

Is it time to review the way we categorise pressure?

Pressure ulcer development has often been measured as an indicator of care. This still stands today, with nurses and specialists being asked for information on pressure ulcer development by category. However, should the reason for categorising pressure ulcers be to ensure the most appropriate treatment for the patient rather than data collection? In the 1940s, pressure ulcers were categorised into three stages and treatment was recommended according to the category. This article looks at the way that information gained from the categorising of pressure ulcers has changed since the 1940s, and questions whether it is time to review the way we categorise them today.

Menna Lloyd-Jones

KEY WORDS

Cost of pressure ulcer care
History of pressure ulcer classification
Accuracy of classifying pressure ulcers
Non-blanching erythema

There is no denying that pressure ulcers are costly both for the patient and for the National Health Service (NHS). The cost for the patient is immeasurable in respect of the pain and distress that they suffer. For the NHS, pressure ulcers are estimated to cost £1.4–£2.1 billion per annum, equating to around 4% of the total NHS budget (Bennett et al, 2004). However, estimating the true cost of pressure ulcer care is difficult. The author identified in clinical practice that data collected within her own work area was far from accurate, with nurses classifying various wounds such as leg ulcers, skin tears and moisture lesions as pressure ulcers.

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Education is important in ensuring that nurses can differentiate between pressure ulcers and other forms of trauma. In an attempt to prevent the misclassification of pressure ulcers, the European Pressure Ulcer Advisory Panel and National Pressure Ulcer Advisory Panel (EPUAP/NPUAP, 2009) state that category II should not be used to describe skin tears, tape burns, incontinence-associated dermatitis, maceration or excoriation.

In clinical practice the author identified that data collected within her own work area was far from accurate, with nurses classifying various wounds such as leg ulcers, skin tears and moisture lesions as pressure ulcers.

To add to the difficulties of identification and categorisation of pressure ulcers, Defloor et al (2005) discussed the differentiation between pressure ulcers and moisture lesions (Figure 1), and a consensus statement, SCALE (Sibbald et al, 2009), was published on skin changes at life's end, highlighting the possibility of the skin becoming dysfunctional with varying degrees of resultant compromise, which raises the question at life's end of whether some pressure ulcers are

due to skin failure or pressure damage (Figure 2).

A pressure ulcer is defined as:

A localized 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 ulcers; the significance of these factors is yet to be elucidated (EPUAP/NPUAP, 2009).



Figure 1. Moisture lesion or pressure ulcer?



Figure 2. Skin failure or pressure ulcer?

History of pressure ulcer classification

Classifying pressure ulcers in one form or another has been around for many years. *Table 1* shows the classification of pressure ulcers in the 1940s.

In 1995, Healey reported that there were at least 14 grading or classification tools in use within the UK, with many of these being adapted for local use. Some tools categorised pressure ulcers from 0–5, others 1–5, and others 1–4. With so much variation, it was impossible to prescribe treatment by category or compare pressure ulcer prevalence and incidence from one area to another.

In 1999, EPUAP (1999) launched their guidelines on the treatment of pressure ulcers and graded pressure ulcers from 1 to 4 (*Table 2*). However, it was not until 2005 that the National Institute for Health and Clinical Excellence (NICE, 2005) published their recommendations for the prevention and treatment of pressure ulcers and recommended that all pressure ulcers should be graded using the EPUAP classification system (EPUAP, 1999). Complying with these recommendations would mean that all pressure ulcers were classified using the same tool, which should have ensured consistency across the UK. In 2009, the EPUAP classification was reviewed and updated as the new EPUAP/NPUAP (2009) classification.

