

Early identification and evaluation of severe pressure injuries

Issue:

Pressure injuries can be deceptive, and many harbor a much deeper pressure injury than is apparent to the naked eye. When evaluating a pressure injury, bedside nurses and clinicians need to look for certain warning signs and symptoms that should trigger a surgical consultation and evaluation for the need for debridement. Severe pressure injuries can put the patient at risk for potentially worse outcomes, including amputation, as well as additional and unnecessary pain and suffering. Pressure injuries also can be an unrecognized cause of systemic infection.

Common risk factors for developing pressure injuries include:

- Immobility due to any cause (e.g., neurological impairment, prolonged anesthesia)
- Lack of sensory or pain perception (e.g., neuropathy, diabetes)
- Poor nutrition or dehydration
- Obesity/low body mass index (BMI)
- Prior history of pressure injuries
- Dementia

Warning signs and symptoms of severe pressure injuries

Bedside nurses and clinicians need to look for the following warning signs that can indicate the presence of a severe, concerning pressure injury. Skin assessment/examination should include visual inspection, as well as touch and palpation for differences in temperature and tissue consistency.¹

If any of the signs below are present, the clinician should ask for a surgical consult. Involvement of the surgical team as soon as possible helps not just in early detection but also in early interventions.

- When pressing on the injury, it expresses additional exudate and/or the top layer of the skin/site dislodges.
- A thin blister forms over the surface of the dark wound bed; the wound may become covered by thin eschar.²
- The injury has intact skin but is a persistent non-blanchable deep red, purple or maroon color.²
- In addition to the localized discoloration, the tissue is painful, differs in consistency (firm or boggy) or in temperature (warmer or cooler) as compared to adjacent tissue.²
- The injury has non-intact skin or blood-filled blisters signifying damage to the underlying soft tissues.²
- There is no elasticity in the skin surrounding the injury.
- The patient has any systemic symptoms of infection or sepsis, no matter how mild they may initially appear. Pressure injuries often may be overlooked as a cause of these symptoms of infection, which include:
 - High temperature
 - Change in laboratory results (e.g., white blood cell count)
 - Decline in the patient's mental status
 - Unexplained tachycardia



DEFINITION	SCHEMATIC DRAWING	EXAMPLE
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.		
STAGE 2 PRESSURE INJURY Partial-thickness skin loss with exposed dermis The wound bed is visible, 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 types commonly result from adhesive microclimate and shear in the skin over the pelvis and heel. This stage should not be used to describe moisture-associated skin damage (MASD) including incontinence-associated dermatitis (IAD), intertrigo dermatitis (ITD), medical adhesive-related skin injury (MARS), or traumatic wounds (skin tears, burns, abrasions).		
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 eschar (dried wound edges) are often present. Slough and 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 or bone are not exposed. If slough or eschar obscures the extent of tissue loss this is an Unstageable Pressure Injury.		
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. Epithelial (pooled 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.		

DEFINITION	SCHEMATIC DRAWING	EXAMPLE
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 2 or Stage 3 pressure injury will be revealed. Stable eschar (i.e., dry, adherent, intact without erythema or fluctuance) on an ischaemic limb or the heel(s) should not be softened or removed.		
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 DTP to describe vascular, traumatic, neuropathic, or dermatologic conditions.		
MUCOSAL MEMBRANE PRESSURE INJURY Mucosal membrane pressure injury is based on mucosal membranes with a history of a medical device in use at the location of the injury. These ulcers cannot be staged.		



Source: National Pressure Injury Advisory Panel

Safety actions to consider:

There are actions that organizations can take to help clinicians accurately identify the depth of a pressure injury as early as possible in order to treat the patient and ease their suffering.

- Develop and implement an organizational policy outlining a structured skin assessment approach relevant to the clinical setting to promote the performance of regular assessment. The policy should include documentation requirements.¹
- Use a pressure injury classification system in pressure injury-related education to staff. Knowledge about etiology and clinical presentation of wounds enhances diagnostic accuracy.^{1,3}
- Post signage and/or illustrations that indicate the warning signs and symptoms that clinicians should look for to enable rapid identification of more concerning pressure injuries.
- Health professionals undertaking comprehensive vascular assessment should be trained in using appropriate assessment techniques and equipment. Consider referring individuals with pressure injuries who have suspected or known compromised vascular status in an extremity to a vascular specialist,¹ and if there is any indication of blood flow impairment, consult with a vascular surgeon. For advanced pressure injuries, consult with a reconstructive surgeon and, if available, a wound center or wound team.

Resources:

1. European Pressure Ulcer Advisory Panel (EPUAP), National Pressure Injury Advisory Panel (NPIAP), and Pan Pacific Pressure Injury Alliance (PPPIA). Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline. The International Guidelines. 2019.
2. [Pressure Injuries, Deep Tissue Pressure Injuries \(DTPI\)](#), WoundSource
3. National Pressure Injury Advisory Panel. [NPIAP Pressure Injury Stages webpage](#).

Additional resources from The Joint Commission:

Quick Safety, Issue 25: [Preventing pressure injuries](#), Updated July 2016

Quick Safety, Issue 43: [Medical device-related pressure injuries](#), July 2018

Note: This is not an all-inclusive list.



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