

Audit of pressure ulcer healing rates in an acute hospital

KEY WORDS

- » Healing rates
- » Hybrid mattresses
- » Pressure ulcers

Pressure ulcers are known to have a profound negative effect on people's quality of life as well as being a huge financial cost to the NHS. While many acute hospitals are effectively reducing the number of hospital-acquired pressure ulcers, Chesterfield Royal Hospital wanted to ensure that in addition to achieving this target, patients admitted with existing pressure ulceration were discharged with their pressure damage improving and progressing towards healing. Wound dimensions and tissue type were monitored for category 3 and above pressure ulcers. A total of 78% of these ulcers improved during a 2-week period, with 17% of ulcers remaining static. The implementation of hybrid mattresses, along with regular repositioning, good skin care and nutrition, all contributed to improvement in the condition of pressure ulcers.

Pressure ulcers (PUs) have a profound negative effect on physical, social and financial aspects of people's lives (Gorecki et al, 2009). In addition to costs to the patient, there is also a huge cost to the NHS. In 2004, it was estimated that between £1.4 billion and £2.1 billion was spent annually on the treatment of PUs (Bennett et al, 2004). This figure rose in 2005/6 to an estimated £1.76 billion–£2.64 billion annually, making PUs the single most costly chronic wound to the NHS (Posnett and Franks, 2007).

PU prevalence is now one of the key quality indicators for all healthcare providers. The focus has been on organisations reducing the number of 'new' PUs developing in their care. Between April 2015 and March 2016, Chesterfield Royal Hospital achieved a 72% reduction in the number of patients experiencing harm due to the development of PUs. This improvement was supported by a further 56% reduction between April 2016 and March 2017. Although this improvement is a reflection of the increased awareness of PU prevention in the Trust, the tissue viability team recommended the same focus be placed on patients admitted to the hospital with existing pressure damage, to ensure those wounds were improving and progressing towards healing when patients were discharged.

METHOD

Patients admitted to Chesterfield Royal Hospital between May 2016 and April 2017 were assessed for existing pressure damage. Where a patient had more than one episode of care within a month, the pressure damage was only recorded once. When more than one grade of pressure damage was noted per person, only the most severe category was recorded. The Hospital does not record the number of patients admitted with category 1 pressure damage, as there are no quality and monitoring standards available and the guidance does not require this information to be gathered (National Institute for Health and Care Excellence, 2015).

For the purpose of this audit, inclusion and exclusion criteria were established for patients admitted with pressure damage, see *Table 1*. Patients were excluded if they had a poor prognosis, eg they were on the end-of-life pathway, as this would potentially cause the skin to be compromised and have a negative impact on wound healing (Sibbald et al, 2009). Patients admitted with suspected deep tissue injuries (sDTIs) were also excluded, as any improvement would be difficult to measure, not knowing the full extent of the skin damage. These patients were, however, followed up separately in order to categorise the pressure

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damage for accurate reporting. Category 2 PUs were also excluded due to the limited resources the tissue viability team had to review and follow up the many patents admitted with superficial ulceration. Patients who met the criteria were followed up on a weekly basis. Wound measurements and tissue type were recorded at each follow-up meeting.

RESULTS

A total of 1,237 patients were admitted to Chesterfield Royal Hospital with existing pressure damage during the audit period. Of these, 41% (*n*=503) were found to have a category 3 or above PU (including sDTI and unstageable ulcers) with 59% (*n*=734) having existing category 2 pressure ulceration, see *Figure 1*.

The majority (63%; *n*=318) of patients with a category 3 or above PU were excluded due to the size of the PU, with most having a surface area <1cm². There was sDTI in 15% (*n*=75) of cases and 2% (*n*=10) of patients had a poor prognosis. Although these patients were not included in the audit, their pressure damage at discharge was noted and it was found that the pressure ulceration had healed in 93 (23%) of the 403 excluded patients during their hospital stay.

After applying the inclusion and exclusion criteria, only 100 (20%) patients with category 3 or above pressure damage were eligible for inclusion in the audit and were followed up. The average length of time between the first and last assessment of the pressure ulceration was 15 days.

Table 1. Audit inclusion and exclusion criteria	
Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none"> • Category 3 pressure ulcer(s) • Category 4 pressure ulcer(s) • Surface area ≥5cm² • ≥50% eschar in the wound bed 	<ul style="list-style-type: none"> • Category 2 pressure ulcer(s) • Suspected deep tissue injuries • All pressure ulcers with a surface area <5cm² • Patients with a poor prognosis

Figure 2 shows the changes in PUs observed during the audit period.

Of the 100 patients included in this audit, 78% had an improvement in their PU prior to discharge. Twenty-five (32%) of these patients' PUs reduced in size during their hospital stay. The average reduction in surface area was 9cm². Twenty (26%) patients experienced an improvement in wound tissue type. The amount of devitalised tissue (slough and/or necrosis) present was reduced by 62% on average. The remaining 33 (42%) patients' PUs improved in both size and tissue type, with one patient achieving complete healing.

PUs remained static in 17 patients, with no improvement or deterioration being noted. There was, however, a deterioration in the condition of five patients' PUs. Deterioration was characterised by both an increase in the size of the PU and in the amount of devitalised tissue in the wound bed.

DISCUSSION

Of the 1,237 patients admitted to Chesterfield Royal Hospital with existing pressure damage, only 8% were included in this audit. This group therefore only represents a small proportion of those affected by pressure ulceration. Having a small sample size can decrease the generalisability of the results; however it does provide a useful base from which further research can be undertaken (Hunt and Lathlean, 2015).

