Pressure ulcer prevention in intensive care

ELAINE THORPE
Critical Care Matron, University College London Hospital NHS Foundation Trust

This article is based on a symposium held at the Eliminating Avoidable Pressure Ulcers conference in Manchester, UK, in March 2015. It outlined why pressure ulcer incidence is so high in intensive care patients, and practical strategies for eliminating the occurrence of pressure ulcers in this setting, through a combination of cultural change and the use of prophylactic dressings.

PRESSURE ULCERS IN CRITICAL CARE

Pressure ulcer (PU) incidence is commonly used as an indicator for quality of care. However, despite the introduction of best practice guidelines, PU incidence in hospitalised patients appears to have plateaued (Cox, 2011). This particularly applies to critically ill patients; PU incidence is higher in intensive care units than any other care setting (Shahin et al, 2008). Elaine Thorpe explained why this is and how PUs in critical care can be reduced and even prevented entirely. She shared the preventative strategies she has used in her own department — changing attitudes to PUs and introducing prophylactic dressings — that have proven successful in almost eliminating PUs.

Why is pressure ulcer incidence so high in intensive care patients?

Pressure ulcer incidence remains high in the critically ill. This may be due to:

- Acute multi-organ failure — often at this stage, the patient's organs are failing: we are now looking at the skin as an organ much more than we did in the past
- Patients with multiple comorbidities
- Reduced mobility — patients may be too sick to move, which means that they are dependent on staff to move them
- Pharmacology — patients may be on life-saving drugs that reduce tissue perfusion (e.g. inotropes)
- Nutrition support — this is a relevant issue that is still cause for debate (e.g. when and how to feed patients in critical care); rapid weight loss due to the sheer impact of sudden critical illness is a problem.

At University College Hospital London on the Critical Care Unit, Elaine reported that in 2011, it was believed that PUs in critically ill patients were common but unavoidable. However, the release of new guidelines and national campaigns in recent years has changed this prevailing view (NICE, 2014; DH, 2010).

Statistics from 2011 showed that UCLH across the 3 adult Critical Care Units had the highest incidence of PUs in any London hospital. As PU incidence is a key indicator of quality of care (Ozdemir and Karadag, 2008), Elaine said, 'that was really hard – and we had to do something to change it.' In June 2011, the Critical Care Unit (CCU) on the main UCH site launched a new and innovative programme that aimed to eliminate all PUs in the department.

CULTURAL CHANGES TO ELIMINATE PUS

The aim of the project was to completely change the culture of the department. This involved being as open and honest as possible in all

Box 1. The ten commandments of pressure ulcer prevention: extended version of the SSKIN Bundle (NHS), used by UCLH to include human factors evolved to become SSKINDEEPP

S	Surface	**D**	Document
S	Skin inspection	**E**	Ensure excellent communication
K	Keep moving	**E**	Escalate — ask for help
I	Incontinence	**P**	Promote involvement
N	Nutrition	**P**	Provide support to everyone else

communications and using small interventions to make a big impact. The focus was on prevention, rather than treatment.

A key element of this was an emphasis on nurses' individual judgement and responsibility. Nurses were supported and encouraged in monitoring and assessing their own patients on a daily basis. The key question was: 'what is the risk to my patient today?', instilling constant vigilance and assessment on a day-by-day basis or as the patient's condition changed. The nurses were supported by colleagues to build confidence and encouraged to share learning throughout the process. Coupled with this was the decision to abandon assessment tools (e.g. Waterlow/Braden), instead focussing on a more proactive approach.

The ratio in the unit was 1–2 patients per nurse; while nurses were encouraged to inspect their own patients, colleagues were encouraged to double-check for and with each other, flagging up any potential problems, constantly checking with peers and asking for advice. This attitude of transparency and communication meant that patients did not become solely one nurse's responsibility.

Learning from mistakes was an important element of this. Elaine noted that it was much more helpful to accept that mistakes would be made from time to time, and that these mistakes could be seen as a process to be learned from, rather than expecting the impossible and fostering a 'blame culture'. Instead, a culture of 'constant learning and communication' was encouraged. When mistakes did occur, the team asked: 'what went wrong; could we have prevented this?' and put these lessons into practice.

While mistakes did happen, the aim was to change the mindset away from the 'avoidable versus unavoidable' distinction when considering PUs. Previously, it was always believed that PUs were an unavoidable part of critical care. However, this change in mindset meant that no PU was simply accepted as unavoidable — thus, it was always asked 'what could have been done to prevent this?'. It may be that the answer was 'nothing further could have been done', but the questions were still asked.

This was all seen as part of a team effort, involving not only nurses but the whole multidisciplinary team. Doctors, consultants and physiotherapists were also kept informed as part of the communication process. As the critical care nurses were not specific experts in Category III/IV PUs, they were also helped with advice from tissue viability nurses (TVNs). As far as possible, this was seen as a team effort across job functions and disciplines.

It was considered important to involve and engage the patient as much as possible. In the CCU, some patients were there for a long-term stay of some weeks. In all cases, it was helpful for patients and their relatives to understand what was going on, e.g. nurses explaining to the patient why they needed to be moved, use of support surfaces, etc.

