A GUIDE TO THE TREATMENT OF PRESSURE ULCERS FROM GRADE 1–GRADE 4

Gill Wicks, Nurse Consultant, Tissue Viability for Wiltshire Primary Care Trust and Lecturer at University of West England

Pressure ulcers are costly, debilitating and painful. However, through effective risk assessment the nurse is encouraged to plan effective interventions to remove or reduce the risk of pressure ulcer development. The grading of the pressure ulcer is an important aspect of care since it establishes the extent of tissue damage, and helps to guide management choices in the at-risk patient.

For many years it has been suggested that the development of pressure ulcers is a key indication of the quality of care a patient has received. Today, the development of a pressure ulcer may lead to the involvement of the legal profession and the care of the patient being scrutinised. In addition, prevention and treatment of pressure ulcers is expensive and it is estimated that the annual expenditure on pressure ulcers is as much as £321m. This is 0.8% of the entire NHS budget and equals the whole annual budget for mental health care (Bennett et al, 2004).

Assessment of all patients using a risk assessment tool is essential as this emphasizes the factors that put a patient at risk of developing a pressure ulcer. By highlighting these factors, the nurse is encouraged to plan effective interventions to remove or reduce the risks. The grading of pressure ulcers is another important aspect of caring for a patient with pressure damage. It not only provides a standardised method of documenting the level of tissue damage, but also a base line against which improvement or deterioration can be monitored. The grading system referred to in this article, as recommended by the National Institute for Health and Clinical Excellence (NICE, 2005), is the European Pressure Ulcer Advisory Panel's grading system (EPUAP, 2001).

Not only is the grading and assessment of pressure ulcers challenging but the choice of dressings for such wounds is vast. With the substantial number of different dressings available, this choice can be daunting and confusing.

This article will offer a step-by-step guide to the interventions required for these challenging wounds, including guidance on choosing appropriate wound care dressings for pressure ulcers and protecting the surrounding skin.

Grade 1 pressure ulcers

Step 1: identification

A grade 1 pressure ulcer is defined as a non-blanchable erythema of intact skin. Discolouration of the skin, warmth, oedema, induration or hardness may also be used as indicators, particularly in people with darker pigmentation (EPUAP, 2003) (*Figure 1*).

Step 2: protection and monitoring

The skin in a grade 1 pressure ulcer is not broken but it requires protection and monitoring. At this stage it will not be known how deep the pressure damage is and regular monitoring is essential. The pressure ulcer may fade but if the damage is deeper than the superficial layers of the skin, this wound could develop into a much deeper pressure ulcer over the following days or weeks.

Step 3: determining the cause

The cause of the pressure ulcer should be identified and stopped. For example, if the cause is

