

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)?

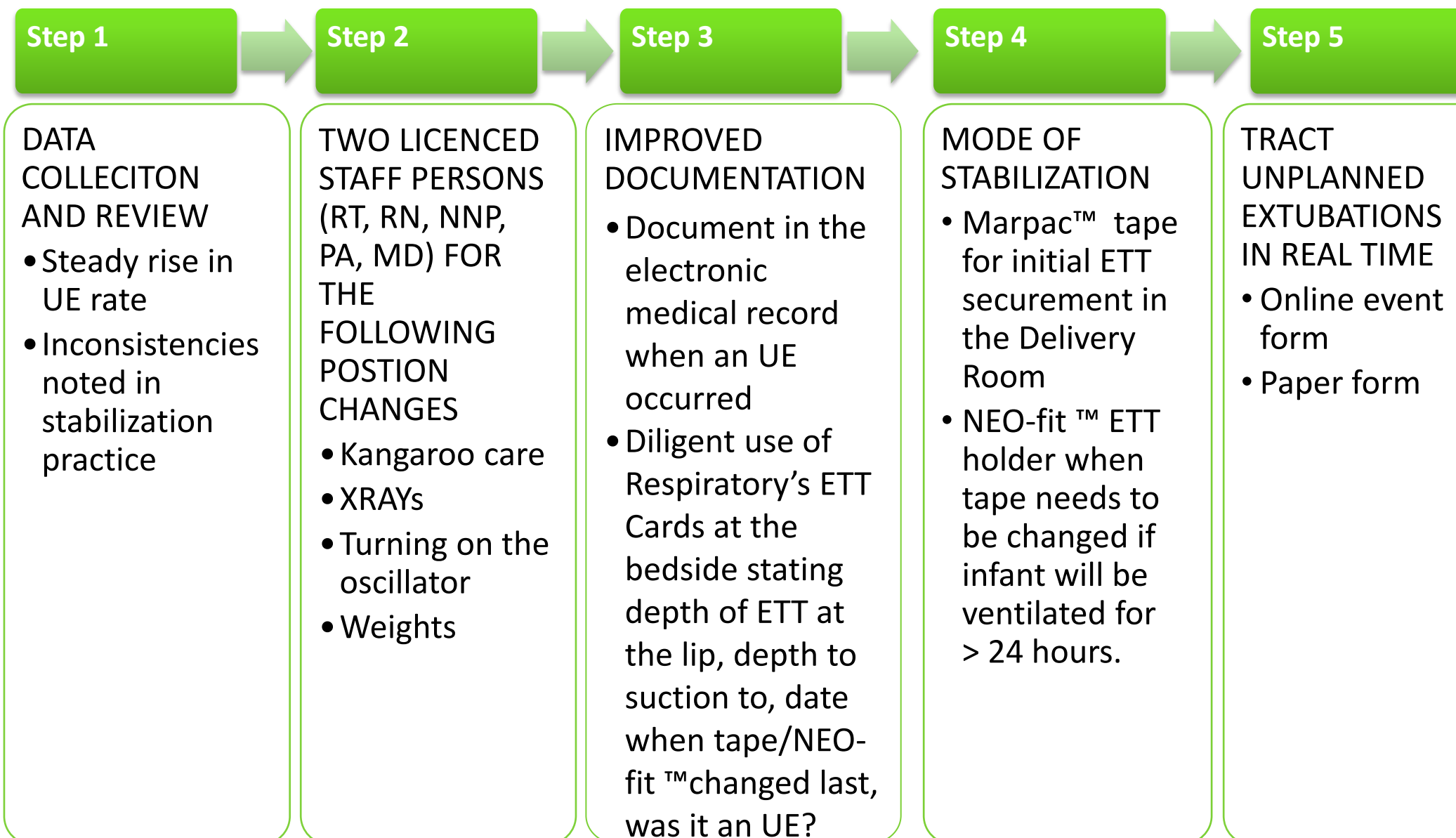
Background

- 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 retaped at least once a shift or more with the latex free tape.
- Skin breakdown increased from the frequent removal and reapplication of tape.
- The frequent retaping of ETTs increased the workload for both the respiratory therapists and nurses.