They worked together to develop evidence-based recommendations for the prevention and treatment of pressure ulcers, that can be used to guide healthcare professionals throughout the world to deliver evidence-based care. As part of the guidelines, the classification was

Table 1
Pressure ulcer classification in 1942

- » Threatened bedsore
- » Inevitable bedsore
- » Ulceration

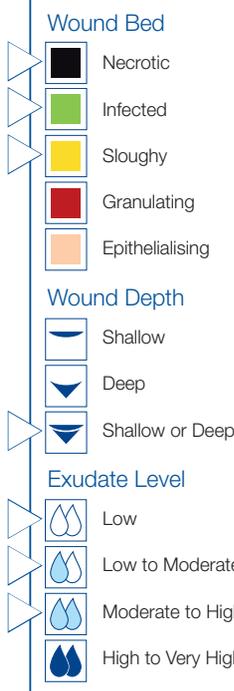


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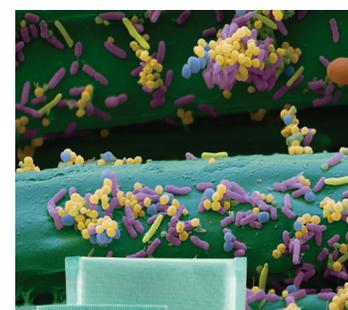
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Table 2
Pressure ulcer grading (EPUAP, 1999)

Grade 1	Non-blanchable erythema of intact skin. Discolouration of the skin, warmth, oedema, induration or hardness may also be used as indicators, particularly on individuals with darker skin
Grade 2	Partial-thickness skin loss involving epidermis, dermis, or both. The ulcer is superficial and presents clinically as an abrasion or blister
Grade 3	Full-thickness skin loss involving damage to, or necrosis of subcutaneous tissue that may extend down to, but not through, underlying fascia
Grade 4	Extensive destruction, tissue necrosis, or damage to muscle, bone, or supporting structures with or without full thickness skin loss

Table 3
EPUAP/NPUAP Pressure Ulcer Classification System (2009)

Category I: non-blanching erythema	Intact skin with non-blanchable redness of a localised area usually over a bony prominence. Darkly pigmented skin may not have visible blanching; its colour may differ from the surrounding area. The area may be painful, firm, soft, warmer or cooler as compared to adjacent tissue. Category I may be difficult to detect in individuals with dark skin tones * May indicate at risk patient
Category II: partial-thickness	Partial-thickness loss of dermis 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*. Category II should not be used to describe skin tears, tape burns, incontinence associated dermatitis, maceration or excoriation * Bruising indicates deep tissue injury
Category III: full-thickness skin loss	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 tunnelling. The depth of a category/stage III pressure ulcer varies by anatomical location. The bridge of the nose, ear. Occiput and malleolus do not have (adipose) subcutaneous tissue and category/stage III ulcers can be shallow. In contrast, areas of significant adiposity can develop extremely deep category/stage III pressure ulcers. Bone/tendon is not visible or directly palpable.
Category IV: full-thickness tissue loss	Full-thickness tissue loss with exposed bone, tendon or muscle. Slough and eschar may be present. Often includes undermining and tunnelling. The depth of a category/stage IV pressure ulcer varies by anatomical location. The bridge of the nose, ear. Occiput and malleolus do not have (adipose) subcutaneous tissue and these ulcers can be shallow. Category/stage IV ulcers can extend into muscle and/or supporting structures (e.g., fascia, tendon or joint capsule) making osteomyelitis or osteitis likely to occur. Exposed bone/muscle is visible or directly palpable.

reviewed (Table 3). Recognising that the term grading indicated a possible deterioration from 1 to 4, EPUAP/NPUAP (2009) changed the terminology from grade to category. They also gave a more in-depth description of each category (Table 3).

However, Ousey (2011) stated that when asking students which tool they used to classify pressure ulcers, the majority stated that they used Waterlow, a risk assessment tool which is not used to categorise pressure ulcers (Waterlow, 1998). Further discussion revealed that some students were familiar with the classification system, but not by name. The author has also found that in clinical practice, while some nurses can correctly categorise pressure ulcers, they do not know the name of the tool that they have used. This raises the question of whether they are unfamiliar with the terminology, or whether they do not see the value for the patient in classifying pressure ulcers in clinical practice.

