

# CATEGORISING PRESSURE ULCERS: GETTING IT RIGHT

From superficial to deep, pressure ulcers present in a variety of ways. Clinicians must familiarise themselves with anatomy to determine the appropriate categorisation of a pressure ulcer using the most common grading tool – the European Pressure Ulcer Advisory Panel (EPUAP) and National Pressure Ulcer Advisory Panel's (2009). This article highlights differences between the four EPUAP categories.

How a pressure ulcer presents can vary according to causal factors, the comorbidities of the individual, and the area of the body affected (Royal College of Nursing, 2005). Superficial pressure damage is often caused by shear and friction (for example, a blister can be caused by a poorly fitting shoe rubbing against the skin), hence much of the population have suffered a small degree of pressure damage at some point in their lives.

Deep pressure ulcers represent a dramatic change in the skin and underlying tissue, often lead to cavity wounds, cause the individual a significant amount of pain, and have a detrimental impact on their quality of life (Gorecki et al, 2009).

However, the area of the body affected may mislead the clinician into wrongly categorising the pressure ulcer. To avoid this, a knowledge of anatomy is vital, in addition to an understanding of the pressure ulcer grading scale.

## *Categorising pressure ulcers*

The European Pressure Ulcer Advisory Panel (EPUAP) and National Pressure Ulcer Advisory Panel (NPUAP) scale for categorising or grading pressure ulcers

(EPUAP–NPUAP, 2009), is a consensus document authored by experts in the fields of tissue viability and wound care across many countries. The four categories are illustrated in *Figure 1*, with a higher category relating to a more severe skin and underlying tissue injury.

When categorising a pressure ulcer, the thickness of the skin should be taken into consideration. Over most of the body, skin depth is thin (e.g. approximately 0.5 mm on the eyelids), but on surfaces such as the soles of the feet (plantar surface) and the palms of the hands (palmar surface), it can be 1 mm–2 mm thick, and as thick as 5 mm on the heels.

However, skin thickness varies throughout a person's lifetime. A newborn baby has an epidermal layer similar to that of an adult, but only 50% of the thickness. The outer layer (stratum corneum), which provides the barrier to the outside world, rapidly matures in the last few weeks before birth. Consequently, if the baby is born pre-term, the skin will be immature and vulnerable to pressure damage (Irving, 2005). Hence, what may appear to be a superficial pressure ulcer on a neonate may actually be deeper and more serious.

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Ageing leads to a thinning of the skin and partial loss of function. The epidermis becomes thinner and the connection between the epidermis and dermis is flattened, predisposing the older person to friction or shear injury. In addition, the elastic fibres within the dermis are depleted in older people resulting in wrinkles forming on the skin, vascularity is reduced and skin area can reduce by as much as 20% (Shuster et al, 1975). Combined with a reduction in subcutaneous fatty tissue, which provides padding, the skin and soft tissue become more vulnerable to pressure damage with age.

### **Category I: Non-blanching erythema**

It should be noted that we all suffer the effects of pressure in daily life (i.e. after sitting for any period of time, the blood is forced away from soft tissue and when we stand, the blood returns). It is important that the clinician does not mistake natural and temporary erythema for pressure damage.

When a patient is repositioned in bed, clinicians may encounter erythema, but this should resolve in 5–10 minutes – if it does not then the fingertip pressure test should be applied. Non-blanching of the area of erythema confirms category I pressure damage (Figure 1a). Failure on the part of the clinician to recognise non-blanching erythema at this stage is likely to result in further pressure damage. If the patient complains of pain in a specific area of the body this should always be examined immediately by the clinician for signs of injury or pressure damage. Pain may be the first indication of damage.

### **Fingertip blanching test**

The clinician should press on the area of erythema or darker-coloured tissue with their finger. It should blanch as the blood is pushed away from the skin. Once the finger is removed, the blood should flow back into the skin/tissue. If the area does not blanch, or if it blanches and does not refill with blood, then pressure damage has occurred (Figure 2).

### **Category II: Partial thickness**

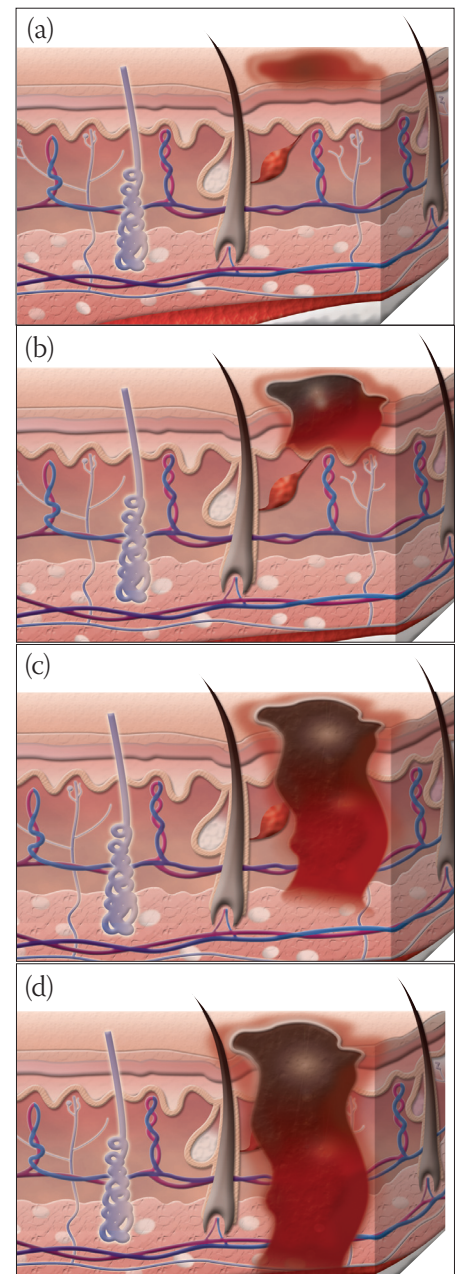
Blisters are obvious examples of category II pressure ulcers (Figures 1b; 3). However, a blister filled with serosanguineous fluid is sometimes mistaken for a deep tissue injury. In such cases, referral to a tissue viability nurse or wound specialist to deroof the blister and examine the underlying tissue may be appropriate.

