Heel Pressure Ulcers

BY SUSAN HILL, BSN, RN, CWOCN, & LINDA LANKENAU, MSN, RN, CWON

Heel ulcers are the second most common site for pressure ulcers with associated incidence on the rise. Today, 41% of all deep tissue injuries are found in the heels.1,2 With or without underlying diabetes, there is a reported 19%-32% occurrence in acute care.3 Prevalence of heel pressure ulcers account for 23.7% of the pressure ulcers in acute care facilities, 22.5% in long-term/acute care facilities, and 22.9% in long-term care facilities.2,4 As individuals live longer, enter hospitals with multiple co-morbidities and complex care needs, and undergo more surgical procedures at advanced age, they are at higher risk — particularly when hip and lower extremity orthopedic procedures are required. In October 2008, CMS announced it would no longer provide reimbursement for significant hospital-acquired pressure ulcers, so the concern about this impacts both the patient and the business.

Heel Vulnerability
- The calcaneus bone is the largest in the foot and is wide in relation to its associated skin surface area.5
- Little subcutaneous fat surrounds the calcaneus. The shock absorptive capacity of the heel decreases with age, leaving it more susceptible to forces of pressure, friction and shear.3
- Because the sole of the foot has no sebaceous glands, the lack of lubrication leaves the skin more vulnerable to drying and cracking.1
- Peripheral vascular changes in the patient with diabetes can cause narrowing and hardening of blood vessels, particularly in the legs and feet.5
- Decreased blood flow results in damage to nerves (neuropathy) and reduced tissue tolerance to pressure.3
- Loss of sensation, secondary to diabetic neuropathy, can prevent patients from feeling ischemic pain that causes a normally sensitive patient to move his or her leg to relieve the pressure and stop the pain.3
- Additional factors that put the heel at risk include circulatory impairment, atherosclerosis of vessels, as well as vascular, ischemic and obstructive insufficiencies.3

Other Clinical Factors
- Heels are often overlooked during nursing skin assessments, both on admission and during the hospital stay.
- The most commonly used risk assessment tools do not have a sub-scale for non-movement of lower extremities, meaning they typically do not address the specific risk factors responsible for the development of heel pressure ulcers.
- Because heels are not incontinent, they do not require the frequent assessment, cleansing and lubrication that is associated with an incontinent patient.
- Patients with diabetes are four times more likely to develop a heel ulcer.3

Risks
- History of previous heel ulcer
- Immobility
- Multiple co-morbidities (emphasis on diabetes mellitus)
- Devices that place pressure on heels (TEDS, traction, CPMs, compression hose)
- Lower extremity vascular disease
- Vasoconstrictive drugs and sedation used in critical care
- Epidural and general anesthesia
- Lower extremity contractures that lead to constant unrelied pressure
- Lower extremity orthopedic surgeries
- Lower extremity edema
- Ventilator dependency
- Agitation that results in friction and tissue distortion to heel skin
- Prolonged operative procedures without adequate heel protection

Prevention
- Be aware of all the risk factors for heel pressure ulcer development, including a Braden mobility score of three or less and a patient’s inability to lift their foot off the bed unassisted or reposition independently.
- Assess and document heel skin integrity on admission and during each shift.
- Treat dry skin with a skin moisturizer twice daily to decrease friction and shear
- Institute regular and frequent repositioning of the extremity
- Float heels of at-risk patients: position pillows lengthwise from the knee to just above the heel, suspending heel off the support surface for short-term intervention.
- Consider protective heel boot if prolonged inactivity occurs (i.e., greater than six hours)
- Provide range-of-motion exercises to ankles every 12 hours and as needed
- Remove TED stockings, CPMs, compression hose and ace wraps per facility protocol for skin assessments
- Mobilize patients as soon as possible
- Consult wound ostomy continence nurse if patient develops a heel ulcer or deep tissue injury
- Consult physical therapist if patient has foot drop or is at risk for developing a planter flexion contracture at the ankle
- Protect heels at risk during times in the operating room and long stays in emergency departments.

Notes:

References

Linda Lankenau works per diem as the wound/ostomy nurse at Pennsylvania Hospital, Philadelphia, and is an EHOB nurse consultant. Susan Hill works as a supplemental wound/ostomy nurse at the Mayo Clinic Hospital in Phoenix and is an EHOB nurse consultant.

The purpose of this clinician’s guide is to further explain or remind you about an issue related to your healthcare practice. This handout is a general guide only.