Pressure ulcer reduction:
The role of unregistered healthcare support workers in validation and prevention

INTRODUCTION
The incidence and prevalence of pressure ulcers (PUs) has been highlighted in the UK as a key indicator of both patient safety and care quality. Organisations have undertaken the challenge of commissioners and the general public to demonstrate improvements in patient safety through data reporting.

The safety thermometer is a point prevalence audit that is undertaken monthly in every National Health Service (NHS) organisation in England. This audit was introduced in 2012, and over 700 organisations were using it routinely by 2013. Among other measures of patient safety, PU prevalence is noted and reported externally. The Tissue Viability Society produced a consensus statement that raised concerns about the use of prevalence as a measure of an individual organisation’s performance. Although prevalence identifies the total number of PUs present in the population, incidence measures new occurrences within the context of the setting. An individual organisation can be held accountable only for incidence levels, as they often have little or no control over the delivery of services within another organisation. Although incidence may be a more robust measure of performance and progress for a distinct organisation, it is not without its challenges. Ensuring that good inter-rater reliability, prompt reporting of accurate data, and the provision of meaningful statistical analysis is achieved can all prove to be problematic in a large organisation.

In 2010, the Royal Devon and Exeter NHS Foundation Trust realised the importance of the accurate collection of data on which to base its analysis of patient safety. Outcomes such as falls have incidence levels that are easy to calculate, as there is little debate about whether a fall is a fall. However, PUs can be much more difficult for general nursing staff to accurately record and report. This fact is illustrated by healthy debate amongst specialists about systems of categorisation and where a particular lesion might fall in that system. This system does not even account for...
the debate about whether a lesion is indeed a result of pressure or some other aetiology. The literature suggests that training can improve the agreement between nurses about the grade of the lesion. One particular study, which used photographs to assess agreement between nurses, demonstrated that reasonable levels of inter-rater reliability could be achieved; however, the authors noted that differentiation could be more difficult in real practice.

Although incidence monitoring had been undertaken using a central electronic system for 3 years prior to this evaluation, the accuracy of the data was questionable due to problems with inter-rater reliability. It was determined that the input of tissue viability (TV) specialists would be required to obtain an accurate picture of PU incidence. Due to pressure from rising costs, the recruitment of additional Registered Nurses (RNs) was infeasible, and so a project was conceived to establish a Tissue Viability Health Care Assistant (TVHCA) post. This post would focus purely on PU validation and the provision of protocol-based advice to clinical staff to promote the delivery of effective PU prevention.

**METHODS**

A retrospective audit of recorded pressure damage, including data about EPUAP and NPUAP (2009) category, the site of the damage, whether the damage was sustained in hospital or prior to admission, and the hospital ward where the damage was first noted, was undertaken from May 2009 until October 2010. A prospective audit of the same data was collected for a 3-year period from the start of this service evaluation. Data for a further 7 month period was also available after the defined end-point of the project at the time of submitting this article and was not included in the study.

The TVHCA recruited to the post was an experienced HCA with experience in general nursing care on acute inpatient wards. As part of the training process, the TVHCA was required to undertake PU classification training, including the use of an electronic learning programme (PUCLAS) and PU risk assessment training. In addition to theoretical learning, two weeks of supervised practice was conducted to ensure consistent validation. Routine monitoring of a random sample of 5 patients was undertaken on a weekly basis as a quality assurance measure, and all category 2, 3, or 4 PUs were independently validated by a TV Clinical Nurse Specialist (CNS).

Using a ward-based electronic reporting system (Whiteboard), all pressure damage or suspected pressure damage was recorded when noted by ward nursing staff. The damage was graded by ward staff according to the EPUAP and NPUAP classification system. The ward staff also noted whether the patient developed the pressure damage during this hospital episode or if it was present upon admission to the facility (i.e., developed at home, a care home, or another facility).

On a daily basis (weekdays only), the TVHCA would run a report and obtain records of all damage recorded for the previous 72 hours (to account for weekends and bank holidays). Every patient with hospital-acquired pressure damage graded as a category 2 or above would then be reviewed by the TVHCA. The category of damage was validated and early interventions were implemented with protocol-based advice. There were no pre-defined quantitative measures by which to judge success beyond a pragmatic view of incidence reduction for category 2-4 hospital-acquired PUs with a progressive downward trajectory across the 3-year period. Data are presented in a descriptive way to show the incidence figures.

Due to the success of the service evaluation during the study period, additional funding was made available to extend this programme to include all hospital-acquired pressure damage and all community-acquired pressure damage.

**RESULTS**

The PUs are reported by the month of the patient’s discharge rather than the month in which the PUs were validated, which is a pragmatic choice that was made to fit with the reporting requirements of the service commissioners. The monthly external report displays the data for all the PU categories. At the start of the project period, category 1 PUs were validated by the TVHCA but as reporting improved and the number of pressure ulcer requiring validation increased, it was not possible to continue validating category 1 PUs. Both hospital-acquired category 1 PUs and all community-acquired PUs were not validated between October 2012 and April 2013 when a second TVHCA was recruited. Graph 1 displays data that relate to hospital-acquired category 1-4 PU data. Graph 2 displays only category 2-4 PU data, the measure by which the project success was evaluated.

Prior to the service evaluation, the retrospective audit revealed a category 1-4 PU incidence rate of 2.77 per 1000 bed days and a category 2-4 PU incidence rate of 0.81 per 1000 bed days. The total incidence rate per 1000 bed days for the whole service evaluation period was 1.91 for category 1-4 and 0.53 for category 2-4 PUs. In the period following the completion of the service evaluation, this rate has continued to fall to an incidence rate per 1000 bed days of 0.70 and 0.23, respectively.