Box 2. Patient risk factors

One or more of the following triggers:

- Red rating — instead of using the Waterlow Scale, a colour code is given to patients: amber — at risk, red — very high risk, purple — has damage. Red and purple require the highest level of intervention. A coloured magnetic disc is placed next to the patient's name on the Safety Huddle board as a visual prompt of risk. (Very few patients are amber on CCU, unless for instance they are ready for discharge.)
- Any level 3 patient admitted to a critical care unit — the sickest patients on critical care with multi-organ failure are regarded as level 3. Level 3 patients with no skin damage would have a red magnet on the Safety Huddle board. They would be started on the highest intervention possible the minute they enter the unit. Level 2 patients could still be red depending on other clinical factors.
- On any inotrope
- Low or high body mass index
- Post-anaesthesia Care Unit patient that arrives ventilated
- Signs of agitation/delirium
- Renal/liver failure

When a patient has one or more triggers:

- Refer to project group to assess suitability
- SSKIN commenced (*Box 1*) and documented at least 12-hourly
- Patient must be on a high-specification mattress (or one had been ordered) as per NICE guidelines (2014)
- Patient must be repositioned every 2 hours

PRACTICAL STRATEGIES IN PU PREVENTION

As most patients in the CCU were considered high risk, a high level of intervention would begin the minute they come through the door.

Crucial to this was that patients were put onto a suitable high-specification mattress (not foam) straight away, although it is important to remember that a pressure-distributing mattress alone is not enough. Elaine noted that this meant

Box 3. Prophylactic dressing protocol

- Check and assess under the dressing at every shift — and document the findings
- Peel dressing back, assess and reapply — ensure the border of the dressing is smooth with no wrinkles
- Document on the SSKIN bundle
- Remove and replace dressing after 3 days or when necessary
- Replace dressing if the patient is still at risk.

'using equipment with real understanding so it has a real impact'. This was combined with 2-hourly turns, alternating sides, as standard practice for high-risk patients.

The 'half hour sitting out rule' meant that the patient would be constantly checked and assessed for pressure damage. This involved working with physiotherapy colleagues, which Elaine said proved to be a real success and improved MDT working.

Incontinence was a relevant issue, and Elaine said that dealing with this was simply a question of trying and testing different products and techniques until effective protocols were established — e.g. sprays made patients stick to the bed, so alternative products were investigated. A three-step approach was developed, using SSKINDEEPP guidelines: in unbroken skin, gentle cleaning and light application of Cavalon cream over skin as soon as diarrhoea starts or risk is identified; in broken skin, after cleaning use 1 Shield barrier wipe only, and consider bowel management system.

Nutrition was another area that was treated as a priority within the unit. Although Elaine mentioned there was still ongoing debate about the best overall strategy concerning nutrition, it was important to develop a nutrition plan for patients as quickly as possible. It was crucial, Elaine said, to make sure that nutrition was addressed: 'It's not above us to help someone with their cup of tea — it is always high priority to help a patient eat and drink.'

IMPROVING COMMUNICATION AND FOCUSING ON SAFETY

At the beginning of each shift, the team of nurses and nursing assistants working in a bay together would have a short safety huddle to discuss and raise awareness of the risks to their patients for that shift. As a team, they would make a practical plan regarding how to keep their patients safe — this included pressure ulcer prevention (using the red, amber and purple magnets — see *Box 2*).

This included a weekly Message of the Week, which would be used to share a specific adverse event or key change in practice during each safety huddle. Over a weekly period, this meant 14 opportunities (two shifts per day) to share and reinforce a key message at the nursing handover.

The quality and safety huddle was also introduced to provide a detailed discussion with the MDT about patient safety and experience, and assessing days since last pressure ulcer. This provided an opportunity for staff to raise problems, share their experiences and come up with solutions as a team. By providing an open and honest forum the aim was to engage staff and enable improvements and changes in practice to be successful and sustained within the whole team. Started in the CCU, the 'huddle system' is now used across UCLH.

PROPHYLACTIC DRESSING – TAKING PREVENTION TO THE NEXT LEVEL

Although the changes and new systems introduced into the department helped to reduce the incidence of PUs, the final percentage of incidents reached a plateau and did not drop any further. To eliminate pressure damage entirely, extra measures needed to be taken.

There is evidence that using a specific type of prophylactic dressing reduces PU incidence and is particularly effective in high-risk patients, such as those seen in the CCU (Brindle, 2010). Using prophylactic dressings to prevent sacral PUs is now recommended by the European Pressure Ulcer Advisory Panel (EPUAP, 2014). Prophylactic dressing use has been shown to reduce PU development in four ways: redistributing shear, redistributing pressure, reducing friction and maintaining an optimal microclimate (Call et al, 2013).

When sacral prophylactic dressings were suggested as a final measure, this was met with some resistance. 'Why put something on if it's not broken? It doesn't make sense,' was the general response from the nurses. However, the evidence [would be good to link to the Made Easy Steph is leading on which will provide a summary of evidence] showed that this could be

the final element needed to achieve complete PU elimination.

