Healthcare Organization Commitment

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Commitment Details

Commitment Name
8B - Unplanned Extubations in Children

Participants
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What Patient Safety Challenge does your Commitment address?
Challenge 8B - Unplanned Extubation

Commitment Start Date
01/01/2017

How Many Hospitals Will This Commitment Represent

1

Commitment Summary

Unplanned extubation (UE) of the trachea in children can be a life threatening complication of mechanical ventilation support. These events are by definition sudden, unexpected and have variable outcomes, with a meaningful percentage of patients requiring re-intubation with its associated risks and complications (addressed in PSMF APSS 8A). Both pediatric and adult literature show that adverse effects of UE include increased length of mechanical ventilation and ICU stay, increased risk of pneumonia, increased mortality and increased costs. Reviews of adult UE suggest 10,000 or more associated deaths annually with this adverse event. Neonates, particularly premature ones, are the most likely pediatric patient to experience UE. This is in part because of their anatomically very short trachea and also due to the general neonatology practice and preference for minimal sedation. Unfortunately, premature infants also physiologically poorly tolerate any dramatic changes in their sensory environment, which certainly includes those of a UE, with adverse vital sign changes persisting for minutes to hours after even seemingly modest inputs such as loud noise or bright light. UE often occurs in patients who are being prepared to be liberated from mechanical ventilation, which often includes a reduction in sedation. Finding this "sweet spot" between successful conversion to spontaneous breathing while minimizing the risk of UE is a current challenge and focus for many hospitals and healthcare collaboratives. It is also of note that efforts to reduce ventilator-associated events (VAE, previously largely characterized by ventilator-associated pneumonia [VAP]) have also had the seemingly desirable effect of shortening mechanical ventilation duration, but may predispose rapidly weaning patients to the risks of UE or otherwise failed extubation.

Commitment Description & Detail

CHOC Children's has been focused on reducing UE since at least 2011, recognizing the importance of this event at the patient safety and patient and family experience level well ahead of the mainstream movement. UE has been a tracked metric since that time, and efforts at improvement have included standardization of endotracheal tube (ETT) selection, securement, and depth measurements, as well as patient sedation and ETT suctioning protocols. In 2016, the Children's Hospitals' Solutions for Patient Safety (CHSPS) added UE to its growing collection of pediatric-relevant hospital-acquired conditions (HAC) targeted for reduction. The CHSPS network is a CMS Pay for Performance Hospital Engagement Network (HEN) of some 130 children's hospitals across the U.S. and Canada, and the only one specific to children's care. The overarching aim is the goal of reducing serious harm in children through the reduction of hospital-acquired conditions (HAC). Best practices are identified, and both adherence to these care bundles and outcomes are tracked and benchmarked within the network. While the incidence of UE at CHOC has dropped gratifyingly over time, events still occur and ongoing vigilance is required. At CHOC, UE rates are tracked monthly and quarterly, and results distributed broadly across the

organization. UEs are among the events discussed at the CHOC Daily Safety Briefing; moreover, they have been a longstanding Key Driver of the CHOC high level organizational goal of reducing serious patient harm. All UEs are fully investigated in Apparent Cause Analyses with learnings widely spread. CHOC will continue its efforts at best practice delivery and clinical outcomes in UE prevention. In alignment with the Patient Safety Movement Foundation's Actionable Patient Safety Solutions (APSS) checklist, CHOC Children's Hospital has successfully completed and implemented the following checklist items.

Action Plan

Unplanned extubation, both in the field and in the hospital, is a common and costly problem, resulting in significant morbidity and mortality. • Assemble a core multidisciplinary airway safety leadership team VP of Quality / Safety Physician, nursing, and respiratory care team leaders across all hospital units to ensure recognition of the problem and support development of systems that will eliminate unplanned extubation and its associated complications, especially preventable deaths. • Determine baseline rate of unplanned extubation (See Metrics Section below). • Determine baseline rate of complications (oral mucosa and facial skin pressure injuries, pneumonia, vocal cord injury, hypoxemia, brain injury, death) caused by unplanned extubation. • Perform a root cause analysis (RCA) for all incidences of unplanned extubation. Utilize a multidisciplinary team including physicians, nurses and respiratory therapists to evaluate the root cause of every unplanned extubation, determine a plan to eliminate the root cause, implement the plan and track results. • Implement the core unplanned extubation dataset as defined in the Metrics Section of this APSS. Every (endotracheally) intubated, mechanically ventilated patient should have the entire PSMF Core Dataset for extubation recorded in the patient’s medical chart. Evaluate your hospital’s Electronic Health Record (EHR) to determine if the entire core dataset is included in the EHR. o If included, educate all providers of airway management how to properly track UE. o If not included, contact the EHR company and request they add the dataset; Develop a system for temporarily tracking the dataset until the EHR Company institutes the dataset. • Develop a Quality Management Process to promote and ensure continuous improvement with an initial goal of eliminating preventable deaths from unplanned extubation and ultimately eliminating all incidences of unplanned extubation. Require tracking and reporting of all incidences of unplanned extubation and complications of unplanned extubation (hypoxemia, pneumonia, vocal cord injury, brain injury and death). • Provide periodic education for all airway management providers. Educate providers regarding the importance of prevention of unplanned extubation and the need for accurate data tracking. Include unplanned extubation as part of every presentation of management of the difficult airway patient. • Implement Clinical Best Practices for Preventing Unplanned Extubation. Standardize tracheal tube restraint devices, utilizing the most proven methods/devices. Implement systems for alerting clinicians to patients with a known difficult airway. Formalize systems for appropriate sedation and patient restraint to decrease the risk of unplanned self-extubation.

Commitment Timeline

CHOC Children's will work with PSMF to update this commitment annually in an ongoing

basis.

Impact Details

Lives Saved

Lives Spared Total =
Array

For reporting purposes, the number has been rounded up to the nearest whole number.
Lives Spared Total
Array