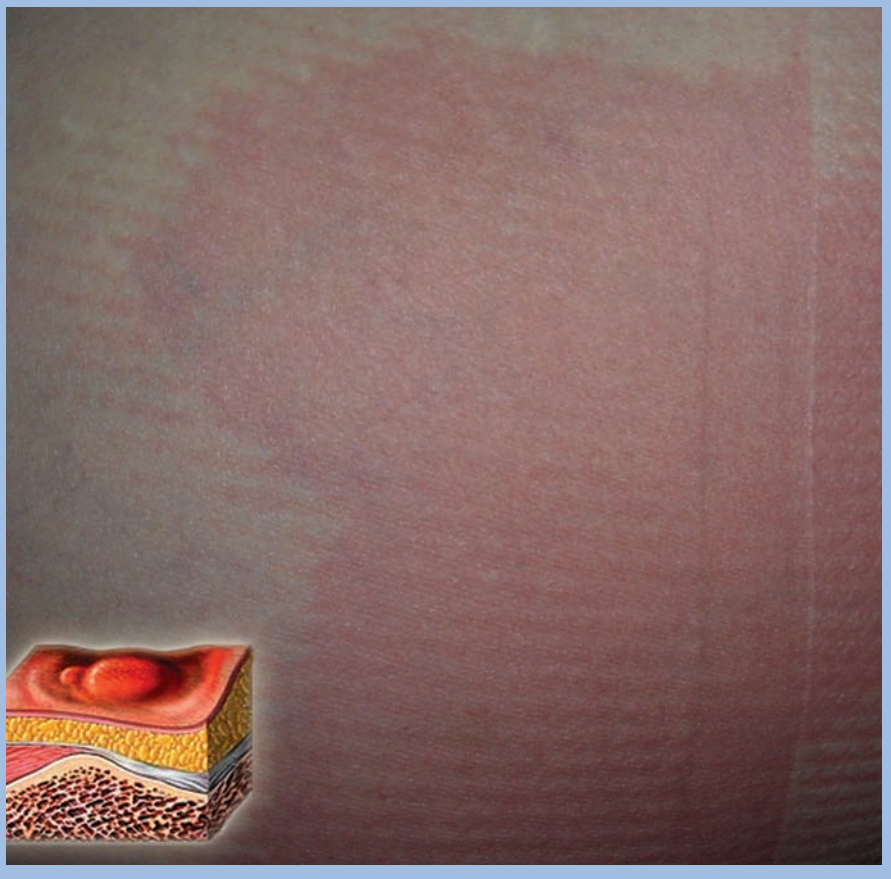

Figure 1. A grade 1 pressure ulcer showing non-blanchable erythema.

Figure 2. A grade 2 pressure ulcer showing partial-thickness skin loss.

direct pressure then either ensure that the patient's position is changed more frequently or 'step-up' the pressure relief, e.g. move the patient from a static foam mattress to an alternating pressure mattress.

Step 4: treating the wound

A grade 1 pressure ulcer is a wound, therefore a wound assessment tool or care plan should be commenced.

Wound dressings for a grade 1 pressure ulcer should be simple and offer protection without risking any further skin damage, especially if the patient is sliding down the bed or chair causing the dressing to 'ruck'.

A film dressing or a thin hydrocolloid would be appropriate to protect the wound area. The slippery nature of these dressings may reduce further friction or shearing if these factors are involved.

Grade 2 pressure ulcers

Step 1: identification

A grade 2 pressure ulcer is defined as partial-thickness skin loss involving the epidermis, dermis or both. The ulcer is superficial and presents clinically as an abrasion or blister (*Figure 2*).

Step 2: determining the cause

If the pressure ulcer is circular, this is often an indication that direct pressure is the cause. In this case ensure that the patient's position is changed more frequently or 'step-up' the level of pressure relief.

If the pressure ulcer is not uniform and is more widespread, then shearing or friction may be the

Figure 3. A sacral dressing.

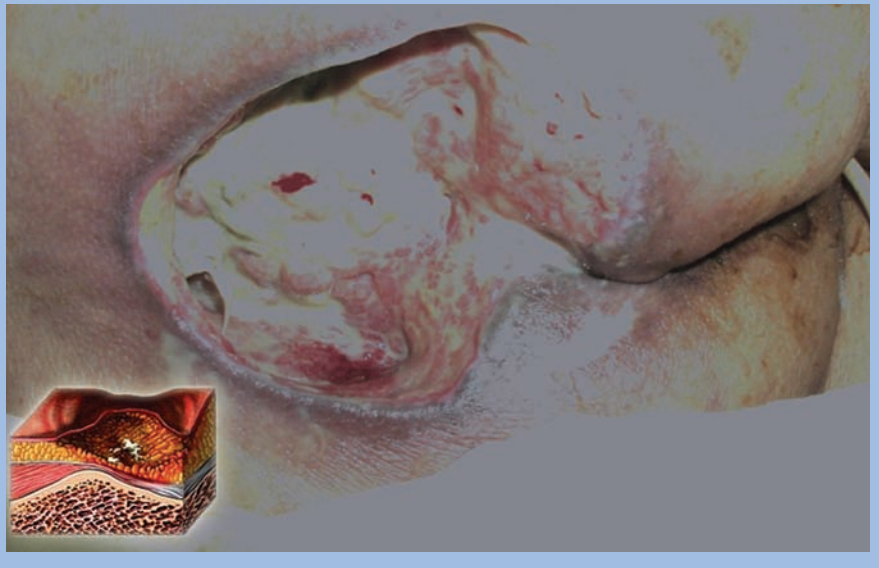

Figure 4. A grade 3 pressure ulcer involving full-thickness skin loss, and extending to underlying fascia.

