Reducing Unplanned Extubations in the NICU Using a Risk Assessment Scoring Tool

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PURPOSE
This offering highlights efforts to utilize innovative measures to standardize interventions with the goal of decreasing the UE rate in an academic Magnet® facility’s NICU.

BACKGROUND
- Unplanned extubations (UE) represent the fourth most common adverse event in neonatal intensive care units (NICUs) in the United States (Merkel, 2014).
- Associated UE risks:
  - Rapid cardiopulmonary deterioration
  - Airway trauma
  - Intraventricular hemorrhage (IVH)
  - Ventilator-associated pneumonia (VAP)
  - Increase in ventilator days/chronic lung disease
  - Potential infant death

EVIDENCE
Infants
• >34 weeks gestational age (GA) have a higher incidence of UE (89%) (DaSilva et al., 2013).
• Weighing < 1,500 grams have a greater rate of UE (42%) compared to infants weighing >1,500 grams (23%) (DaSilva et al., 2013).
• With an alert card placed crib-side (indicating their risk level for an UE) had a decreased incidence of unexpected endotracheal tube (ETT) dislodgement (Merkel, 2014).

METHODS/INTERVENTIONS
- December 2017 – Interprofessional collaborative group formed to create an evidence-based UE risk assessment scoring (UE RAS) tool.
- Membership included: respiratory therapy, medicine, unit nursing leadership and clinical nursing
- February 2018 – work group evaluated current care practices for intubated infants
- Noted neonates at risk for UE were identified with a green card crib-side.
- Barriers:
  - Actual level of risk was not noted
  - No nursing interventions were made based upon this assessment
  - Lack of standardized communication processes between nursing and respiratory therapy relative to identifying UE risk factors and implementing pragmatic tactics to < this risk.
- May 2018 – Three color-coded cards placed crib-side to identify an infant’s UE risk level (low, moderate, high)

RESULTS
- Pre-intervention, the UE rate was noted at 2.02/100 ventilator days
- Post-intervention, the UE rate has decreased to 1/100 ventilator days
- This represents a 50% decrease from baseline

UNPLANNED RISK ASSESSMENT SCORING TOOL

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Score</th>
<th>RAS Tool</th>
<th>Green Zone Care</th>
<th>Yellow Zone Care</th>
<th>Red Zone Care</th>
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<tbody>
<tr>
<td>Weight ≤ 1500 grams</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>GA ≥ 34 weeks</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Anatomical Risk</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>EGA ≥ 35 weeks</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>History of UE</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Excessive oral secretions</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Extubation Pathway/Protocol in place</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<tr>
<td>Barriers</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tr>
</tbody>
</table>

KEY TAKE-AWAYS
- Interprofessional communication is key to success
- Dedicate one individual as the ETT guardian

REFERENCES

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