increased browning", or darkening of tissue compared to surroundings.²⁴
 - b. Palpation: SHOULD BE USED on ALL Dark Skinned Pts on high risk areas.^{9,24}
 7. Evolution/Progression of DTI^{6,9,24}
 - a. Evolution may be rapid, exposing additional layers of tissue even with optimal treatment.
 - b. May include a thin blister over a dark wound bed.
 - c. The wound may further evolve and become covered by thin eschar. Once necrotic tissue occurs, should be re-staged to Unstageable, Stage 3, or Stage 4.
- E. New Definition: *"Stage 3 Pressure Injury: Full-thickness skin loss Full-thickness loss of skin, in which adipose (fat) is visible in the ulcer and granulation tissue and epibole (rolled wound edges) are often present. Slough and/or eschar may be visible. The depth of tissue damage varies by anatomical location; areas of significant adiposity can develop deep wounds. Undermining and tunneling may occur. Fascia, muscle, tendon, ligament, cartilage and/or bone are not exposed. If slough or eschar obscures the extent of tissue loss this is an Unstageable Pressure Injury."*⁶
1. Full thickness tissue loss involving epidermis, dermis and into but not through subcutaneous fat^{9,24}
 2. Tissue types that may be seen:
 - a. Subcutaneous(fat) tissue

- b. Granulation tissue
 - c. Slough/eschar may be present but does not obscure the depth of tissue loss.^{9,24}
 - d. May include undermining and tunneling.^{9,24}
 - e. Epibole may be present.⁶ Epibole is rolled/curled under edges; seen in full-thickness wound healing as epithelial tissue migrates down sides of the wound instead of across.²⁰
3. The depth of a Stage 3 pressure injury (ulcer) varies by anatomical location.^{9,24}
 - a. The bridge of the nose, ear, occiput and malleolus do not have subcutaneous tissue and Stage III injuries (ulcers) can be shallow.^{9,24}
 - b. In contrast, areas of significant adiposity can develop extremely deep Stage III pressure injuries (ulcers).^{9,24}
- F. New Definition: *“Stage 4 Pressure Injury: Full-thickness skin and tissue loss- Full-thickness skin and tissue loss with exposed or directly palpable fascia, muscle, tendon, ligament, cartilage or bone in the ulcer. Slough and/or eschar may be visible. Epibole (rolled edges), undermining and/or tunneling often occur. Depth varies by anatomical location. If slough or eschar obscures the extent of tissue loss this is an Unstageable Pressure Injury. Stage IV: Full Thickness Tissue Loss”*⁶
1. Full thickness tissue loss involving epidermis, dermis, and subcutaneous fat with exposed bone, tendon or muscle that is visible or directly palpable.^{9,24}
 2. Tissue types that may be seen:
 - a. Subcutaneous(fat) tissue
 - b. Granulation tissue
 - c. Slough/eschar may be present
 - d. Fascia, muscle, tendon, ligament, cartilage, bone
 - e. May include undermining and tunneling
 - f. Epibole may be present
 3. The depth of a Stage IV pressure injury (ulcer) varies by anatomical location.^{9,24}
 - a. The bridge of the nose, ear, occiput and malleolus do not have subcutaneous tissue and these injuries (ulcers) can be shallow.
 - b. Stage 4 injuries (ulcers) can extend into muscle and/or supporting structures (e.g., fascia, tendon or joint capsule) making osteomyelitis possible.^{9,24}
- G. New Definition: *“Unstageable Pressure Injury: Obscured full-thickness skin and tissue loss-Full-thickness skin and tissue loss in which the extent of tissue damage within the ulcer cannot be confirmed because it is obscured by slough or eschar. If slough or eschar is removed, a Stage 3 or Stage 4 pressure injury will be revealed. Stable eschar (i.e. dry, adherent, intact without erythema or fluctuance) on the heel or ischemic limb should not be softened or removed.”*⁶
1. Full thickness tissue loss in which the base of the injury (ulcer) is covered by slough (yellow, tan, gray, green or brown) and/or eschar (tan, brown or black) in the wound bed.^{9,24}
 2. Until enough slough and/or eschar is removed to expose the base of the wound, the true depth, and therefore Stage, cannot be determined.^{9,24}
 3. Stable (dry, adherent, intact without erythema or fluctuance) eschar on the heel or ischemic limb and serves as ‘the body’s natural (biological) cover’ and should not be softened or removed.^{6,9,24}
- H. New Definition: *“Mucosal Membrane Pressure Injury: Mucosal membrane pressure injury is found on mucous membranes with a history of a medical device in use at the location of the injury. Due to the anatomy of the tissue these injuries cannot be staged.”*⁶
1. Where are mucous membranes
 - a. Mucous membrane is the moist lining (inner tissue) of body cavities that communicate with the exterior (open to the outside).

