**Early Extubation After Cardiac Surgery: An Evidence-Based, Nurse-Driven Protocol**

**Background & Significance**

Early extubation is defined as:
- Removal of endotracheal tube within six hours of end anesthesia time

Early extubation of post-operative cardiac surgery patients has been associated with:
- Shorter ICU & hospital stays
- Reduced mortality
- Decreased resource use
- Safe & effective in elderly patients with no increased risk of reintubation

Opportunity to perform early extubation is frequently missed due to:
- Lack of early extubation protocol to standardize practices
- Lack of multidisciplinary team communication
- Excessive use of analgesics and sedatives

As few as 12% of cardiac surgery patients are extubated within 6 hours in the United States

Consequently, post-operative ventilation exceeding 24 hours is an important performance measure published by the National Quality Forum in the United States

**Baseline Organizational Data**

<table>
<thead>
<tr>
<th>% Patients Extubated &lt; 6 hrs Compared to STS Benchmark</th>
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</thead>
<tbody>
<tr>
<td>CAB</td>
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**PICOT Question**

In intubated post-operative cardiac surgery patients, how does a nurse-driven standardized extubation protocol compared to no standardized protocol affect extubation rates within 6 hours post-operative?

**Critical Appraisal: Recommendations from the Research vs. Level of Evidence**

<table>
<thead>
<tr>
<th>EMR Changes</th>
<th>Reminder Signs</th>
<th>Pain medications/sedatives for...</th>
<th>Nurse-driven</th>
<th>Fast Track Interventions</th>
<th>Paralytic reversal at lower BT/rewarming</th>
<th>Multidisciplinary protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level I</td>
<td>Level II</td>
<td>Level III</td>
<td>Level IV</td>
<td>Level V</td>
<td>Level VI</td>
<td></td>
</tr>
</tbody>
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**Outcomes: Patients Extubated < 6hrs**

**Sustainability**

- Nurse-driven protocol built into Cardiac Surgery Order Set within the EMR
- CTICU Orientation now includes nurse-driven protocol for early extubation
- Standard of Care within the CTICU: Built into EMR and CTICU policy

**Culture Change:**
- Empowering and engaging the direct care RNs in the entirety of the process
- Early Extubation Committee; use for professional development on clinical ladder

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DNP Student University of Texas at Tyler

**Cost Savings**

<table>
<thead>
<tr>
<th>Number of Pts</th>
<th>Savings 2016</th>
<th>Savings 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>$500,000</td>
<td>$1,084,860</td>
<td>$3,430,224</td>
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STS = Society of Thoracic Surgeons