

PRESSURE ULCER PREVENTION AND REPOSITIONING

Pressure ulcer prevention is essential for the efficient delivery of patient care and a big part of prevention involves comprehensive risk assessment. This article will explore the practical issues surrounding pressure ulcer prevention and what carers can do to reduce the risk factors that contribute to the incidence of pressure ulcers.

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The European Pressure Ulcer Advisory Panel's (EPUAP) definition of a pressure ulcer 'is a localised pressure to the skin and/or usually a bony prominence, as a result of pressure, or pressure in combination with shear. A number of contributing

or confounding factors are also associated with pressure ulcers; the significance of these is yet to be elucidated' (EPUAP, 2009).

Pressure ulcers are graded into various categories (*Table 1*) and it is generally agreed that the cause of pressure ulcers is a combination of intrinsic (contained within the body) and extrinsic (separate to the body) factors. Intrinsic factors include:

- ▶▶ Sensory impairment

- ▶▶ Immobility
- ▶▶ Age
- ▶▶ Chronic illness (National Institute for Health and Clinical Excellence [NICE], 2005).

Extrinsic factors include:

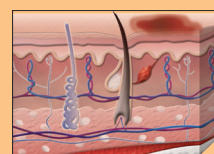
- ▶▶ Shear forces
- ▶▶ Friction
- ▶▶ Pressure (EPUAP, 2009).

Pressure ulcers are most likely to occur when a bony area covered

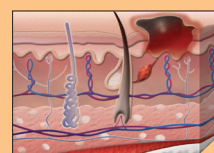
Table 1.

Pressure ulcer categories

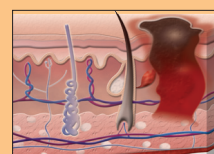
Category/Stage 1. Non-blanchable redness of intact skin. Intact skin with non-blanchable erythema of a localised area usually over a bony prominence. Discoloration of the skin, warmth, oedema, hardness or pain may also be present. Darkly pigmented skin may not have visible blanching. Further description: The area may be painful, firm, soft, warmer or cooler as compared to adjacent tissue. Category/Stage I may be difficult to detect in individuals with dark skin tones. May indicate 'at-risk' persons. (see *Table 3*).



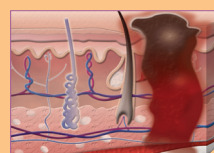
Category/Stage 2. Partial thickness loss of dermis (skin) presenting as a shallow open ulcer with a red pink wound bed, without slough. May also present as an intact or open/ruptured serum-filled or sero-sanguinous filled blister. Presents as a shiny or dry shallow ulcer without slough or bruising (bruising would indicate deep tissue injury). This category should not be used to describe skin tears, tape burns, incontinence-associated dermatitis, maceration or excoriation.



Category/Stage 3. Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscle are not exposed. Slough may be present but does not obscure the depth of tissue loss. May include undermining and tunneling. The depth of a grade III pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have (adipose) subcutaneous tissue and grade III ulcers can be shallow. In contrast, areas of significant adiposity can develop extremely deep stage III pressure ulcers. Bone/tendon is not visible or directly palpable.



Category/Stage 4. Full-thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present. Often includes undermining and tunneling. The depth of a grade IV pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have subcutaneous (adipose) tissue and these ulcers can be shallow. Grade IV ulcers can extend into muscle and/or supporting structures (such as fascia, tendon or joint capsule) making osteomyelitis or osteitis likely to occur. Exposed bone/muscle is visible or directly palpable.



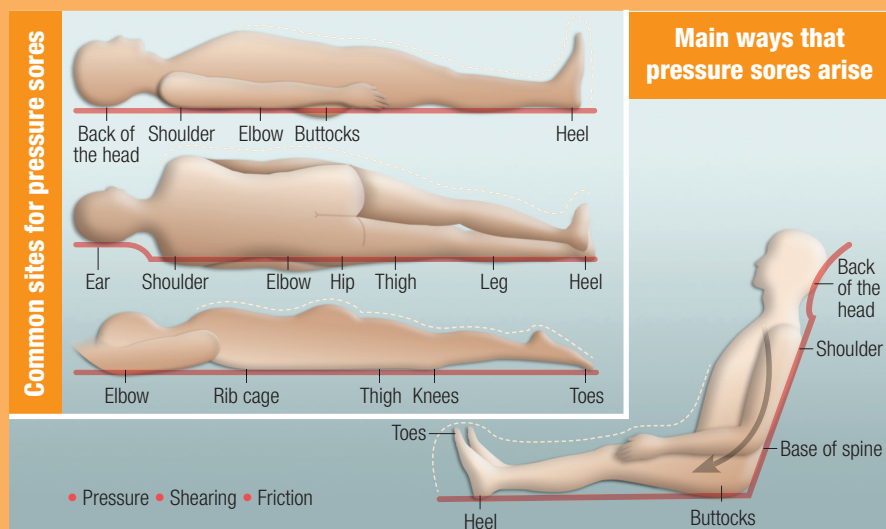


Figure 1. Common pressure ulcer sites on the body.

by a thin layer of skin is in contact with a hard surface. The body can withstand high pressures for short periods of time but it is important to reduce the time and the amount of pressure the patient is exposed to (Figure 1)(EPUAP, 2009).