This measure was supported by training of the nurses to use the selected dressing (Mepilex® Border Sacrum) prophylactically. Assessing which patients would be suitable, it was decided that all level 3/high-risk patients would have the dressing applied on admission and this would remain until discharge from the unit (according to a strict protocol of checks – see *Box 3*).

This intervention was adopted very quickly, and a protocol introduced, and it was found that this method was highly successful and the final incidences of PUs were significantly reduced further.

PRACTICAL TIPS FOR USE

On the CCU, if the patient could give consent they were asked before applying the dressing; otherwise the use of the dressing was explained to them when they were able to understand.

The most important thing was to be able to monitor the skin underneath the dressing. The dressing and skin were checked and assessed at every shift, peeling back the dressing to complete a visual inspection and fully documenting the findings by nursing staff. The dressing was changed every 3 days. If patients were moved to another ward, the dressing was either removed or the new ward staff briefed on managing the dressing if necessary.

OUTCOMES OF PU PREVENTION PROGRAMME

Under the new PU prevention programme, the CCU managed to achieve 310 days completely PU free – with zero incidence of pressure damage (> Grade 2) in patients. Since then — in the past few weeks — there have been a couple of incidences of PUs. However, Elaine said that this showed how far the department has come, as all of the staff were 'devastated' about this — showing how seriously PUs are now taken, and the complete cultural shift that has occurred: 'This is progress to be proud of.' The staff are determined to ensure that the learning is shared to prevent similar occurrence in the future.

As well as reducing PU incidence, Elaine said that the programme had seen some 'unexpected outcomes'. Both patient and staff outcomes and experience improved, with over 90% of patients now rating their experience as 'positive', and 100% of staff believing that they deliver safe care.

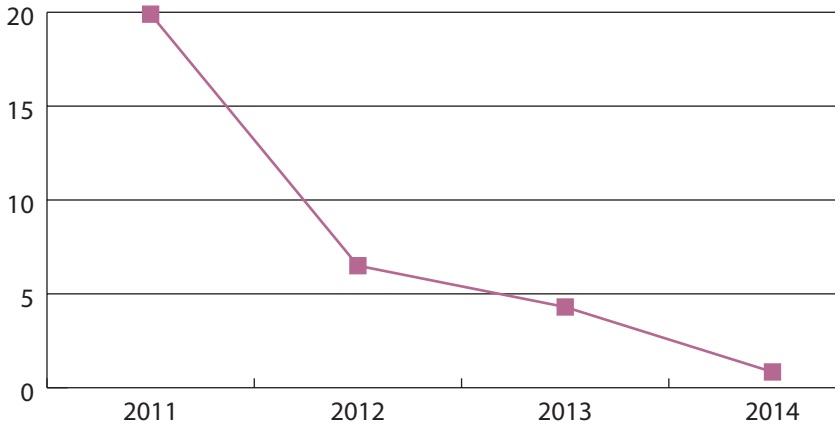

Figure 1: Acquired pressure ulcers per 1,000 patients on the Critical Care Unit at University College London Hospital

Elaine noted that changing the culture 'isn't easy', and now the focus is on remaining vigilant, keeping up momentum and sustaining this level of progress within the department. She said it's important to celebrate successes to keep staff motivated: 'even if it's having cake on a Friday afternoon, little things can make a difference and make staff feel really valued.' Demonstrating the progress that has been made, UCLH were winner (2012/13) and finalist (2013/14) in the Top Quality Patient Care Award.

Summing up, Elaine said: 'I believe if you get PU prevention right, everything will flow from that. This shapes safer, harm-free care.'

ACKNOWLEDGEMENT

This report and symposium were sponsored by Mölnlycke Health Care.

REFERENCES

Brindle CT (2010) Outliers to the Braden scale: Identifying high-risk ICU patients and the results of a prophylactic dressing use. *WCET Journal* 30(1):11–8

Call E, Pedersen J, Bill B et al (2013) Enhancing pressure ulcer prevention using wound dressing: what are the modes of action? *Int Wound J* doi: 10111/iwj.12123

Cox J (2011) Predictors of pressure ulcers in adult critical care patients. *Am J Crit Care* 20(5):364–75

Department of Health (2010) Patient Safety First. Available at: http://www.patientsafetyfirst.nhs.uk/content.aspx?path=/ (accessed 27.03.2015)

European Pressure Ulcer Advisory Panel, National Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance. (2014) Prevention and Treatment of Pressure Ulcers: Quick Reference Guide. Cambridge Media

National Institute for Health and Care Excellence (2014) Pressure ulcers: prevention and management of pressure ulcers. Available at: http://www.nice.org.uk/guidance/cg179 (accessed 27.03.2015)

Ozdemir H and Karadag A (2008) Prevention of pressure ulcers: a descriptive study in 3 intensive care units in Turkey. *J Wound Ostomy Continence Nurs* 35(3):293–300

Shahin ESM, Dassen T, Halfens RJG (2008) Pressure ulcer prevalence and incidence in intensive care patients: a literature review. *Nursing in Critical Care* 13(2):71–9