Pressure ulcer classification: the past

In the 1940s, pressure ulcer classification was used to guide treatment. Baily and Love (1942) stated that 'bedsores' occur in one of three stages (Table 1), each stage was explained and treatment recommendations were given as described below.

Threatened bed sore

Redness (erythema) of the skin which momentarily disappears on digital pressure (blanching erythema), is the earliest sign that a bed sore is impending. At this stage moist dressings and ointments are harmful, and reliance is placed on prophylactic measures. Some surgeons also recommend preparations which will harden the skin, such as silver nitrate (5%), or alum (30grams) dissolved in alcohol (250 c.c. of each) (from Bailey and Love, 1942: 37).

There were none of the sophisticated equipment or dressings that are available today. Prophylactic treatment included regular skin inspection at least once a day, keeping bedding free from wrinkles and breadcrumbs, etc, protecting vulnerable skin from urine, faeces and sweat



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(Bailey and Love, 1942). Prophylactic treatment was no different to some of the recommendations made in the NICE (2005) guidelines, although the topical applications would not be approved of today.

Inevitable bedsore

Ulceration is to be expected if redness and congestion appear, and are unaffected by pressure, treatment is then prescribed which will reduce ulceration to a minimum (Bailey and Love, 1942).

On first reading, this paragraph sounded similar to non-blanching erythema. However, the paragraph goes on to mention healing occurring under the 'coagulum' and if 'suppuration' occurs, the coagulum is either partially snipped away or removed entirely after softening with gauze soaked in liquid paraffin (Bailey and Love, 1942). The assumption is, therefore, that either non-blanching or deep tissue injury with eschar would develop into a deep ulcer, hence perhaps the title 'inevitable bedsore'.

Ulceration

This final stage of bedsores presents an anxious problem to the nursing staff, as bedsores are liable to spread in an alarming manner, and toxic absorption adds to the burdens which the patient has to bear (from Bailey and Love, 1942: 37).

This paragraph goes on to explain the types of dressings that would be suitable for this stage of ulceration.

Pressure ulcer classification, the present

The reliability and validity of the different tools that have been developed since the 1940s has been brought into question (Sharp 2004), and the competency of registered nurses to categorise pressure ulcers accurately has been found to be poor (Briggs, 2006). This raises the question of the value of using pressure ulcer classification tools today?

Can categorising pressure ulcers be used to monitor progress?

Russell (2002) states that classifying pressure ulcers can enable the accurate

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description of tissue damage, which can indicate if the pressure ulcer is improving or deteriorating. However, Sharp (2004) questions classifying pressure ulcers to assess healing, as there is little evidence to demonstrate that pressure ulcers heal in the same way as the tissue was destroyed, stating that reverse grading of pressure ulcers is both inappropriate and misleading. In addition, Fletcher (2011) states that there is little evidence to support the fact that categorising pressure ulcers has any impact at all on their management. She goes on to explain that categorising pressure ulcers measures depth of tissue damage, but gives no information on the size, presence of infection, tissue type or any other clinical indicator. In the author's clinical experience, the category of a pressure ulcer on its own is insufficient to plan the care of that patient. Further information is always required, for example, size, tissue type, condition of surrounding skin, presence of infection, location of ulcer; general health of the patient, etc. Therefore, categorising pressure ulcers neither helps to monitor wound progress, nor to plan care for that patient.

Can categorising pressure ulcers help with the delivery of appropriate care?

NICE (2005) and the EPUAP/NPUAP (2009) guidelines have looked at equipment and offer suggestions as to which equipment is suitable by category. Again, this is subjective depending on the general condition of the patient and the location of the pressure ulcer. For example, even the most 'high-tech' mattress is unlikely to make a difference to a patient with a category 4 pressure ulcer on the bridge of their nose.

Can categorising pressure ulcers ensure accurate data?