**DISCUSSION**

The downward trajectory of hospital-acquired PU in all categories is in part attributed to a better understanding of the data. Using the HCAs to validate the PU category and the origin of the PU has proven to be an effective way to
gather this data in a consistent and reliable way. However, there are some limitations to the data presented.

The data gathered is not able to differentiate between the number of PUs initially reported and the number validated. However, there exists evidence that good validation positively affects the number of PUs reported externally. The project’s success in more accurately determining pressure damage in the hospital demonstrates a need to more accurately understand the impact that community-acquired pressure damage has on incidence figures. The increase in workload and the number of patient visits generated by validating all categories of pressure damage regardless of its origin led to the pragmatic decision to stop the validation of category 1 damage by the HCA in

Graph 1: Category 1-4 incidence reduction data.

Graph 2: Category 2-4 incidence reduction data.
August 2012. A 25% increase in the number of category 1 PU was recorded in the following year’s data. Although these PUs were validated by ward matrons, the quality and reliability of the validation is questionable. Anecdotally, the TVHCA noted that patients were receiving either too much or too little intervention based on inaccurate assessments of the aetiology and severity of PUs. The reallocation of workload, additional funding, and an adjustment in work practices allowed the team to expand. In July 2013, an additional 0.5 whole-time equivalent TVHCA was employed to further extend the validation and advice service. In the following 12 months, the incidence of category 1 PUs fell by almost 50%. Although this is not direct proof that validation and advice is responsible for this decrease, and other factors may have played a significant role, it is difficult to believe that validation and advice does not contribute significantly.

The reduction of incidences reported correlates with a reduction in total prevalence reported (Graph 3). The prevalence data is gathered from the safety thermometer and although the data is more stable as would be expected from prevalence figures compared to the national data suggesting prevalence of between 4.4% and 4.7% in 2013-2014. There is a natural link due to incidence validation, but because the TVHCA also validates all community-acquired pressure damage noted within the acute hospital, many of these incidences are removed from the reported data. This has been reported as being due primarily to incorrect aetiology. Because of payments linked to incidence reduction targets, there is a temptation to attribute PUs to another healthcare provider. This would keep the prevalence figures high but reduce our own incidence figures. The validation undertaken by the TVHCA has been shown to be a robust mechanism for monitoring both sets of data and ensuring agreement.

Although data validation is a key component of this role, the front-line clinical advice regarding risk and risk-prevention strategies has allowed the TV service to be more visible and more responsive. The ward staff now have greater access to advice and support from someone who can be physically available rather than available by phone only. There is no data to distinguish the impact that this availability has had. Anecdotally, it has been reported by ward-based staff that the visibility of the TVHCA has had a significant impact. The awareness of PUs has been raised and support to provide appropriate intervention has been optimised.

In the first 12 months of the evaluation between November 2010 and October 2011, there were 368 category 1, 130 category 2, 57 category 3, and 3 category 4 PUs. In the final 12 months of the evaluation between November 2012 and October 2013, there were 359 category 1, 59 category 2, 18 category 3, and 0 category 4 PUs, which represents a reduction of 9 category 1, 71 category 2, 39 category 3, and 3 category 4 PUs. Based on estimates of the average cost for the treatment of PUs in the UK, the organisation has shown comparative savings for the health economy from year 1 to year 3 of the service evaluation of £10,926 in category 1, £372,211 in category 2, £162,738 in category 3, and £42,324 in category 4 PUs. This represents a total of £588,199 per year assuming that approximately the same number of PUs would have developed each year without this programme and that the average costs of healing are representative of the local population healing rates. The average cost of a band 3 nurse (TVHCA) was calculated at £17,794. When compared with the potential economic advantages of this role and the apparent cost savings generated by reduced incidence, it is difficult to argue against the benefit of a TVHCA. As a result, other specialist areas of practice, such as diabetes,
have devised similar roles to aid with the monitoring of care and delivery of protocol-based advice to ward staff.

CONCLUSION

The accurate measurement of incidence allows for a more robust report of the safety of care delivered within an organisation. This service evaluation has been responsive to changing needs within the organisation about the validation of pressure damage and, as such, has evolved. During periods of change, the role of the TVHCA has continued to develop, and the extent to which their input is necessary has become apparent. Using an unregistered member of the healthcare team allows for a cost-effective way of providing protocol-based advice and guidance to frontline clinical staff, and has improved both the validity and reliability of data collection. Although the reduction in incidence cannot and should not be wholly attributed to the input of the TVHCA, this reduction demonstrates the important role that accurate data can play in assessing service improvements in an open and honest way.

Implications for clinical practice:
- Healthcare organisations can improve the reliability of pressure ulcer validation data to enable more accurate reporting of this quality indicator with targeted investment.
- Patient outcomes can be improved by providing a higher level of clinical support and early intervention.
- Front-line clinical staff who observe improvements in safety outcomes for patients may have improved levels of morale and work in a more proactive way as a team.
- Healthcare organisations may be able to make significant cost savings or attract bonuses by demonstrating improvement in incidence levels.

Further research:
- A qualitative study to explore the reported impact of the TVHCA would be useful in understanding the way that this role is able to support practice in comparison to specialist nurses.
- A retrospective audit of the difference between recorded pressure ulcers prior to validation and subsequently validated pressure damage may help in understanding the educational needs of front-line nursing staff.

REFERENCES