

# RECOGNISING PRESSURE ULCER RISK FACTORS

Pressure ulcers are largely recognised to be preventable and are an unwanted by-product of a period of immobility. Some people are more likely to develop a pressure ulcer than others and a challenge for nurses is recognising who these individuals are. This article explores some of the commonly associated risk factors that may increase the likelihood of developing a pressure ulcer.

The Department of Health (DoH) has, through the Quality, Innovation, Productivity and Prevention (QIPP) safe care work stream, expressed the ambition to achieve a 95% reduction of avoidable hospital and community acquired pressure ulcers (DoH, 2011). The DoH (2012) definition of an avoidable pressure ulcer states that they occur when risk assessments, preventative care actions and continued re-evaluation of care interventions have failed to be implemented.

A pressure ulcer can be deemed as unavoidable when the following factors occur (Bedfordshire and Hertfordshire Tissue Viability Nurses forum, 2010; National Pressure Ulcer Advisory Panel [NPUAP], 2010; DoH, 2012):

- ▶ All risk assessments and preventative care have been implemented and re-evaluated, and yet a pressure ulcer still occurs
- ▶ A life-threatening event may have occurred
- ▶ Patient may have end of life skin changes
- ▶ Patient with mental capacity may have refused preventative interventions

- ▶ Patient may have been in a collapsed state, unknown to clinicians.

## *Definition of a pressure ulcer*

A pressure ulcer is a localised injury to the skin and/or underlying tissue, usually over 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 ulcer — the significance of these factors is yet to be elucidated (European Pressure Ulcer Advisory Panel [EPUAP]/NPUAP, 2009)

## *Prevention*

Prevention begins with an assessment of an individual's risk of developing a pressure ulcer. The use of a tool usually forms a part of this assessment and must be combined with clinical judgement, skin assessment and consideration of the skin's surface. Many of the risk factors associated with pressure ulcer development have been identified within a variety of risk assessment tools (Guy, 2012a). It is useful to consider the variety of tools available and use one that is relevant to a specific area of practice. A risk assessment is then used to trigger care interventions that will prevent pressure ulcers from developing.

- ▶ Pressure ulcers
- ▶ Repositioning
- ▶ Quality of life
- ▶ Risk assessment

*A risk assessment is used to trigger care interventions that will prevent pressure ulcers from developing*

HEIDI GUY is a Tissue Viability Clinical Nurse Specialist and Honorary Lecturer, East and North Herts NHS Trust

### Preventative care interventions

The following preventative care interventions are recommended in the case of pressure ulcers:

- ▶ Skin inspection
- ▶ Repositioning
- ▶ Use of pressure relieving/reducing equipment
- ▶ Skin care – clean, dry, hydrated
- ▶ Management of incontinence
- ▶ Maintaining adequate dietary and fluid intake.

There are many risks associated with pressure ulcer development but, essentially, if a person has no impairment to sensation and mobility, they are unlikely to develop a pressure ulcer. There is, however, a danger of over-simplifying the risk associated with pressure ulcer development, as it is often implied that the only risk factors are reduced mobility and loss of sensation, which is not the case.

Each identified risk factor needs to be considered a little more laterally than this. For instance, a patient with dementia may have both an intact sensory pathway and be able to mobilise. What may be lacking is the cognitive ability to recognise the pain signal associated with the beginnings of pressure damage (EPUAP and NPUAP, 2009), which would normally trigger movement, sometimes sub-consciously.

### Risk factors

The common risks associated with pressure ulcer development are as follows.

#### Reduced mobility or immobility

In order for a pressure ulcer to develop, a prolonged period of pressure is required. The longer that pressure is exerted over a bony prominence, the higher the pressure will become. The pressure at the point of the bone will be higher than at the skin surface (Collier and Moore, 2006). This will result in an increased period of reduced or occluded blood flow to the tissues, which results

in tissue hypoxia and contributes to tissue death. Deep tissue injury (injury to the muscle and sub-dermal layers) can occur with little, if any, visual evidence at the skin's surface (Agam and Gefen, 2007). It is difficult to accurately assess how long it takes for this level of damage to occur, but a literature review by Gefen (2008) suggests between one to six hours. This timeframe may be shortened in sitting patients.

The body will send a warning signal that pressure has been exerted for too long, namely, through pain (EPUAP and NPUAP, 2009) and this usually triggers movement. If a patient cannot move, they need to be advised to report the pain to someone who can help them move (EPUAP and NPUAP, 2009). It must also be considered that the patient in pain may be immobilising themselves because moving increases their level of discomfort.

In addition, they may well be taking analgaesics, sometimes opiates. Pain is an early warning signal for pressure damage and the use of strong analgaesics may diminish this warning system, thereby delaying a trigger to move. The frequency that a person needs to change their position will depend upon individual circumstances and other risk factors.

#### Lack of sensation

If the pain signal is absent because of a lack of sensation then the individual will not be aware that damage is occurring and will not appreciate the necessity to move. This increases the risk of pressure ulcer development in patients with, for example, cerebrovascular accident, multiple sclerosis, spinal cord injury and neuropathy.

Other medical conditions that may impair sensation must also be considered, as well as those patients with temporary sensory loss due to unconsciousness, spinal anaesthesia, analgesic use, alcohol or substance abuse/overuse.

### Skin marking

The change of colour in the skin associated with pressure damage is an early warning sign of risk. A visible, circular, pink/red blanching mark, known as blanching erythema (the area of redness blanches white when pressed lightly with a finger), over a bony prominence is an indication that pressure damage is beginning to take place (Bethell, 2003). If this goes unnoticed and continued pressure is sustained, then the discolouration will get darker until it is purple/black (EPUAP and NPUAP, 2009).

