

## **Reduction of Unplanned Extubations in Prentice Women's Hospital Level III NICU**

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**Background:** Unplanned extubations (UPEs), as defined as invasive airway loss at a time not specifically intended by the medical team, can be associated with adverse effects including hypoxemia, hypercarbia, pulmonary injury, laryngo-tracheal airway damage, intraventricular hemorrhage and increase ICP. The benchmark for unplanned extubations was defined from PICU studies as < 1 UPE per 100 ventilator days. Incidence in NICUs have ranged anywhere from < 0.14 to 5.3 UPEs per 100 ventilator days (mean 1.98). We aim to reduce the rate of unplanned extubations in our level III NICU with the use of PDSA (plan-do-study-act) cycles.

**Methods:** Baseline unplanned extubation data was collected from Feb 2016 – Feb 2019. A fishbone diagram was created to help identify opportunities of improvement. Three process measure bundles were constructed. Phase 1 will standardize ETT assessment, and will consist of standard infant position for all x-rays to accurately assess ETT position, RTs and RN assessing ETT together at beginning of each shift to assess ETT position and ETT tape integrity as a team, and RTs participating in family centered rounds once a week to discuss ETT location from most recent XR as well as current ETT position. Phase 2 will standardize patient movement with protocols for kangaroo care, changing infants and nursing assessments, and education on pre- and post- infant care ETT evaluation. Lastly, Phase 3 will standardize evaluation of extubation readiness and the time frame at which extubation to non-invasive ventilation occurs.

**Results:** Anticipated results – number of UPEs in the Prentice NICU will decrease to < 1 per 100 ventilator days.