Avoiding pressure ulcers from plaster casts

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Between August 2014 and March 2015, six cases of device-related pressure ulcers occurred at Warrington and Halton Hospitals NHS Foundation Trust (WHH), despite the fact that organisation-wide efforts towards reducing pressure ulcers had already been made. In response in May 2015, a multidisciplinary workgroup was created aiming to eliminate device-related pressure ulcers. It put in place measures such as:

- A safety alert to raise staff’s awareness of the prevalence of device-related pressure ulcers and disseminate information on how they can be prevented;
- A single-point lesson delivered during ward safety briefings at handover;
- A red cast band and red alert sticker used to draw staff’s attention to high-risk patients.

As a result, there have been no device-related pressure ulcers in patients cared for at WHH since August 2015. This article describes the work undertaken in more detail.

Better reporting

In 2009, the National Patient Safety Agency issued a safety alert to raise awareness, among healthcare staff, of the potential harms – including amputation – arising from the delayed recognition of pressure ulcers under plaster casts (NPSA, 2009). The key message was the importance of early identification of patients at risk. Good casting techniques and monitoring were deemed crucial in preventing complications such as pressure ulcers.

In the past five years, the need to reduce rates of pressure ulcers among patients has further been stressed in the Commissioning for Quality and Innovation (CQUIN) framework (NHS England, 2014) and associated policy documents, such as High Impact Actions for Nursing and Midwifery (NHS Institute for Innovation and Improvement, 2010) and Nurse Sensitive Outcome Indicators. This has led to an increase in the reporting of incidents, as well as an improvement in the accuracy of reports.

According to the September 2015 Organisation Patient Safety Incident Reports (NPSA, 2015), WHH is now in the second percentile of all acute trusts for the reporting of incidents of medium-size...
latest incidents in order to identify what could be improved. The group looked at newly published professional guidance from the Royal College of Nursing on traction application and principles (RCN, 2015) and amended the competences required of practitioners to reflect this new guidance. Daily skin integrity checks were added to patients’ care plans for at-risk patients. The workgroup devised a care pathway for patients who have had a Thomas splint inserted in situ; this is currently being reviewed by the trust’s governance bodies. Furthermore, the group came up with a range of practical measures, using official guidance sources such as those listed in Box 1. These measures are described below.

Safety alert
The communications element of the initiative was initiated straight away: a trust-wide safety alert was issued which stressed to all staff the importance of recognising patients at high risk of developing device-related pressure ulcers, as well as explaining how to prevent these from developing. The alert was posted to the trust intranet to be accessed by staff and shared with teams.

Single-point lesson
The tissue viability nurse devised a single-point lesson. This lesson is a lean way of spreading best practice via a single page (see Box 2). It gives the rationale for the process, images to aid visualisation of the process and a step-by-step guide for how to implement the practice (Manos and Vincent, 2012). It was delivered regularly at ward safety briefings at handover until all staff had been included. It was also delivered at ward managers study days so that they could cascade the information to new staff.

Key methods of prevention highlighted include:

- Cushioning the skin with dressings or silicone pads
- Exercising vigilance when dealing with hard-to-see areas such as the hairline or skin underneath a dressing
- Regularly repositioning devices

Repositioning of both the patient and the device is now to be recorded on patients’ care and comfort documentation.

**Multidisciplinary workgroup**

WHH has worked towards meeting the national CQUIN goal of ‘improvement against the NHS Safety Thermometer, particularly pressure ulcers’ (NHS England, 2014) and over the past two years has seen a reduction in the number of pressure ulcers. However, there were six cases of grade-3 device-related pressure ulcers between August 2014 and March 2015. These occurred predominantly in trauma and orthopaedics and the intensive care unit, and resulted from devices or equipment such as Thomas splints, plaster casts and nasogastric tubes.