Review of Literature

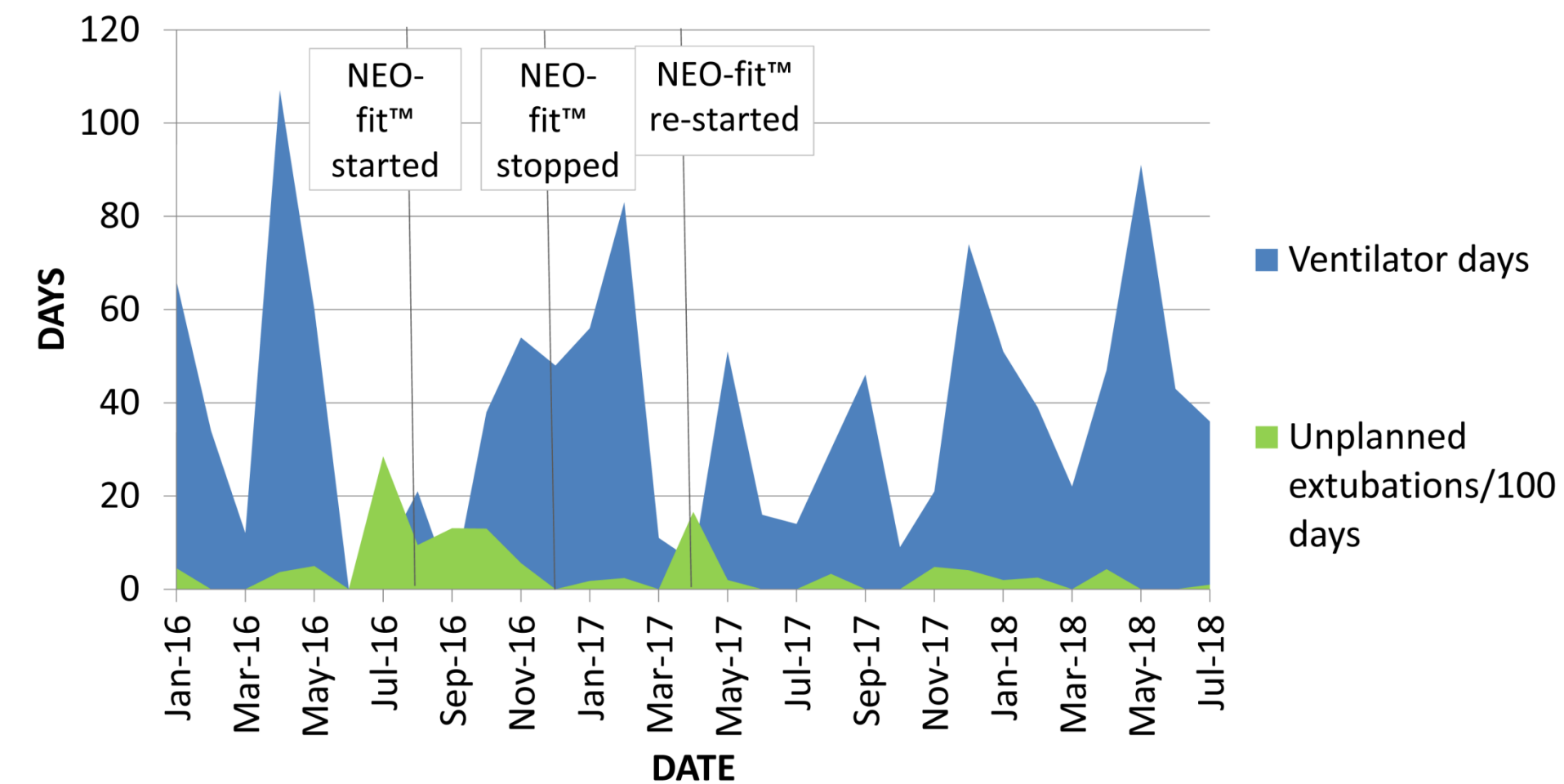
- U.S. News & World Report Survey identifies UEs as an area of focus for NICUs.
- UEs can cause rapid cardiorespiratory deterioration, damage to the airway, subglottic stenosis, and ventilator-associated pneumonia (Merkel, et al, 2016).
- Re-intubation ranks as the fourth most common adverse event in the NICU (Myers, et al., 2015).
- Inconsistent taping methods causes most UEs. (da Silva, et al., 2013)
- Quality improvement (QI) efforts to reduce UEs should be implemented to promote patient safety and improve patient outcomes (Myers et al., 2015).
- A standardized interdisciplinary method of stabilization for ETTs decreases the rate of UEs (Merkel, et al, 2016).

