

Pressure Ulcer Prevention and Management

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Preventing hospital-acquired pressure ulcers and healing those that are present on admission are key clinical competencies of a rehabilitation nurse. This article describes the 2007 redefined pressure ulcer stages, skin assessment, and interventions.

A *pressure ulcer* is a localized area of tissue damage caused by excess pressures, shearing, or friction forces that occur in people who cannot reposition themselves to relieve pressure on bony prominences (Moore & Cowman, 2007). A pressure ulcer may also be known as a bedsore, pressure sore, or decubitus ulcer.

A hospital-acquired pressure ulcer prevalence rate is frequently reported for rehabilitation and acute care units. This is the number of hospital-acquired pressure ulcers identified divided by the total number of patients hospitalized (i.e., 1 hospital acquired pressure ulcer ÷ 20 patients = .05 prevalence rate).

Pressure Ulcer Stages

Pressure ulcer staging is used to guide intervention and therapeutic management strategies. The original stages (developed in 1975) were redefined in 2007 to reduce confusion that could lead to inaccurate staging of ulcers associated with or due to perineal dermatitis and deep-tissue injury.

Suspected deep-tissue injury is characterized by a purple or maroon localized area of discolored intact skin or blood-filled blister when underlying soft tissue is damaged from pressure or shear. The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer, or cooler as compared to adjacent tissue. Deep-tissue injury may be difficult to detect in individuals with dark skin tones. Evolution may include a thin blister over a dark wound bed. The wound may further evolve and become covered by thin eschar. Evolution may be rapid, exposing additional layers of tissue even with optimal treatment.

Stage I

This stage is characterized by intact skin with nonblanchable redness of a localized area usually over a bony prominence. Darkly pigmented skin may not have visible blanching; its color may differ from the surrounding area. The area may be painful, firm, soft, warmer, or cooler as compared to adjacent tissue. Stage I may be difficult to detect in individuals with dark skin tones. It may indicate “at risk” persons (a heralding sign of risk).

Stage II

During stage II there is partial-thickness tissue loss of the dermis presenting as a shallow open ulcer with a red-pink wound bed, without slough. Stage II may also present as an intact or open or ruptured serum-filled blister. Stage II presents as a shiny or dry shallow ulcer without slough or bruising (bruising indicates suspected deep-tissue injury). This stage should not be used to describe skin tears, tape burns, perineal dermatitis, maceration, or excoriation.

Stage III

During stage III there is full-thickness tissue loss. Subcutaneous fat may be visible but bone, tendon, or muscle is not exposed. Slough may be present but does not obscure the depth of tissue loss. Stage III may include undermining and tunneling. The depth of a stage III pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput, and malleolus do not have subcutaneous tissue and stage III ulcers can be shallow. In contrast, areas of significant adiposity can develop extremely deep stage III pressure ulcers. Bone and tendon are not visible or directly palpable.

Stage IV

Full-thickness tissue loss with exposed bone, tendon, or muscle occurs during stage IV. Slough or eschar may be present on some parts of the wound bed. This stage often includes undermining and tunneling. The depth of a stage IV pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput, and malleolus do not have subcutaneous tissue and can be shallow. Stage IV ulcers can extend into muscle and supporting structures (e.g., fascia, tendon, or joint capsule) making osteomyelitis possible. Exposed bone and tendon are visible or directly palpable.

Unstageable

Unstageable pressure ulcers have full-thickness tissue loss in which the base of the ulcer is covered by slough (yellow, tan, gray, green, or brown) or eschar (tan, brown, or black) in the wound bed. Until enough slough or eschar is removed to expose the base of the wound, the true depth, and therefore stage, cannot be determined. Stable (dry, adherent, intact without erythema or fluctuance) eschar on the heels serves as “the body’s natural (biological) cover” and should not be removed (National Pressure Ulcer Advisory Panel [NPUAP], 2007).