All avoidable events, including grade-3 pressure ulcers, are regarded as poor standards of nursing care. The six cases mentioned above were not all avoidable, but work was nonetheless started with the aim of eliminating these harmful events in the future. Following root-cause analysis—a systematic investigation technique that aims to identify underlying causes and environmental factors of problems, rather than just the individuals involved (NPSA, 2010) – a multidisciplinary workgroup was set up in May 2015. The remit of the group was to devise and implement a series of measures aimed at eliminating device-related pressure ulcers at WHH, including red bands wrapped around patients’ casts to signal high-risk patients to staff (see Fig 1 on page 9). The workgroup was composed of the following staff members:

- Associate director of nursing for scheduled care
- Tissue viability nurse
- Patient safety and quality champion
- Trauma coordinator
- Orthopaedic physiotherapist
- Matron
- Plaster room technician

**Practical measures**

The workgroup adopted a ‘plan, do, study, act’ (PDSA) approach (Healthcare Improvement Scotland, 2009) in order to ensure the measures taken would reduce the incidence of pressure ulcers before being disseminated to other interested organisations or individuals. Its main goals were to ensure effective communication and encourage knowledge sharing throughout patients’ care trajectories, so that high-risk patients would be identified by, and flagged up to, staff. The overall aim was simple: the total elimination of device-related pressure ulcers.

The group’s first step was to review the sources of guidance on pressure ulcers.
Innovation

Red bands were wrapped around casts to signal patients at high risk of pressure ulcers

The trauma nurse now also completes a daily review of any outlying patient on non-orthopaedic wards who has a cast or device, to ensure that all high-risk patients have been identified and are being cared for accordingly.

**Visual aids**

Perhaps the most noteworthy aspect of the initiative has been the development of two visual aids for staff: a red cast band and a red alert sticker for patients’ notes.

The red cast band is designed to be placed around the top and bottom of a plaster cast (Fig 1). It is only used on plaster casts at the moment but we are exploring its use on other devices.

Its bright colour means it is easily spotted by all staff, who are prompted to quickly integrate the procedures from “Most pressure ulcers are community acquired”

the safety alert and single-point lesson into the patient’s care. The red band does not cost more than the usual white plaster bandage used to stabilise limbs. The plaster room already had a stock of coloured plaster bandage used to make casts more appealing to paediatric patients.

**Minimal cost**

These improvements to patient care were easy to make and economic. Extra costs were kept to a minimum: whenever possible, the workgroup used available resources and existing meetings; for example, the single-point lesson took place during the usual ward safety briefing at handover. There was an initial cost arising from staff spending time to develop the different measures, but there are no recurring costs. We have calculated that the total cost of the initiative for WHH was £1,478. The figure includes:

- Staff time for attending the workgroup meetings;
- Production and circulation of the documents;
- Staff training;
- Revision of the patient care plans and care and comfort documentation.

This shows that changing practice and improving patient care does not necessarily require heavy financial investment.

**Good outcomes**

Between August 2014 and March 2015, six cases of device-related pressure ulcers occurred.

In March 2015, the measures described above were introduced. From then onwards, there have been no device-related pressure ulcers acquired by patients while staying in hospital. However, in July 2015, two device-related pressure ulcers occurred in patients cared for in the community. This could be due to the fact that patients who are not developing pressure ulcers while staying at WHH are being discharged earlier but with a device in place, which increases their risk of developing a pressure ulcer in the community setting. To mitigate this, we plan to widen the initiative to community nursing staff.

**Rolling out**

The initiative will be fully implemented once the new care pathway, which is currently being reviewed by the trust’s governance bodies, is published. However, considering its outcomes so far, we have already decided to roll it out. We think it is important that it is maintained and cascaded to anyone who may benefit. The workgroup will continue to meet, communicate to staff the importance of identifying at-risk patients and disseminate information on how to prevent device-related pressure ulcers. The initiative will also be cascaded to the acute care division.

The majority of pressure ulcers are community acquired and, as mentioned previously, early discharge can increase the risk of device-related pressure ulcer in community settings. Although patients will attend outpatient clinics, the time between two appointments may be sufficient to develop an ulcer. The next step will therefore be to cascade the initiative to our community colleagues and implement the measures in the community. At the moment, the associate director of nursing for scheduled care and the nursing team are discussing how to take this forward. Another PDSA cycle will be used to ensure the initiative is rolled out successfully.

One of the challenges will be to adapt staff training to the care needs of patients in the community while ensuring it is relevant for that setting; for example, how often patients are checked for pressure ulcers will depend on how regularly they are visited by a health professional. Staff training may need to include patient education aimed at encouraging patients to self-care.

**References**


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- Prevention and treatment of pressure ulcers
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