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Title of Abstract:

Reducing Unplanned Extubations in the NICU: A Team Approach

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Abstract Description:

Background: Unplanned extubations(UE) are a serious patient safety concern. In the NICU, consequences of UE can be extremely deleterious leading to complications such as airway trauma, subglottic stenosis, need for cardiopulmonary resuscitation and increased ventilator days. The incidence of UE in our 95-bed level 3 unit has been higher than desired in the years ending in 2014 (as high as 8/100 vent days in 2011). A concerted effort to reduce this preventable adverse event was urgently needed.

Objective(s): Our primary goal was to reduce UE rate by 50% by March 2016.

Method: A multidisciplinary taskforce was assembled in early 2015, consisting of a neonatologist, respiratory therapists, and nurses. The team then developed a bundle of evidence-based better practices that were implemented sequentially through a series of PDSA process improvement cycles. The cycles included implementation of a data collection tool, staff education on 2-person patient care and handling, securement device, and identification strategy for high risk patients. Task force conducted in depth case reviews for each UE event.

Results: Our baseline UE rate was 4.5/100 vent days in April 2015 before the cycles of improvement began. By March 2016, we significantly reduced UE rate to 2.4/100 vent days (an approximate 50% decline). Although our primary goal had been achieved, the taskforce continued efforts to further improve and sustain this reduction in UE. Since March 2016, our UE has steadily declined with current UE rate averaging at 1/100 vent days. In addition, the most common risk factors identified in our UE were extreme prematurity (infants <1000g), endotracheal securement (32%), patient movement/agitation (21%), patient care without a second care provider (21%), and excessive secretions (4%).

Conclusion: UE are preventable events that can be reduced by implementation of better practices through ongoing PDSA process cycles. A multidisciplinary team approach engages bedside clinicians in problem-solving a commonly identified patient safety issue. This approach leads to shared vigilance and promotes an empowering culture change in the NICU. Consequently, a significant improvement was made and sustained.

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