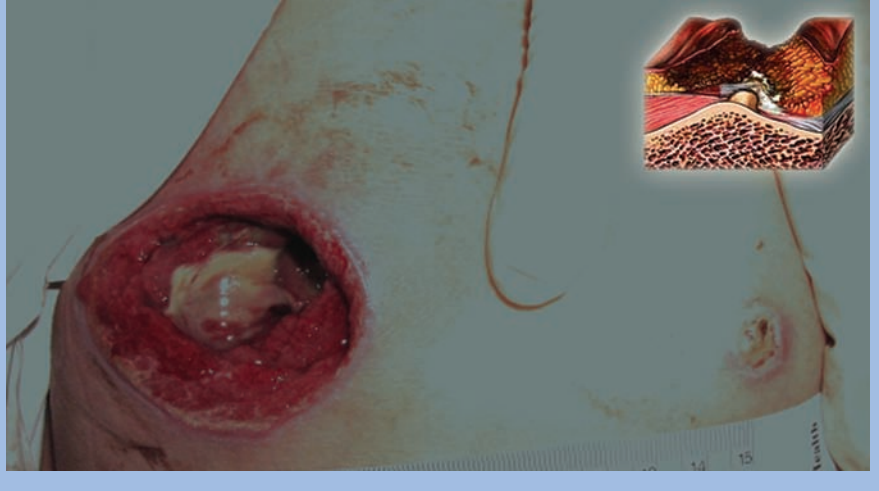

Figure 5. A grade 4 pressure ulcer has extensive destruction to underlying structures, with or without full-thickness skin loss.

cause. If this is the case, ensure that the patient is positioned so that they do not slide down the bed or chair and that appropriate manual handling techniques and equipment are used to ensure that the skin is protected.

Direct pressure, shearing and friction may all be involved in the development of a pressure ulcer.

Step 3: treating the wound

Commence with a wound assessment tool or a care plan. A grade 2 pressure ulcer is a superficial wound. If the wound has slough on the wound bed, debridement may be necessary. There are many dressings that aid debridement, for example, hydrogels or hydrocolloids (see p.68–73). If protection is necessary as well as the promotion of a moist wound healing environment, a hydrocolloid or foam may be appropriate. Hydrofibres and alginates are also possible dressing choices, but there must be sufficient exudate to enable the dressing to change to a softer gel-like form.

Dressing some areas may be a challenge and many dressings are available in sacral and heel shapes to help with these difficult areas (*Figure 3*).

It is essential in the treatment of all pressure ulcers that the skin around the wound (the peri-wound skin) is protected and maintained if further breakdown or deterioration is to be avoided (*Table 1*).

Grade 3 pressure ulcers

Step 1: identification

A grade 3 pressure ulcer has full-thickness skin loss involving

Table 1

Protecting the peri-wound skin

Factors which affect the peri-wound skin	Treatment options
Urine and faeces if the patient is incontinent	Ensure that any incontinence is managed effectively, using continence products to minimise the damage to the skin. Use a gentle emollient to wash the skin and dry gently, without rubbing. Moisturising with the emollient will prevent the skin from becoming dry and cracked. This will help maintain the skin integrity. Use a barrier film or barrier cream, such as Cavilon™ (3M Health Care), after cleansing the skin
Exudate on the peri-wound skin	If there is excess exudate on the peri-wound skin, it may need cleansing. Cleanse with either tap water or sterile saline according to local guidelines. Apply a protector to the wound edge such as Cavilon, zinc and castor oil or Sudocrem®. The chosen dressing must be effective at absorbing and holding on to the exudate. If the exudate spreads out in the dressing it may damage the peri-wound skin
Dressings with adhesive borders	Use a barrier film or cream before applying an adhesive dressing to form a barrier between the skin and the adhesive. Choose an adhesive that will not cause damage to the peri-wound skin when it is removed and ensure that all dressings are removed according to the manufacturer's instructions. If the peri-wound skin is damaged or delicate (friable) choose a dressing with a gentle adhesive. Choose a dressing that will stay in place for the desired length of time
Maceration is caused when the peri-wound skin absorbs too much moisture, the tissues become boggy, white and friable	Ensure the chosen dressing has the ability to absorb the exudate levels and be able to hold on to the exudate effectively and not allow it to spread out, potentially damaging the peri-wound skin. Ensure that the dressing is changed frequently enough to prevent maceration from occurring. Protect the peri-wound skin with a barrier cream or film