There is no doubt that collecting data is necessary to measure the quality of care. However, the information needs to be collected in the same way in all institutions using data collection tools that are both valid and reliable. Healy (1995) questioned the validity and reliability of pressure ulcer grading scales. A study to investigate the accuracy of pressure ulcer grading among registered nurses found that accuracy regarding the

classification of pressure ulcers was poor (Briggs 2006). Fletcher (2011) questions whether it is possible to correctly measure the quality of care given when there is no reliable way to measure outcomes.

There is no doubt that collecting data is necessary to measure the quality of care. However, the information needs to be collected in the same way in all institutions using data collection tools that are both valid and reliable.

However, today, categorising pressure ulcers is seen as an essential element in monitoring prevalence and/or incidence (Russell, 2002). Fletcher (2011) explains that incidence and prevalence data collection is about the occurrence of the disease, the patient either has or does not have a pressure ulcer, and questions the benefit of collecting data on the severity of the ulcer. She goes on to explain that the majority of documents, for example, *Pressure ulcer prevention: prevalence and incidence in context* (International Guidelines, 2009) and the *Nurse Sensitive Outcome Indicators* (CNO, 2010) do not even mention the different categories. Furthermore, evidence demonstrates that nurses have problems in correctly identifying pressure ulcers, let alone correctly categorising them

(Healy, 1995; Sharp, 2004; Briggs, 2006; Clark, 2011; Fletcher, 2011).

In North Wales, in addition to prevalence and incidence collection, all pressure ulcers graded as category 2 and above are collected as clinical adverse incidents. This information is inputted by nurses on the wards or in the community and sent in a report to the tissue viability nurse on a monthly basis. However, it has been found that more often than not, the information has been incomplete with no pressure ulcer category documented, or the history and location of the ulcer make it unlikely to be due to pressure damage. Despite these inaccuracies, the information has been used to measure quality and to develop metrics to dictate and measure a reduction in pressure ulcer development. Thus, the author cautions that collecting inaccurate information is meaningless and does not give a true picture of the situation.

Non-blanching erythema

Considering the above, the author questions whether intact skin should be seen as an indication of risk and a prompt for implementing preventative measures, with pressure ulcers only being recorded when there is ulceration. Vanderwee et al (2007) investigated the benefit of using non-blanchable erythema (NBE) as an indicator for the need for pressure ulcer prevention in the form of equipment, in direct comparison to using the Braden risk assessment tool (Bergstrom et al, 1998). The result of a randomised control

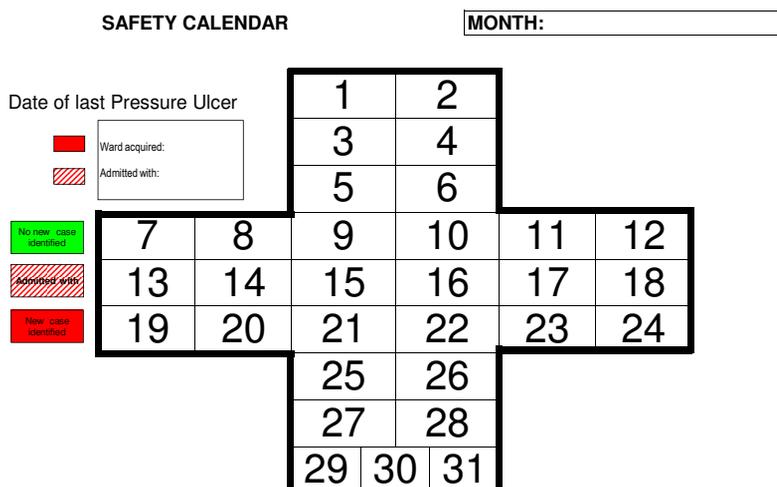


Figure 3. Safety calendar.

trial (RCT) demonstrated that no more patients in the NBE group developed pressure ulcers than those in the control group, and of those that did develop pressure ulcers, there was no significant difference in their severity. However, the use of equipment was much reduced in the NBE group compared to the control group. This raises the question of whether category 1 pressure damage should be collected in prevalence and incidence collection, or used as an indicator of risk and aid with the assignment of equipment.

