Hospital PICU Ulcer Prevention at the Johns Hopkins Hospital PICU

1 Background
The main purpose of the Pediatric Intensive Care Unit (PICU) pressure ulcer prevention project at Johns Hopkins Hospital was to standardize methods for reducing skin breakdown. Using an audit tool developed by a previous Fulf fellow, data were obtained via nurse documentation audits and observational audits regarding nurse compliance to such methods. The population of intubated pediatric patients is particularly vulnerable due to altered skin integrity (Noonan et al, 2006). Immobility, inactivity, and presence of multiple medical devices, which is typical for intubated patients, can contribute to pressure ulcers and skin breakdown. Several observed patients developed skin breakdown at tracheostomy sites and EKG leads sites because the devices rested on the skin. The Braden Q scale was developed by Quigley and Curley (1996) as an adaptation from the scale developed on adult patients. Used correctly, the scale has a 88% sensitivity value and a 58% specificity value (Noonan et al, 2011). These values are consistent with the predictive validity of the adult Braden Scale (Noonan et al, 2011). A chart review revealed that the Braden Q Scale was scored incorrectly in 18.1% of patient assessments (Noonan et al, 2011). To predict risk for altered skin integrity, correct scoring and objectivity are necessary to obtain accurate results. Comparison of documentation audits and observational audits revealed subjectivity within Braden Q scoring at the JHH PICU. This project is essential from a quality care and patient safety standpoint, as well as a business standpoint. Hospital-acquired conditions, such as pressure ulcers, are quality indicators and may not be reimbursed. Therefore, the unit has access to many cushions and devices to ensure patient skin integrity. Available preventative devices include special mattresses, heel-float cushions, pillows, neck rolls, and Z-flo cushions. The Z-flo is a fluidized positioner aid used to offload bony prominences and contour to the patient’s body. Preventative interventions include rotation of medical devices, e.g. EKG leads and O2 saturation probes, and a two-hour turning schedule. The problem stems from a lack of standardized means of documenting use of preventative devices and interventions. The aim of this study is to assess the accuracy of Braden Q scoring and the use of preventative measures, standardized interventions, and proper documentation.

2 Methods
Using the audit tool, the project began by using nurse documentation to obtain information for accurate and complete patient documentation for all intubated patients at the JHH PICU. After a few months the project moved to observational audits. A nursing student and a pediatric nurse practitioner observed patient skin integrity for all intubated patients. Key areas of observation include use of Sage Barrier clothes, diaper rash creams, heel protectors, Z-flo cushions, neck rolls, and pillows. Then verification with the patient nurse included asking if patient was turned side to side every 2 hours and if the O2 saturation probe and EKG leads were rotated during the shift.

Using the audit tool developed by Versesolutions™ software, data was input to yield nurse compliance data. The audit tool assessed the Braden Q for that shift, days patient has been on a ventilator, pain score, presence of edema and skin breakdown, use of medical devices, rotation of EKG leads and O2 saturation probe, and use of Sage Barrier clothes, preventative creams, Z-flo cushions, pillows, a neck roll, and heel protectors.

Documentation audits were held every Tuesday from September 2014 to January 2015. Two observational audits took place in February and March 2015. The answers were mostly compiled in notes; however, some measures were answered as “Yes,” “No,” or “Non-applicable.” A text box was included for any additional notes or comments. After data collection, information was stored using Versesolutions™ software and then monthly compliance reports were generated to be included in the unit newsletter.

3 Results
During the phase of documentation audits, the most common issue was incomplete documentation. If the two-hour turning schedule was not documented every two hours, then that category received “No” as not being completed for that shift. During the phase of observational audits, comparison of documentation vs. observation revealed that many measures were completed, but not properly documented. For example, if the heel-float boots were not in use the nurse typically did not document it as in use although Z-flo devices were in use to float the patient’s heels off the mattress. Between February and March 2015, no undocumented wounds or pressure ulcers were found during the observational audits.

The most common response regarding O2 saturation probe rotation and EKG lead rotation was that those tasks were usually night shift responsibilities; however, most nurses were unaware if the previous night shift nurse did rotate the devices. For documentation and observational audit comparison, scores show the difference in response from what was documented in the patient chart by the day shift nurse compared to the nurse practitioner performing the audit. The differences showed subjectivity with the Braden Q scoring. During February, the graph shows that the most differences were in the categories for sensory perception and nutrition scoring with only a 22% agreement in those scores. Perhaps having a place to document in the patient chart would make an actual rotation schedule more concrete for devices such as O2 saturation probe and EKG leads. The use of Z-flo cushions and pillows over bony prominences and contour to the patient’s body resulted in a higher score than the nurse practitioner; therefore, most nurses err on being more cautious.

4 Conclusions
The Braden is still much more of a subjective assessment despite the scale’s efforts to quantify intensity and duration of pain. tolerance of the skin and supporting structure (Curley, Razmus, Roberts, Wypij, 2003). In comparing the Braden Q scoring, the most common incorrectly scored subscales for February 2015 were sensory and nutrition. According to Noonan et al (2011), the most common difference is within the activity category. The number of different scores decreased substantially in March 2015 potentially because the nurse practitioner was not blind to the nurse scores and tried to understand the nurse’s logic to decrease the number of differences.

Future Directions
To further standardize care and documentation for all potential causes of skin breakdown, the Braden Q scoring requirements could be available within the chart for nurses to reference to objectively score. Also, additional parameters in the “Treatments and Care” flowsheet could incorporate EKG rotation and O2 saturation.

References

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