Methods



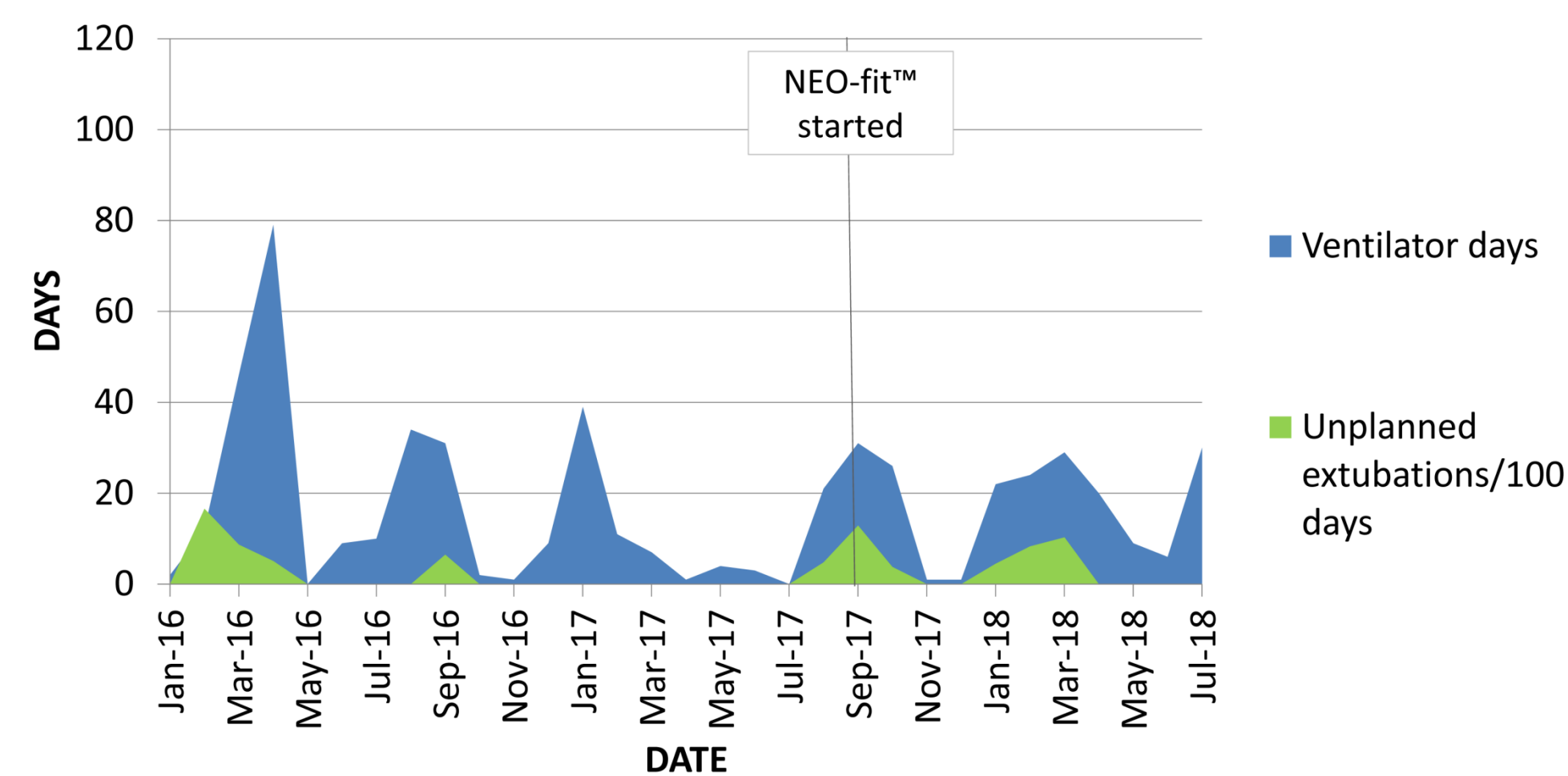
Results

UNPLANNED EXTUBATIONS PER 100 VENTILATOR DAYS AT LANKENAU MEDICAL CENTER



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

UNPLANNED EXTUBATIONS PER 100 VENTILATOR DAYS AT BRYN MAWR HOSPITAL



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



Implications for Nursing Practice

- The rate of UEs can be reduced by using a standardized practice of care. Stabilization of ETTs is crucial.
- Change the securement device when loose.
- Adequate suctioning is essential to prevent excessive secretions which can loosen the device or plug the ETT.
- Ensure that 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 the vital for success.

Next Steps

Initiate the Standard of Care of using Marpac tape initially and then the NEO-fit™ ETT holder throughout Main Line Health NICUs (Paoli and Riddle)

Reinforcement of new practices to Lankenau and Bryn Mawr staff and monitor UEs in real time

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