- b. Mucous membrane tissues line the tongue, gastrointestinal (GI) tract, nasal passages, urinary tract and vaginal canal.
 - c. Body cavities featuring mucous membrane include most of the respiratory system.
 - d. The glans penis (head of the penis) and glans clitoris, urethra, and the inside of the prepuce (foreskin) and clitoral hood are mucous membranes, not skin.
2. Injury of mucous membrane²⁷
 - a. Injury to mucous membrane can occur from direct trauma (burns, bites, pinching, radiation, pressure or infection).²⁷
 - b. Pressure applied to this tissue can render it ischemic and lead to ulceration.²⁷ These injuries (ulcers) may indeed be due to pressure; however anatomically analogous tissue comparisons cannot be made.²⁷
 - c. Vulnerable to pressure from medical devices, such as oxygen tubing, endotracheal tubes, bite blocks, orogastric and nasogastric tubes, urinary catheters and fecal containment devices.²⁷
 - d. Examples: A pressure injury that develops on nasal mucosa from pressure exerted by oxygen/CPAP nasal prongs; A pressure injury that develops on the inside of the lip from pressure exerted by an endotracheal tube
 3. Mucosal pressure injuries (ulcers) are not to be classified as partial or full thickness, because the clinical assessment of the tissue does not allow the distinction.²⁷
 4. NPUAP recommends pressure injuries (ulcers) on mucous membranes be labeled as Mucosal Membrane pressure injuries without a stage identified.²⁷
- I. Reverse Staging
 1. Pressure injuries heal to progressively more shallow depth; they do not replace lost muscle, subcutaneous fat, or dermis before they re-epithelialize.³⁰
 2. Instead, the ulcer is filled with granulation (scar) tissue composed primarily of endothelial cells, fibroblasts, collagen and extra-cellular matrix.³⁰
 3. A Stage 4 pressure injury cannot become a Stage 3, Stage 2, and/or subsequently Stage 1. When a Stage 4 pressure injury has healed, it should be classified as a healed Stage 4 pressure injury not a Stage 0 pressure injury. Therefore, reverse staging does not accurately characterize what is physiologically occurring in the wound.³⁰

V. Other

- A. New Definition: *“Medical Device Related Pressure Injury: This describes an etiology. Medical device related pressure injuries result from the use of devices designed and applied for diagnostic or therapeutic purposes. The resultant pressure injury generally conforms to the pattern or shape of the device. The injury should be staged using the staging system.”*⁶
- B. Avoidable vs Unavoidable Pressure Injuries
 1. Clinical practice, expert opinions, and published literature indicates that most, but not all, pressure injuries (ulcers) can be prevented.
 2. Unavoidability varies from patient to patient, and is judged by assessment of physiologic and functional factors in the context of the patient’s state of illness and trajectory of decline.
 3. NPUAP Definition of Unavoidable - The individual developed a pressure injury (ulcer) even though the provider evaluated the individual’s clinical condition and pressure injury (ulcer) risk factors, defined and implemented interventions that are consistent with individual needs, goals, and recognized standards of practice, monitored and evaluated the impact of the interventions, and revised the approaches as appropriate.²⁸
 4. Consensus Findings of when Pressure injury (ulcer) may be unavoidable.²⁹

- a. When an individual's cardiopulmonary status is significantly altered and recovery to baseline does not occur within minutes, an unavoidable pressure injury (ulcer) can occur.²⁹
- b. When an individual is repositioned and alterations in hemodynamic stability require ongoing vasopressor support, an unavoidable pressure injury (ulcer) can occur.²⁹
- c. When sustained head-of-bed of greater than 30° elevation is medically necessary, an unavoidable pressure injury (ulcer) can occur.²⁹
- d. Septic shock and/or systemic inflammatory response syndrome increase(s) the likelihood that an unavoidable pressure injury (ulcer) can occur.²⁹
- e. Extensive body edema increases the risk of an unavoidable pressure injury (ulcer) occurring.²⁹
- f. Severe burn injury increases the likelihood of developing an unavoidable pressure injury (ulcer).²⁹
- g. In hemodynamically unstable or critically ill/critically injured individuals, when management of life-threatening conditions must take precedence over skin-preservation interventions, development of an unavoidable pressure injury (ulcer) can occur.²⁹
- h. Immobility can increase the likelihood of developing an unavoidable pressure injury (ulcer).²⁹
- i. When life-sustaining, vascular access, or other medical devices preclude turning and/or repositioning, the likelihood that an unavoidable pressure injury (ulcer) can occur increases.²⁹
- j. An unstable pelvic fracture or spinal cord injury that precludes turning an individual increases the likelihood of an unavoidable pressure injury (ulcer) occurring.²⁹
- k. Terminally ill individuals who become immobile are at increased risk for unavoidable pressure injuries (ulcers).²⁹
- l. Individuals with malnutrition in combination with multiple comorbidities are at increased risk for the development of unavoidable pressure injuries (ulcers).²⁹
- m. Individuals with cachexia are at increased risk for the development of unavoidable pressure injuries (ulcers).²⁹
- n. A medical device–related unavoidable pressure injury (ulcer) can occur in situations where it would be medically contraindicated to adjust, relocate or pad underneath a therapeutic medical device.²⁹

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