Table 2

Examples of primary and secondary dressings

Primary dressings (put directly onto the wound)	Secondary dressings (put on top of the primary dressing)*
Hydrofibre dressing (Aquacel® Ag, ConvaTec)	Hydrofibre dressing (Versiva®, ConvaTec)
Alginates (Sorbsan, Uno-medical; Urgosorb, Urgo)	Alginates (Sorbsan Plus, Unomedical)
Foam fillers (Allevyn™ Cavity, Smith & Nephew)	Foams (Allevyn™, Smith & Nephew; Biatain®, Coloplast; Mepilex®, Mölnlycke Health Care; UrgoCell®, Urgo; 3M™ Tegaderm™ Foam, 3M)
Maceration is caused when the peri-wound skin absorbs too much moisture, the tissues become boggy, white and friable	Ensure the chosen dressing has the ability to absorb the exudate levels and be able to hold on to the exudate effectively and not allow it to spread out, potentially damaging the peri-wound skin. Ensure that the dressing is changed frequently enough to prevent maceration from occurring. Protect the peri-wound skin with a barrier cream or film

* All of the secondary dressings can be applied as primary dressings in more superficial wounds

damage to or necrosis of subcutaneous tissue that may extend down to, but not through, the underlying fascia (EPUAP, 2003) (*Figure 4*).

Step 2: determining the cause

It is at this stage that the nurse must consider why the wound is getting deeper. There are many reasons for this:

- The full extent of the initial pressure damage is now showing
- The damaging factors (pressure, shear or friction) are continuing. Check that the pressure relief is appropriate and effective. This includes both equipment and the repositioning of the patient
- The dressings are not managing the exudate levels and the wound is getting bigger or deeper due to the destructive nature of chronic exudate
- The pressure ulcer may be infected
- The patient has a poor ability to heal, which may be due to poor circulation, inadequate nutrition, low haemoglobin levels or the presence of disease such as diabetes mellitus.

Therefore, if the wound is not healing or progressing it is necessary to investigate further.

Step 3: treating the wound

As these pressure ulcers are substantially deep in many cases, the absorbency levels of the dressings may need to be increased.

Many absorbent dressings can be used in combination to increase the overall absorbency (*Table 2*).

Always check that the absorbency is effective enough and that maceration is not occurring as described in *Table 1*. If this is occurring, increase the dressing absorbency levels or the frequency of dressing changes.

If conventional dressings cannot manage the exudate, topical negative pressure therapy could be considered.

Grade 4 pressure ulcers

Step 1: identification

A grade 4 pressure ulcer has extensive destruction, tissue necrosis or damage to muscle, bone or supporting structures with or without full-thickness skin loss (EPUAP, 2003) (*Figure 5*).

Step 2: determining the cause

Grade 4 pressure ulcers are the deepest. The steps outlined for determining the cause of grade 3 pressure ulcers should be followed. It is essential to establish if or why the wound is deteriorating, or if the depth of the wound is due to the initial pressure damage.

Step 3: treating the wound

Again, the steps outlined under the treatment of grade 3 pressure ulcers should be followed. If there is bone exposed, consider infection in the bone (osteomyelitis). This can be identified using an X-ray or a magnetic resonance imaging (MRI) scan and is usually treatable with antibiotic therapy.

Conclusion

The practitioner can be proactive in the prevention and treatment of pressure ulcers by effective care planning using risk assessment, pressure-relieving resources, repositioning regimens, nutritional assessment and dressings. Pressure ulcers can be costly, debilitating and painful and basic, effective nursing can be the key to offering good quality care to at-risk patients. **WE**

Bennett G, Dealey C, Possnett J (2004) The cost of pressure ulcers in the UK. *Age Ageing* 33(3): 230–5

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National Institute for Health and Clinical Excellence (2005) *Clinical Guideline; the Management of Pressure Ulcers in Primary and Secondary Care*. NICE, London