

Why All the Pressure About Pressure?

Pressure ulcers/injuries (PU/Is) are straightforward, right? If you have skin breakdown over a bony prominence, the etiology must be *pressure*, correct? After all, only a PU/I can occur over bone, right? When considering wound etiology, this line of thinking is *incorrect*.

Numerous wound and skin issues occur over bone. Non-pressure skin and wound problems can be a variety of etiologies that can include intrinsic and extrinsic forces, such as surgery, diabetes, vascular disease, traumatic injury, osteomyelitis, cancer, Marjolin's ulcer, Duhring's disease, and more. Additionally, if a wound or skin issue is not over a bone, it appears that many medical professionals are quick to say it is not a pressure related injury simply because of its location; in reality, pressure related injuries can occur anywhere on the body but are more likely to occur over bone.

Let us look at "Mrs. Jones." Mrs. Jones had an ulcer that developed over a bony prominence. Due to its location over bone and Mrs. Jones wearing a Bilevel Positive Airway Pressure (BiPAP) at night, it was presumed that this skin ulceration was most likely a pressure related injury due to medical equipment or device.



Staff documented this as a PU/I, staged the wound/ulcer, and then proceeded to eliminate as much of the pressure as possible. Foam dressings were added at night to "pad" the area. The patient was fitted with a new BiPAP mask. Staff ensured that pressure was not occurring, yet the wound/ulcer did not improve.

A wound specialist was consulted. Once it was confirmed that both the dressing application and dressing changes were performed correctly, the specialist verified the BiPAP was fitted properly and not adding pressure to the area. Then, the wound specialist performed a biopsy. The biopsy confirmed squamous cell carcinoma. The staff stated they had never considered the issue was something other than pressure because it was over a bony prominence. Contrary to the staff's beliefs, the etiology of the ulceration had nothing to do with pressure.

Why is there so much pressure to identify wounds *as* pressure, when in fact the etiology of the wound should be determined before listing a skin issue or break in the skin as a PU/I? If that question had a simple answer, then correct etiology would never be an issue.

So, what *is* a pressure related skin or wound issue? In the most basic sense, a PU/I is an area of damaged tissue or skin due to intense or prolonged pressure or a combination of pressure and shear forces. Essentially, this pressure prevents or lessens blood from flowing into the tissue of the affected area; the lack of proper blood flow also means that oxygen and nutrients cannot be delivered to the tissue. Due to the lack of perfusion, tissue damage or death occurs. Friction can increase the vulnerability of the skin by causing the skin to rub against clothing or bedding, especially if the skin is moist. This is a form of pressure related injuries.

Another force that can contribute to the development of pressure related injuries is the shearing force. Shearing occurs when 2 surfaces move in opposite directions, such as when someone slides down in a wheelchair or bed. The skin over the bone might stay still while the tailbone moves down, causing tissue damage from the shearing force.

In the following photo, shearing force caused the skin and tissue damage; therefore, this wound type would be listed as pressure in etiology.



There is no diagnostic tool available to prove that the etiology is pressure. Instead, we must rely on investigative tools, which include visualization, inspection, questions, and verifying information. Consider the following recommended questions from The Quality Assurance and Performance Improvement: Clinician's Resource Guide¹:

1. Was the ulcer caused by pressure or pressure and shear?
 - Is or was the patient or the patient's body part immobile?
 - Evaluate location of the ulcer. Is it directly from positioning in bed? Chair? Shoe? Device?

- Observe the patient in actual supine, side lying, sitting, and with their devices (splints, braces, etc). Is the specific area of breakdown consistent with applied external force?
- Determine if the patient had a recent period of immobility, including just prior to admission. Consider falls at home, rhabdomyolysis, and surgical procedures > 4 hours.

In using a systematic approach to evaluate wounds for plausible etiologies, practitioners are one step closer to knowing the wound causation, which in turn allows for appropriate interventions and treatments.

Martha Kelso is the founder and chief executive officer of Wound Care Plus, LLC, a mobile wound specialty company in the Midwest.

References

1. Milne CT, Krasner DL, Ayello EA, et al; Professionals Dedicated to Quality Wound Care. Quality assurance and performance improvement: clinician's resource guide. Smith and Nephew. 2016. <https://www.smith-nephew.com/documents/us/wound%20education/qapi%20clinician%20resource%20guide.pdf>