Decreasing Unplanned Extubations in the Neonatal Intensive Care Unit

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Purpose

Would using a standardized bundle to secure infant’s endotracheal tubes (ETT) compared to the traditional tape method decrease the number of unplanned extubations (UE) in Main Line Health Neonatal Intensive Care Units (NICU)?

Background

The NICUs at Lankenau Medical Center (LMC) and Bryn Mawr Hospital (BMH) had an increase in UEs in 2016. The increase was thought to be the removal of latex from the tape used to secure ETTs. Ventilated infants needed their ETTs repositioned at least once a shift or more with the latex free tape. Skin breakdown increased from the frequent removal and reaplication of tape. The frequent retaping of ETTs increased the workload for both the respiratory therapists and nurses.

Review of Literature

U.S. News & World Report Survey identifies UEs as an area of focus for NICUs. Stabilization of UEs can be reduced by using a standardized practice of care. Stabilization of UEs can cause rapid cardiorespiratory deterioration, damage to the airway, subglottic stenosis, and ventilator-associated pneumonia (Merkel et al, 2013). Intubation is necessary to prevent pressure on the infant’s palate. Adequate suctioning is essential to prevent excessive secretions which can loosen the ETT. The frequent retaping of ETTs increased the workload for both the respiratory therapists and nurses.

Methods

Step 1

Data Collection and Review

• Steady rise in UE rate

• Inconsistencies noted in stabilization practice

Step 2

Data Analysis

• Two licensed staff persons (RT, RN, NNP, PA, MD) for the following position changes

• kangaroo care

• NPP

• Turning on the oscillator

• Weights

Step 3

Improved Documentation

• Document in the electronic medical record when an UE occurred

• Diligent use of Respiratory’s ETT Cards at the bedside stating depth of ETT at the tip, depth to suction to, date when tape/NEO-fit™ changed last, was it an UE?

Step 4

Mode of Stabilization

• Marpac™ tape for initial ETT securement in the Delivery Room

• NEO-fit™ ETT holder when tape needs to be changed if infant will be ventilated for > 24 hours.

Step 5

Track Unplanned Extubations in Real Time

• Online event form

• Paper form

Results

LMC decreased UEs from 6 per 100 ventilator days to 1.3 per 100 ventilator days

BMH decreased UEs from 6 per 100 ventilator days to 3.3 per 100 ventilator days

References


Next Steps

BMH decreased UEs from 6 per 100 ventilator days to 3.3 per 100 ventilator days

Diligent use of NEO-fit™ ETT holder

• Change the securement device when loose.

• Postion changes

• Fixing the device or plug the ETT

• Proper positioning of the ETT is necessary to prevent pressure on the infant’s palate.

• Position changes with two licensed personnel.

• Document and report every UE to understand the circumstances that occurred around the event to improve patient outcomes.

• Utilizing peer champions for education and reinforcement to staff is vital for success.

Implications for Nursing Practice

• The rate of UEs can be reduced by using a standardized practice of care. Stabilization of UEs is crucial.

• Change the securement device when loose.

• Adequate suctioning is essential to prevent excessive secretions which can loosen the device or plug the ET.

• Ensure there is adequate support for tubing.

• Proper positioning of the ETT is necessary to prevent pressure on the infant’s palate.

• Position changes with two licensed personnel.

• Document and report every UE to understand the circumstances that occurred around the event to improve patient outcomes.

• Utilizing peer champions for education and reinforcement to staff is vital for success.

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