The safety calendar (*Figure 3*) is being used on the wards in North Wales to measure incidence of, for example, falls and pressure ulcers. The wards collect the data and count the days between incidents. If a patient is admitted with a pressure ulcer this is marked differently and does not reduce the days between incidence. All pressure ulcers from category 1 to 4 are recorded, regardless of their severity. However, should we be recording non-blanching erythema (category 1 intact skin)? Apart from the fact that nurses are not good at identifying category 1 pressure ulcers, NBE is difficult to detect in patients with darkly pigmented skin (EPUAP, 1999). Thus, could the assumption be made that areas with a high population of patients with darkly pigmented skin may have a lower incidence of pressure damage because NBE is difficult to detect due to the high melanin concentrations present. This was highlighted by Bennett (1995) who went on to explain that different skills would be required of the clinician if they were to correctly identify the initial signs of pressure damage in patients with darkly pigmented skin, compared to lighter-skinned patients. Thus, a modification of the definition of a category 1 pressure ulcer has also been developed to include patients with darkly pigmented skin (see grade 1 in the EPUAP 1999 classification and category 1 in the EPUAP/NPUAP 2009 classification) (Bennett, 1995).

Pressure ulcer classification: the future

There is no disputing the fact that there is a need to measure quality of care, and there will always be a need to measure pressure ulcers in one form

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or another. However, with inaccuracies reported in the clinical arena, there is a need to review the way pressure ulcers are categorised. Fletcher (2011) suggests that reducing the pressure ulcer classification from four to three would improve accuracy. This would include non-blanching erythema, superficial damage and deep tissue damage. However, Clark (2011) argues that although it may be a positive step to move from numerical categories to the category suggested by Fletcher (2011), he implies that the accuracy of the actual classification of pressure ulcers may not improve, as there may still be difficulties, for example, in identifying deep tissue injury which may appear as intact skin.

Risk assessment is done using a structured tool that requires the nurse to score, therefore they have to read the prompts and complete the form. Could a similar form (preferably electronic) be used to categorise pressure damage? Although this would need to be thought through, an example would be to have the nurse complete a form that aids correct classification, suggests appropriate treatment and reports the pressure damage. For example:

- ▶▶ Is the skin intact, yes/no
- ▶▶ Is the area a reddened, yes/no
- ▶▶ Is the area a blue black, yes/no
- ▶▶ Is the area a blister, yes/no
- ▶▶ Is the blister filled with serous fluid, etc?

This could also be used to alert tissue viability nurses with regards to the need for assessment. With the technology available today, why are we not using it to improve the accuracy of the data that is being collected while also reducing duplication and providing suggestions on appropriate care? In the author's opinion, one form, one method of data collection would mean improved accuracy, and treatment by category would also provide a baseline for audit.

Conclusion

The manner in which pressure ulcers are categorised has changed a great deal in the last 70 years. Several different tools have been in use, and in 2005 NICE recommended that all pressure ulcers should be categorised using the EPUAP

(1999) categorising tool. However, studies still demonstrate that nurses are not accurately categorising pressure ulcers.

If meaningful pressure ulcer data is to be collected, there is a need for the information to be as accurate as possible. It is therefore time to review the way pressure ulcers are classified, and also to look at alternative ways to improve both the accuracy and the care prescribed for the patient, while reducing paper work and duplication. **WUK**

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Key points

- ▶▶ Pressure ulcers are costly for both the patient and the NHS.
- ▶▶ Classification of pressure ulcers in one form or another has been around for many years.
- ▶▶ In the 1940s, pressure ulcer classification was used to guide treatment.
- ▶▶ In 2005, NICE recommended that all pressure ulcers were categorised using the EPUAP (1999) classification.
- ▶▶ What is the value of categorising pressure ulcers today?