Reducing Intubation Time in Adult Cardiothoracic Surgery Patients: A Review of Data under the Direction of a Board Certified Critical Care Intensivist

Rebecca Gooch  
*Rochester Regional Health*, Rebecca.Gooch@rochesterregional.org

Lauren Grip  
*Rochester Regional Health*, Lauren.Grip@rochesterregional.org

Chance Nadritch  
*Rochester Regional Health*, Chance.Nadritch@rochesterregional.org

Kimberly Vent  
*Rochester Regional Health*, Kimberly.Vent@rochesterregional.org

Follow this and additional works at: [https://scholar.rochesterregional.org/nursingresearchday](https://scholar.rochesterregional.org/nursingresearchday)

Part of the [Medical Education Commons](https://scholar.rochesterregional.org/nursingresearchday), and the [Nursing Commons](https://scholar.rochesterregional.org/nursingresearchday)

**Recommended Citation**

Gooch, Rebecca; Grip, Lauren; Nadritch, Chance; and Vent, Kimberly, "Reducing Intubation Time in Adult Cardiothoracic Surgery Patients: A Review of Data under the Direction of a Board Certified Critical Care Intensivist" (2022). *Nursing Research and EBP Day 2022*. 20.  
[https://scholar.rochesterregional.org/nursingresearchday/20](https://scholar.rochesterregional.org/nursingresearchday/20)

This Poster is brought to you for free and open access by the Nursing Research and EBP at RocScholar. It has been accepted for inclusion in Nursing Research and EBP Day 2022 by an authorized administrator of RocScholar. For more information, please contact Lisa.Buda@rochesterregional.org.
Reducing Intubation Time in Adult Cardiothoracic Surgery Patients: A Review of Data Under the Direction of a Board Certified Critical Care Intensivist

Rebecca Gooch, MD, MPH, Lauren Gripp, BSN, CCRN, Chance Nadritch, BSN, CCRN-CSC-CMC, Kimberly Vent, BSN, CCRN
Cardiothoracic ICU, Rochester General Hospital, 1425 Portland Avenue Rochester, NY 14621

Background
- RGH Cardiothoracic ICU (CTICU) cares for patients post cardiac surgery (CABGs, AVR/MVR/TVR, aneurysm repairs)
- Society of Thoracic Surgeons (STS) guidelines set a goal for extubation within 24 hours of cardiac surgery. In 2015 they found that only 9% of patients were being extubated in less than 8 hours and that 65% of patients had at least a 2 day ICU stay. Increasing their overall cost of stay.
- CTICU then set a goal for extubation within 0-6 hours post cardiac surgery while maintaining a new protocol introduced by intensivist and Medical Director Dr. Rebecca Gooch
- The purpose of this study was to prove that the change of practice patterns introduced by a critical care intensivist decreased extubation times resulting in decreased length of ICU stay.

Problem
Prolonged intubation can lead to:
- Increased length of stay in the intensive care unit
- Increased risk of complications
- Increased risk of morbidity and mortality
- Increased cost of stay

Method
- Extubation data was collected from April 2020 – April 2021 prior to the introduction of an intensivist to the CTICU.
- Extubation data was collected from April 2021 – April 2022 following the introduction of an intensivist to the CTICU.
- Barriers of extubation were identified and proved relevant with our patient population.
- Dr. Gooch implemented “FASTHUGS” daily rounding practice.
- Collaboration of intensivist, advanced practice providers, OR staff, Anesthesiologists and bedside RN’s to implement new protocols.

Interventions
- Collected information from staff to find the most applicable barriers of extubation occurring on the unit.
- Three major issues that needed to be addressed; Medications, sedation holidays and anesthesia protocol.
  - Intervention 1: Elimination of Morphine and Midaazolam as sedative agents.
  - Intervention 2: Introduction of Fentanyl combined with Propofol or Precedex.
  - Intervention 3: Sedation awakening trials done regularly.
  - Intervention 4: Greater attention to vent settings specific to patient BSA.
  - Intervention 5: Anesthesiologist to report last paralytic and reversal agent given out of operating room.

Key Results
Data collected on all cardiac surgery patients over 12 months following the introduction of a critical care intensivist:
- Prior to introduction of intensivist: 116/571 patients extubated <6 hrs.
- Overall 14% increase in extubations < 6 hours.
- There were two months with a 25% greater increase.
- There were six months with a 15% greater increase.
- There were eight months with a 10% greater increase.

Conclusion
- Extubation in under 6 hours on the unit without an intensivist occurred in 116/571 patients (20.3%).
- Extubations in under 6 hours with an intensivist occurred in 181/531 patients (34%).
- Over 12 months, under the guidance of an intensivist, along with the implementation of new sedation protocols, early extubation times in the CTICU have increased leading to decreased length of stay, lower cost of stay and lower risk of mortality.

<table>
<thead>
<tr>
<th>Extubations under 6 hours/total cases</th>
<th>April 2020 – April 2021 without intensivist</th>
<th>April 2021 – April 2022 With intensivist</th>
</tr>
</thead>
<tbody>
<tr>
<td>April</td>
<td>7/36 (19%)</td>
<td>8/29 (28%)</td>
</tr>
<tr>
<td>May</td>
<td>10/48 (21%)</td>
<td>16/65 (24%)</td>
</tr>
<tr>
<td>June</td>
<td>11/49 (22%)</td>
<td>18/63 (29%)</td>
</tr>
<tr>
<td>July</td>
<td>11/49 (22%)</td>
<td>19/60 (32%)</td>
</tr>
<tr>
<td>August</td>
<td>10/42 (23%)</td>
<td>20/73 (28%)</td>
</tr>
<tr>
<td>September</td>
<td>12/55 (22%)</td>
<td>11/37 (20%)</td>
</tr>
<tr>
<td>October</td>
<td>12/57 (21%)</td>
<td>15/34 (29%)</td>
</tr>
<tr>
<td>November</td>
<td>4/40 (10%)</td>
<td>13/35 (37%)</td>
</tr>
<tr>
<td>December</td>
<td>11/50 (22%)</td>
<td>8/64 (18%)</td>
</tr>
<tr>
<td>January</td>
<td>8/45 (18%)</td>
<td>12/57 (22%)</td>
</tr>
<tr>
<td>February</td>
<td>7/42 (17%)</td>
<td>10/64 (41%)</td>
</tr>
<tr>
<td>March</td>
<td>13/58 (22%)</td>
<td>22/46 (40%)</td>
</tr>
</tbody>
</table>