Identifying skin colour changes can be difficult when the individual has a darker skin colour (Scanlon and Stubbs, 2004; EPUAP and NPUAP, 2009) as areas of redness are neither visible, nor blanch white (Bethell, 2005). Individuals with a darker skin colour may well be at increased risk of pressure damage because of this fact (Fogerty et al, 2008). Erythema may also be masked by other physiological illnesses that alter the skin colour, such as cellulitis, necrotising skin infections, bruising, dermatological disorders and incontinence-associated dermatitis.

### Nutritional status

It is widely acknowledged that under-nourished people are at increased risk of pressure ulcer development (National Institute for Health and Clinical Excellence [NICE], 2005; EPUAP and NPUAP, 2009), although the evidence base behind this is not robust (Langer et al, 2003; Mathus-Vliegen, 2004). Indicators for malnourishment will include serum albumin levels (Anthony et al, 2000; Reed et al, 2003), body mass index (Allman et al, 1995), and nutritional risk assessment (National Collaborating Centre for Acute Care, 2006).

### Compromised vascular supply

An already compromised vascular supply will be further hampered by pressure, resulting in a more rapid

deterioration of skin. Patients with peripheral arterial disease may be at increased risk of damage to their heels. In one area, some 88% of hospital-acquired, grade four ulcers were on patients' heels (Guy, 2011). Patients who experience an event, such as cardiac arrest or hypovolaemic shock, may also be at increased risk of skin damage due to diminished blood supply to the skin related to a sudden drop in blood pressure (Nixon et al, 2000).

### Shear

This is an additional pressure that will further hamper blood flow to the skin by stretching and contorting the blood vessels (Collier and Moore, 2006). Shear is commonly seen over the sacrum and heels where patients may be sliding down a surface, such as a mattress, and resisting this movement with their heels. The risk of pressure ulcer will be reduced by focusing on the seating position of the patient in the chair and bed.

### Surface

The surface that an individual sits, lies or leans on can influence the risk of pressure ulcer development (Norton et al, 2011). Bony prominences resting against a hard surface will result in high pressures at the bony/tissue interface and pressure damage may occur relatively quickly. The risk of pressure ulcer development can be reduced by changing the mattress or cushion that a person sits or lies on. In healthcare settings, areas such as operating theatres, accident and emergency, and radiology departments may need to consider the surface upon which patients will be lying on (Haugen et al, 2011). The additional use of gel, polymer or air products may help protect patients.

### Incontinence

Faecal and urinary incontinence are both related to an increased risk of pressure ulcer development (Berquist-Beringer and Gajewski, 2011). It is important to recognise that lesions

can occur as a result of incontinence that are not pressure ulcers (See *article on p36*). Recognising the difference between moisture lesions, incontinence-associated dermatitis and pressure ulcers is an important skill to develop (DeFloor et al, 2005).

### End of life

The skin is an organ and, as such — just like the heart, kidneys and other organs — is subject to failure at some point in an individual's life (Sibbald et al, 2009). This is most likely to occur at the end of life and may result in unavoidable skin damage (Bedfordshire and Hertfordshire TVN Forum, 2010; NPUAP, 2010).

Galvin (2002) found that 81% of patients who developed a pressure ulcer in a palliative care setting, died in the same unit. Skin changes at life's end (SCALE) may well be an inevitable event that will not be avoided, despite all preventative measures being implemented (Galvin, 2002; Sibbald et al, 2009). The comprehensive SCALE consensus document (Sibbald et al, 2009) provides further explanation about the care interventions needed under these circumstances.

An important aspect of care required at this stage is help for the patient and his/her family members to understand that the skin breakdown is unavoidable and may well be a part of a terminal illness. This allows for sensitive management of the skin and patient situation, as well as reducing the likelihood of a complaint.

### Refusal by the patient to comply with care interventions

On occasion, a patient may not wish to change his/her position as often as is needed to protect the skin from breakdown, or they may refuse to use a pressure-relieving mattress. In instances like this, it is necessary to first consider the mental capacity of the patient (Mental Capacity Act, 2005).

## Table 1. Key Questions

- ▶▶ Does the person have an impairment to mind or brain, temporary or permanent?  
*i) If no, then they have capacity to make decisions, however unwise these decisions may appear to be to the healthcare professional*  
*ii) If yes, then further questions must be asked, as follows:*
- ▶▶ Can they understand the information relevant to the clinician's decision when it is presented in a manner that helps them understand?
- ▶▶ Can they retain this information?
- ▶▶ Can they use this information in the decision-making process?
- ▶▶ Can they communicate this decision in some form, appropriate to their ability?

To ascertain whether the individual may have a lack of capacity, in the first instance some questions must be asked (*Table 1*).

If the answers to the questions found in *Table 1* are yes, then the patient has the capacity to make his/her own decisions. Under these circumstances, the processes used to consider these questions must be documented and the patient's decision respected.

However, it is recommended that the opportunity for them to change their decision and agree to interventions is provided continually.

If a pressure ulcer occurs under these circumstances, it would be deemed

to be an unavoidable pressure ulcer (Bedfordshire and Hertfordshire TVN Forum, 2010).

### Conclusion

Preventing pressure ulcers is an important aspect of essential nursing care that begins with an assessment of the risks associated with their development. Identifying the risks can highlight which of those patients are most at need of preventative care and resources can, therefore, be allocated where they are most needed.

This article has covered the factors most commonly associated with the development of pressure ulcers, however, they are not exclusive and it is recommended that the reader expands on the knowledge gained from this article by undertaking further reading.

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