The results indicate that, in the majority of cases, patients admitted to hospital with existing pressure damage are discharged with PUs that are progressing towards healing. The study also highlights that a large proportion PUs present at the time patients are admitted are relatively small in size and/or superficial in nature.

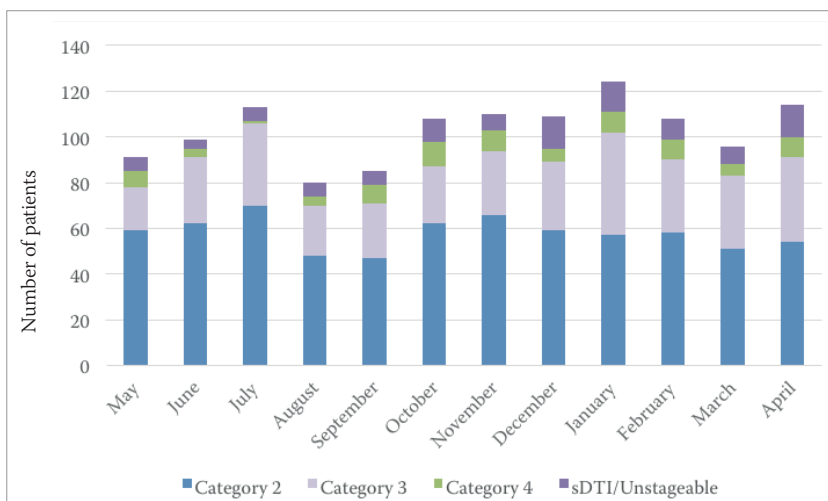


Figure 1. Patients with pressure ulcer damage admitted between May 2016 and April 2017. sDTI = suspected deep tissue injury

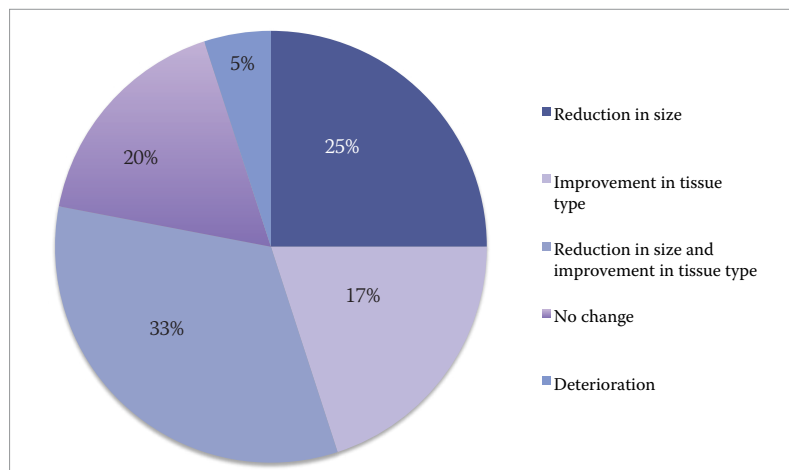


Figure 2. State of patients' pressure ulceration on discharge ($n=100$)

The five cases in which PUs deteriorated were reviewed after the study ended to determine possible reasons for the deterioration. It was found that these patients were approaching the end stages of life. The skin is the largest organ in the body and, as a person approaches the end of their life, unavoidable physiological changes can occur that affect the skin's integrity (Sibbald et al, 2009). All five individuals passed away within 2 weeks of their final PU assessment.

Consideration was given to both internal and external factors that contributed to the improvements noted from admission to discharge. All patients were nursed on air alternating-pressure mattresses (either a dynamic system or hybrid in alternating mode) and cushions, with their heels being offloaded. Patients had at least twice daily skin checks and 2–4-hourly repositioning regimens, depending on individual tissue tolerance. Where appropriate, patients were referred to a dietician and/or commenced on a nutritional support menu. All of these factors are known to help in the prevention and treatment of PUs and are the basis for the SSKIN bundle developed by NHS Midlands and East.

One of the key factors the tissue viability team believe played a significant role in improving existing pressure ulceration and also in reducing hospital-acquired pressure ulceration is the implementation of the Dyna-Form® Mercury Advance Hybrid Pressure Mattresses across the surgical and medical divisions, allowing 'at risk' patients to be 'stepped up' to a dynamic system

at the point of need, i.e. directly on admission. In 2016, Chesterfield Royal Hospital evaluated hybrid support surfaces after a thematic review of hospital-acquired pressure damage identified a common theme of delays in providing appropriate pressure-relieving surfaces. As a result, in January 2017 the Trust introduced 491 Dyna-Form® mattresses with approximately 34% pump coverage. Since their implementation, there have been no episodes where there has been a delay in the provision of an appropriate mattress.

RECOMMENDATIONS

Although many acute NHS trusts are demonstrating a reduction in the number of hospital-acquired PUs as a result of increased awareness and education in PU prevention, the same emphasis should be placed on patients admitted with existing pressure damage in order to improve patient outcomes. With the majority of pressure ulceration being classified as category 2, it would be beneficial to include these patients in further audits of healing rates.

CONCLUSION

The majority of PUs present on admission to hospital are small and superficial in nature. It is possible to significantly reduce the size and improve the tissue type of category 3 and above PUs within a 2-week period with the use of appropriate surfaces, regular repositioning, good skin care and nutrition, and progress these ulcers towards healing in a timely fashion. **WUK**

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