Assessment

The RN or LPN/LVN should perform a full-body skin assessment within 8 hours of admission and during every shift. The Braden scale (Braden & Maklebust, 2005) is used to assess a patient’s risk for skin breakdown. Reassessment using this tool is determined by setting or patient condition. The level of risk is identified according to the score obtained (any score below 18 indicates a risk).

Interventions to Prevent a Pressure Ulcer

The minimum plan of care interventions for each risk category may include, but are not limited to the following:

Risk	Score	Interventions
Mild	15–18	Turning and repositioning patient at least every 2 hours Maximal remobilization Protection of heels and other bony prominences (occiput, ears, scapula, spinous processes, shoulders, elbows, iliac crest, sacrum/coccyx, ischial tuberosity, trochanters, knees, malleolus, and toes) Managing moisture, nutrition, friction, and shear (elevate head of bed no more than 30 degrees) Supportive measures for pressure reduction, if bed or chair bound Nutrition consult when patient’s Braden score is 18 or less
Moderate	13–14	Mild Interventions Specific turning and repositioning schedule Wedge devices for lateral positioning Pressure redistribution support surface Manage nutrition
High	10–12	Mild and moderate interventions Increased frequency of turning, including small shifts of weight
Very High	9 or below	Mild, moderate, and high interventions Reassessment every shift

Stage	Treatment Goals	Interventions	Products Available
I	Protect the skin and remove the cause	Change position in bed or chair every two hours. Assess need for support surface. Maintain head of bed at 30 degrees or less, unless contraindicated. Use draw sheet for repositioning. Do not massage reddened areas. Elevate heels off bed with pillow or protective boots/splints. Avoid positioning on affected area.	Transparent film Thin wound dressing
II	Protect the skin and manage exudates; closure and regrowth of skin	Manage exudates/moisture: Apply wound dressing; change every 3–5 days and prn. None-to-light exudates: Ointment to affected area, need MD order; a thin wound dressing Moderate-to-heavy exudates: Adhesive wound dressing or a nonadhesive wound dressing secured in place	Ointment Thin wound dressing Adhesive wound dressing Nonadhesive wound dressing
III & IV	Protect and keep wound clean; manage exudates; and reduce wound size	Manage exudates/moisture: Apply a wound dressing to create a moist wound environment, which assists in autolytic debridement of wounds covered with necrotic tissues None-to-light exudates: Apply a thin wound dressing or gel Moderate-to-heavy exudates: Adhesive or nonadhesive wound dressing secured in place; selection of dressing influenced by size and location of the pressure ulcer; a rope or sheet wound dressing may be needed in specific situations or to pack the wound; change every 1–3 days and prn, cover.	Gel Thin dressing Adhesive wound dressing Nonadhesive wound dressing Rope or sheet wound dressing

Interventions When a Pressure Ulcer Is Identified


When a pressure ulcer is identified the RN should notify the patient's physician and the ulcer will be staged according to the NPUAP's revised system. The pressure ulcer stage will guide the selection of therapeutic interventions.

The pressure ulcer should be documented on a pressure ulcer flow sheet. Each wound should be measured using photography and a measurement system such as EZ Graph or wound rulers. Measurements should be done on admission, weekly, and at discharge.

An interdisciplinary pressure ulcer prevention team should be formed to review all pressure ulcer data, track trends, and recommend interventions or changes in practice. For example, if it is noted that hospital-acquired pressure ulcers are developing on the heels of hip replacement patients, a standard of practice might be to automatically place heel protective devices on all hip replacement patients and assess the outcomes.

Team members may include a senior leader, nurse manager, therapists, nutrition services, staff nurse, nursing assistant, physician, or pharmacy representatives.

Patients and families must be educated about the patient's risk for breakdown or the current pressure ulcer condition. Strategies for skin inspection, positioning, prevention, and healing of pressure ulcers must be taught.

By analyzing all hospital-acquired pressure ulcers, education and interventions can be implemented that will lead to zero hospital-acquired ulcers, which is part of the Institute for Healthcare Improvement's (IHI) "5 Million Lives" initiative (IHI, 2008). 

References

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