Another potential cause for concern to the clinician is the superficial, sloughy pressure ulcer; this type of ulcer should be clean. However, occasionally a category II ulcer may have dermal slough which, once cleansed, reveals a clean ulcer or a coating of fibrin (protein substance). The ulcer that is not easily cleansed and has discoloured (grey/brown) slough is probably a deep tissue injury and not a category II ulcer.

### **Category III: Full-thickness skin loss**

A category III pressure ulcer may have subcutaneous fat visible, but bone, tendon, or muscle are not exposed (Figure 1c). The ulcer may be undermined, while the depth of a category III ulcer varies according to anatomical position. The bridge of the nose, ear, occiput, and malleolus do not have subcutaneous tissue so ulcers appear shallow in these areas (EPUAP – NPUAP, 2009).

The depth of a pressure ulcer varies according to how much force has been applied to the site. What might appear to be a superficial pressure ulcer may in fact expose deep structures and represent severe pressure damage (Figure 4). Those areas of the body with dense subcutaneous tissue may host significant cavity wounds. In addition, the amount of subcutaneous fat can vary from individual to individual – from those who are severely underweight, to those who are obese. It is sometimes wrongly assumed that the overweight or obese individual is less likely to develop pressure damage; as the volume of adipose or fatty tissue

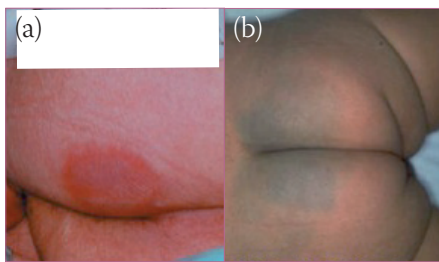


**Figure 1. (a) Category I pressure ulcer. (b) Category II pressure ulcer. (c) Category III pressure ulcer. (d) Category IV pressure ulcer.**

increases, the ratio of blood vessels to tissue decreases, meaning that the obese person has an increased risk of pressure necrosis due to their reduced vascular supply (Rush, 2009).

### **Category IV: Full-thickness tissue loss**

A category IV pressure ulcer (Figure 1d) will have exposed bone, tendon, or muscle, which will be visible or palpable, and often includes undermining or



**Figure 2.** Examples of (a) pale skin with non-blanching erythema, and (b) dark skin, non-blanching area, which appears dusky and not red.

tunnelling. The depth of a category IV ulcer is determined by the anatomical position of the ulcer. The bridge of the nose, ear, occiput, and malleolus do not have subcutaneous tissue so may present as shallow ulcers. There is also a risk of osteomyelitis with this category ulcer (EPUAP–NPUAP, 2009). There is sometimes an assumption that the presence of dense necrotic eschar must be due to a category IV pressure ulcer. However, the clinician cannot fully determine the depth of an ulcer until the necrotic tissue has been removed, which may delay definitive categorisation.

In the USA, an additional category entitled “unclassified” or “unstageable” is used, which refers to the presence of nonviable tissue that prevent an accurate categorisation of the ulcer. Such ulcers will ultimately be revealed as either category III or IV.

The prevalence of deep tissue injuries is difficult to estimate as there is not yet a national collection system. However, every NHS facility must report any serious pressure ulceration (i.e. category III or IV) to their governing body.

### Conclusion

While initially the categorisation of pressure ulcers may appear straightforward, the clinician needs to be aware that they must have some knowledge of both anatomy and the changing presentation of the skin with age. This will prevent erroneous categorisation of pressure ulcers and ensure accurate documentation. **WE**

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**Figure 3.** All category II pressure ulcers (PUs). (a) Serous-filled blister, appears pink with no darker tissue visible. (b) A spontaneously deroofed blister revealing a superficial ulcer with dermal slough. (c) PU on heel with brown slough, not easily removed. **Figure 4.** All category III PUs. (a) PU on the occiput; appears superficial but the arrow indicates fascia. (b) PU to the lower jaw, which exposes fascia. (c) Deep cavity PU reveals a mixture of necrotic and clean tissue. **Figure 5.** (a) The presence of necrotic tissue over the heel prevents definitive grading. It is a minimum category III PU, as the full-thickness skin is necrotic. However, on debridement, it may be category IV, depending on the depth of the ulcer and which tissue structures are revealed. (b) Extensive skin and soft tissue necrosis preventing definitive categorisation of pressure damage until the necrotic tissue is debrided. (c) Partial debridement of necrotic soft tissue has exposed the calcaneum (heel bone), revealing a category IV PU. There is a high risk of osteomyelitis when bone is exposed.