

Decreasing Unplanned Extubations in the Neonatal Intensive Care Unit (NICU)



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Purpose

The purpose of this quality improvement project is to develop effective protocols to enhance patient safety by decreasing unplanned extubations (UPE) in our neonatal intensive care unit. The rationales for development of this project were:

- Among the three Critical Care Units, it is reported that the NICU has the highest number of unplanned extubations (UPE) in our neonatal intensive care unit. The rationales for development of this project were:
- Our average rate of UPE is 2.54 per 100 ventilator days
- The national benchmark is less than 1 extubation per 100 ventilator days

Review of Literature

- Unplanned extubations can have serious life threatening consequences (Loughead, 2008)
- Inadequate fixation can be identified as a main contributor to unplanned extubations and should be targeted in prevention strategies (Veldman, 2006)

Current Securement Devices



Taped



NEOFit™

Interventions

Our project was initiated in the NICU at a large urban pediatric facility in September 2009. A multidisciplinary team consisting of nursing and respiratory leadership developed interventions aimed at decreasing UPE by implementing:

- Unintended extubation form developed to evaluate causative factors and prevalence of extubations



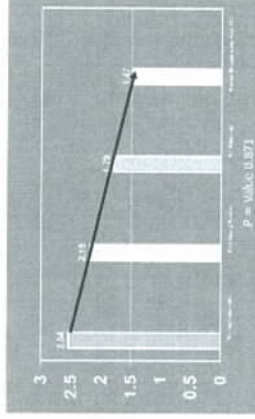
- Initiating airway rounds to monitor intubated patients, type of airway, securing device and fixation of the airway. Performed once a shift with a RN and RT
- Airway management form developed to monitor intubated patients during airway rounds



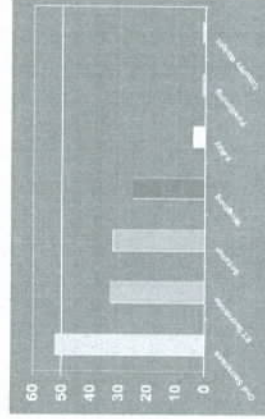
- Quality improvement collection tool established to assist in tabulation of data
- Education provided to nursing and respiratory staff in the form of in-services, lectures and poster presentations

Outcomes

- Beginning November 2009 - April 2011 the NICU experienced 109 UPE's



- UPE's decreased after initiating airway management rounds and ongoing continuing education.
- The extubation rate prior to project implementation was 2.54 per 100 ventilator days. This rate has decreased to 1.47 per 100 vent days in April 2011.
- The P value was not statistically significant but results have been clinically significant



- The primary causative factor for UPE was oral and endotracheal secretions accounting for 78% of extubations.

Clinical Implications

- Analysis of the causative factors determined the current fixation device was ineffective in providing a secure airway with increased secretions.
- This prompted the trial of a new fixation product called the NEObar™
- A limited trial of the NEObar™ yielded no UPE's and is currently being used as an additional fixation device in the NICU



- Airway rounds and education have positively impacted UPE's in the NICU

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References

- Loughead J, Brennan R, DeJullik P, Camposeo V, Wengert J, Cooke D. (2008) Reducing Accidental Extubation in Neonates. Joint Commission on accreditation of Healthcare Organizations 34 (3): 164-170
- Veldman A, Trauttschold T, Weib K, Fischer D, Bauer, K. (2006) Characteristics and Outcomes of Unplanned Extubation in ventilated preterm and term newborns on a neonatal intensive care unit. *Pediatric Anesthesia*. 16: 968-973

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