

Preventing Pressure Injuries in PICU

Pressure injuries develop due to continuous and long-term pressure on a particular area of the body, and they are very common in infants and children, particularly in the Pediatric Intensive Care Unit (PICU) due to the immobility of the patients, the underdeveloped nature of the skin, and the sensitive tissue of the children. However, pressure injuries are preventable. With proper care and correct preventive measures, many of these pressure injuries can be limited and even avoided. In 2017, a group of master's students in Engineering Management from the Johns Hopkins University was invited to help resolve this issue.

Through more than seven weeks of intensive observation, the student consultants had identified a few root causes of the occurrence of pressure injuries, which were mainly due to improper setup of equipment and lack of communication and awareness. As listed below, a few recommendations were proposed for each issue to prevent the occurrence of pressure injuries.

- Standardize the PICU bed-making process and re-emphasize the use and importance of absorbent pads to reduce the prevalence of pressure injuries. When making beds, include cardiac pads to absorb moisture from patients' backs, likely reducing the rate of pressure injuries.
- Increase awareness of pressure injuries among staff and nurses by requiring more in-service training. Sessions could be mandated on a quarterly basis.
- Improve communication by designing a checklist for rounds. Nurses enter the Epic system, retrieving Braden Q numbers from previous nursing shifts to learn and to update current medications, therapies, and nutrition.
- Determine whether the current Z-flow pillow or the inflatable air pillow relieves more pressure. The structural comparison is attached below, and the inflatable pillow may exhibit better performance than the pillow currently used.



Figure 1. Z-flow Pillow vs. Inflatable Pillow

Implementing the proposed recommendations will likely reduce the high-pressure injury rate on infants and children, which was at 27% in 2017. This may represent a cost savings from \$20,900 to \$151,700 per pressure injury case.