Use of a comprehensive pressure ulcer prevention program to reduce the incidence of hospital-acquired pressure ulcers in an intensive care unit setting – summary

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The problem

- Hospital Acquired Pressure Ulcers (HAPUs) are costly and preventable complications. As they are considered preventable, stage III and IV HAPUs are not reimbursed, so the hospital has to cover the cost of managing the pressure ulcer.

- Many institutions have implemented pressure ulcer prevention protocols which conform to the international standards as set out by the sister organisations, NPUAP (for US), EPUAP (Europe).

- These pressure ulcer prevention (PUP) protocols include:
  - Use of a validated score to identify at risk patients (e.g. the Braden scale)
  - Use of a pressure relieving mattress for at risk patients
  - Regular turning – repositioning of the patient to relieve pressure at known pressure points

- However pressure ulcers still occur in a significant proportion of at risk patients. Consequently, additional interventions are needed to further reduce the incidence of pressure ulcers such as the prophylactic use of foam dressings like ALLEVYN LIFE.

The study

- An acute care ICU implemented a pressure ulcer prevention protocol consistent with international guidelines and in addition implemented ALLEVYN LIFE dressings to be placed on heel and sacral locations.

  - ALLEVYN LIFE dressings were also used to protect from pressure damage underneath some medical devices such as C-collars.

  - The goal was to reduce incidence of pressure ulcers by 50% compared to the period prior to implementation.

The results

- Before implementing the protocol, 9.8% of ICU patients developed pressure ulcers. This was reduced to 3% of patients following the implementation. This is a reduction in incidence of 69%.

- The number of pressure ulcers caused by medical devices was reduced from 9 cases in the year prior to intervention to only 2 cases following implementation. This reduction was in part due to the use of dressings underneath C-collars.

- The hospital realized cost savings of approximately $1 million as a result of this decrease.

The conclusions

- ALLEVYN LIFE can contribute to pressure ulcer prevention as part of a pressure ulcer preventing protocol.
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Background
Hospital-acquired pressure ulcers (HAPUs) are a costly and largely preventable complication occurring in a variety of acute-care settings. In addition to the obvious adverse medical outcomes for patients, the National Database of Nursing Quality Indicators (NDNQI) estimates that the average HAPU costs $36,707. Others have estimated that, in 2008, the total cost of HAPUs to the US economy was $3.8 billion. Considered as a preventable problem, stage II and IV HAPUs are one of several conditions not reimbursed by Medicare or private insurance companies. In acute care settings, incidence of HAPUs has been estimated to range widely (e.g., from 4.4-12.5%) and from 3.3-53.4% #4. Standard recommendations for prevention have helped to drive down the incidence of HAPUs, but there is room for further improvement. In the International pressure ulcer prevention and treatment guideline (2014), prophylactic use of foam dressings has been identified as an emerging therapy for consideration. Although the evidence remains limited, both a consensus panel and a systematic review also reached the conclusion that it was sufficient to recommend use of a five-layer silicone barrier dressing for prevention of HAPUs in intensive care units (ICUs).

Objectives
To assess the effectiveness of a formal, year-long HAPU prevention program in the adult intensive care unit (ICU) of our hospital, with the goal of achieving at least a 50% reduction in 2013, compared with 2011.

Methods
Planning for the prevention program began in 2012, and the program was rolled out in the first quarter of 2013. Program components included the use of an algorithm based upon Braden Scale scores, an revised skin care protocol, fluidized positions, and a silicone adhesive hydrocolloid foam dressing. The silicone dressings were used over pressure points for patients with a Braden score < 14. The most common placement was the sacrum, but the dressings were also used on the heels, elbows, and under C-Collars. Staff were educated on pressure ulcer prevention and the new interventions. Incidence of HAPUs was calculated as the percentage of all patients in the ICU developing a HAPU. Cumulative incidence of HAPU was gathered over a 12 month period following initiation of the protocol.

<table>
<thead>
<tr>
<th>Grantor</th>
<th>Years</th>
<th>Mean age, years</th>
<th>Male %</th>
<th>Male mean length of stay, days</th>
<th>Number of patients with a HAPUs, n (%)</th>
<th>Number of patients with a device-related HAPUs</th>
<th>Estimated cost, $1,000s</th>
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</table>

Figure 1. Cumulative incidence of HAPUs, by month. In the years before (2011) and during (2013) implementation of an ulcer prevention program in an ICU (J Hosp Med 2014; 9(10):588-600), HAPUs were device-related, whereas any use of a IAP (7, 17) were device-related in 2013.

Abstractions: HAPUs, hospital-acquired pressure ulcer; ICU, intensive care unit; NDNQI, National Database of Nursing Quality Indicators.

Discussion
Our department made concerted efforts to be proactive in implementation of prevention strategies, such as encouraging the use of fluidized positions and use of silicone adhesive hydrocolloid foam dressings whenever there were pressure points, depending on the patient's position. Although it is difficult to isolate the effects of individual program components, previous studies have shown that application of five-layer, silicone foam dressings can complement an existing pressure ulcer prevention program. It was our impression that use of dressings contributed to the reduction in HAPUs.

Conclusion
The convincing results in ICU have led to approval of a hospital-wide rollout of the HAPU prevention program, along with a commitment to ensure that prevention of device-related HAPUs remains a priority. Our experience indicates that a comprehensive, proactive, collaborative ulcer prevention program based on staff education and a focus on adherence to protocols for patient care can be an effective way to reduce the incidence of HAPUs in the ICU.

References