Early studies into pressure ulcer development highlighted the lack of spontaneous movement by elderly bed-bound patients while sleeping (Exton-Smith and Sherwin, 1961). This study showed that patients who moved less than 21 times each night were most likely to develop pressure ulcers.

It has also been identified that simply turning the patient more often does not necessarily result in a decreased incidence of pressure ulcers and also raises other issues such as reduced pain control and disruption to rest/sleep periods (Vanderwee et al, 2007).

Friction and shear

Shear can also contribute to pressure ulcer development. This usually occurs when the skeleton

and the underlying tissue move down the bed under gravity but the skin, the buttocks and back remain stuck in the same point on the mattress. This twisting and dragging effect occludes blood vessels, which causes a reduction in blood supply and results in tissue death. This usually leads to the development of more extensive damage.

The effects of shear force can be worse in the presence of surface moisture caused by incontinence or sweat, and when combined with friction when the skin slides over the surface with which it is in contact.

Friction occurs when two surfaces move or rub across one another, leading to superficial tissue loss. Before the widespread use of lifting aids patients were manually lifted up the bed and the sacrum or heels could be dragged causing friction to these areas. The majority of pressure ulcers to the heel are caused by friction. Initially, they present as a blister (friction), with purple discolouration to the underlying tissue (pressure).

Incontinence and pressure ulcers

Incontinence of urine, faeces or both is a common problem that can affect individuals across all age groups with a high incidence in older people (Cooper et al, 2008).

Skin has a mean pH of 5.5, which is slightly acidic. Both urine and faeces are alkaline and incontinence creates an immediate change in the pH which affects the skin.

Ammonia is produced when micro-organisms digest urea from the urine. Although urinary ammonia alone is not a primary irritant, urine and faeces together increase the pH around the perianal area, causing skin irritation. This increase in moisture resulting from episodes of incontinence, combined with bacterial and enzymatic activity, can result in the breakdown of vulnerable skin (Cooper et al, 2006).

It is important when cleaning the skin of a patient with incontinence, that a regimen is used that optimises skin integrity and reduces the use of harmful irritants. It is important to remove urine and faeces as soon as possible for patients who are unable to do so independently.

Specialised skin care products are designed to gently but effectively cleanse, removing contamination while maintaining the acid mantle and reducing the negative effects to the skin (NHS Quality Improvement Scotland, 2009).

It is accepted that moisture is required for wound healing to occur but it is difficult to quantify how much is necessary. The wound needs to be moist but not

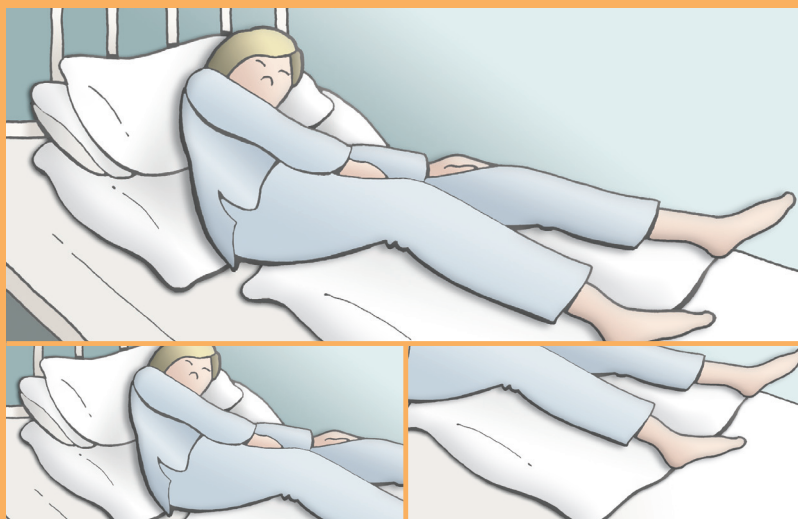


Figure 2. Important to change the patient's position and pressure points regularly.

or cushion that helps reduce damage

- ▶▶ Do not rub or massage vulnerable skin as this increases shearing and friction to these areas
- ▶▶ Keep the skin dry and do not use excessive amounts of skin cream or talcum powder
- ▶▶ Protect the skin from friction (Figure 2). This should be assessed when changing the patient's position and the equipment being used. Ensure all carers know how to use any equipment and have been trained to use any new devices.

Support surfaces and additional equipment

The decision to provide pressure-relieving equipment (such as dynamic alternating mattress support systems, pressure-relieving cushions and heel protectors) should follow a full risk assessment and any equipment used should be based on the suitability for the patient, their physical needs and the environment. National guidelines indicate the provision of pressure-relieving devices for patients at very high risk of

pressure damage (NICE, 2005).

Dynamic alternating therapy has been developed to mimic the small positional changes required while patients are in bed (Winman and Clark, 1997).

Most pressure-redistributing mattresses and overlay products are placed onto solid platforms. All staff should understand how these devices work and ensure no hoist slings and sliding sheets are left under the patient after a procedure has been performed as this may cause creases or additional pressure. If sliding sheets are left in place, involuntary positional changes may occur which could compromise the patient's care (Cooper et al, 2006).

Conclusion

There is a link between immobility, incontinence and the nutritional status of older patients and the development of pressure ulcers. While pressure ulcers will sometimes occur even if all strategies and preventive measures are in place, it is important to minimise the risk factors. **WE**

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