Save the Butts: Preventing Sacral Pressure Ulcers by Utilizing an Assistive Device to Turn and Reposition Critically Ill Patients

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BACKGROUND
Critically ill patients who are hospitalized in the intensive care setting are known to be at increased risk for the development of hospital-acquired pressure ulcers (HAPUs). Evidence-based guidelines for HAPU prevention have assigned the highest grade recommendation for effective repositioning of at-risk individuals. Effective repositioning should be undertaken to reduce the duration and magnitude of pressure over vulnerable areas of the body. Although frequent patient repositioning is “standard of care” for effective repositioning of at-risk individuals, stating “lack of time.” Research has also documented that nurses experience multiple interruptions over the course of a shift while mult tasking patient care activities. Patient repositioning can also lead to occupational injury. The United States Bureau of Labor Statistics reported in 2010 that the back was the leading anatomic site for ergonomic injury in 5.1% of all workplace injuries.

PURPOSE OF THIS STUDY
The objective of the quality improvement initiative was to study the effectiveness of an assistive device for repositioning on the following endpoints:

1. HAPU prevention
2. Number of nursing staff/time for patient repositioning

METHODS

Clinical Setting/Study Design
This before-after study took place on 2 ICUs (Medical/Respiratory ICU and Surgical ICU). Staff time and personnel required for repositioning were recorded. Skin was assessed every shift for signs of HAPU and findings were documented.

Intervention
Standard of care (pivotal): turn and reposition patients every 2 hours and pin with the use of pillows, wedges, and cushions. Note: no assistive repositioning device in use.

Assisted repositioning device (after): turn and reposition patients every 2 hours and pin with the use of an assistive device.

Skin Assessment
Skin was assessed every shift for signs of HAPU and findings were documented.

Time and Motion Study
The nursing team collaborated with a performance improvement team of industrial engineers to design the time and motion study. Staff time and number of personnel required for repositioning activities were evaluated 16 hours before and after intervention.

RESULTS

A total of 100 critically ill patients were included in the study (50 before intervention/50 after intervention). Patient characteristics for the before and after groups were comparable.

BEFORE/AFTEER COMPARISON OF HOSPITAL ACQUIRED PRESSURE ULCERS (HAPU)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Before (n=50)</th>
<th>After (n=50)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female, n</td>
<td>25</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Male, n</td>
<td>25</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Average age (years)</td>
<td>66.62</td>
<td>66.24</td>
<td></td>
</tr>
<tr>
<td>Average body mass index</td>
<td>28.68</td>
<td>30.97</td>
<td></td>
</tr>
<tr>
<td>Incidence status</td>
<td>23.80 (%)</td>
<td>29.95 (%)</td>
<td></td>
</tr>
<tr>
<td>Average Braden score</td>
<td>13.86</td>
<td>13.43</td>
<td></td>
</tr>
<tr>
<td>Average mobility subscore</td>
<td>1.134</td>
<td>1.145</td>
<td></td>
</tr>
<tr>
<td>Average friction/sheer subscore</td>
<td>3.572</td>
<td>3.526</td>
<td></td>
</tr>
<tr>
<td>Average moisture subscore</td>
<td>1.946</td>
<td>1.964</td>
<td></td>
</tr>
</tbody>
</table>

28% HAPU BEFORE COMPARED WITH 0% HAPU AFTER
Of the 100 patients receiving standard of care, 14 developed HAPU before the intervention (44.0%) and 7% (1/11) of those patients were high-risk patients. After implementing the assistive device for repositioning, none of the patients developed HAPU (2010), although 16% of those patients were high-risk patients.

COMPARISON OF TIME SPENT REPOSITIONING PATIENTS

The use of an assistive device for patient repositioning in high-risk patients resulted in a significant decrease in the time spent repositioning patients. The patient population was similar between groups, with the only key difference being incontinence status, which was higher in the postintervention group. Although no definitive conclusion can be drawn from the before-after comparison, additional research is warranted in a larger patient population.

DISCUSSION
The results of this study support the effectiveness of an assistive device for repositioning critically ill patients. An assistive device can help reduce the duration and magnitude of pressure over vulnerable areas of the body, which can lead to lower rates of HAPU. Further research is needed to determine the long-term effects of using an assistive device for repositioning critically ill patients.

REFERENCES