Society of Thoracic Surgeons
Adult Cardiac Surgery Database

Quality Improvement Series:
Decreasing Vent Times
Novant Health Presentation

June 21, 2023
Agenda

Welcome and Introductions

ProHealth Presents on Reducing Vent Times

Nancy Honeycutt, BSN, RN
Data Manager Extraordinaire
Novant Health Presbyterian Medical Center
Heart and Vascular Institute
Charlotte, North Carolina
## Important Dates for Adult Cardiac

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Details</th>
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| Jun 21 | • Quality Improvement Series Webinar @ 2pmCT  
• Nancy Honeycutt - Maintaining early extubation rate of 88% over 3 months |
| Jun 29 | • No Webinar |
| Jul 5  | • No Webinar |
| Jul 19 | • STS NDB Quality Improvement Series Webinar @ 2pmCT  
• Diane Alejo – Hopkins Dashboards |
| Aug 2  | • ACSD Monthly Webinar @ 2pmCT  
• STS NDB Quality Improvement Series @ 2pmCT  
• OPEN |
| Aug 16 | • STS NDB Quality Improvement Series @ 2pmCT  
• Harvest 3 Close (OR dates through 6/30/2023)  
• Star rating period |
| Aug 18 | • Opt-out for H3 ends |
| Aug 22 | • |
Harvest 2 is back at IQVIA – Expected Release Mid-July
Early Extubation in Cardiac Surgery

Novant Health Presbyterian Medical Center
Heart and Vascular Institute
Charlotte, North Carolina
Nancy Honeycutt, BSN RN
Our Program

Novant Health is a not for profit four-state integrated network of physician clinics, outpatient centers and 15 hospitals headquartered in North Carolina.

Novant Health Presbyterian Medical Center is 662 bed hospital located in Charlotte, North Carolina and one of 3 hospitals in the Novant Health network performing heart surgery and TVT procedures.

Our program consists of three cardiac surgeons, 6 advanced practice providers, 3 ORs, 6 bed CVICU with ECMO capability, performing around 420 CABG, valve, and aortic surgeries per year and around 188 TVT procedures per year.

- 68% CABG
- 13% Valve
- 7% CABG/Valve
- 12% Aortic/other

33% of cases are transfers from community hospitals.
Past Initiatives

- Optimized respiratory status by including preoperative ABGs and PFTs to establish a pulmonary baseline, consulting pulmonary, as needed.
- Posted bedside reminders for staff including OR exit time and goal extubation time.
Ventilation Times Progress to Date

NHPMC CABG Prolonged Ventilation

NHPMC CABG Early Extubation
First Steps

Multidisciplinary Work Group

• Comprised of anesthesia, surgery and anesthesia APPs, respiratory and nursing leadership, CVICU nurses, and the STS data manager.

• Established a monthly meeting schedule.

• Set a goal of > 65% of patients extubated in 6 hours or less.

• Created a bedside tracking tool to:
  a. Keep focus
  b. Identify barriers
# Extubation Times

<table>
<thead>
<tr>
<th>Patient Sticker</th>
<th>Total intubation time: _______</th>
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<tbody>
<tr>
<td></td>
<td>Rapid Wean/Recovery Candidate</td>
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<td>ERAS</td>
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<td>CVOR exit date &amp; time</td>
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<td>Time reversal given</td>
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<td>Time Propofol off</td>
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<td>Time Precedex off</td>
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<td>Extubation Date &amp; time</td>
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<tr>
<td></td>
<td>Extubated in 6 Hours</td>
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<tr>
<td></td>
<td>Extubated in 24 Hours</td>
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<td>RN: __________________________</td>
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<td>RT: __________________________</td>
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<td>Extubation Criteria Met before or @ 6 Hours</td>
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<td>CVRO/SBT Safety Screen Criteria:</td>
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<td>CT ≤ 2.0</td>
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<td>Temp 36.4</td>
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<td>CT output &lt; 100 ml/hr</td>
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<td>Pt following commands</td>
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<td><strong>If not, why:</strong></td>
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<td>Time RT called</td>
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<td></td>
<td>Time of 1\textsuperscript{st} SBT</td>
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<td>SBT pass/fail</td>
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**SBI Failure Criteria: Patient with 1 or more signs of respiratory distress:**

- HR > 140 beats/min or HR Increase > 25 beats/min x 5 min
- Symptomatic bradycardia < 60 bpm
- RR > 35 x 3 min, or RR < 8, SpO2 < 94%
- ETCO2 > 45 mmHg

**Comments:**

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What We Found

First, we acknowledged we had lost focus – this was KEY.

- There was a knowledge deficit around goals and the CVICU-specific weaning protocol.
- Patients were coming out of surgery too sedated for early weaning.
- Postoperative pain management was inconsistent and sometimes inadequate.
- Patients were not reaching normothermia in a timely manner.
- Unstable hemodynamics, bleeding, acidosis (minimal).
What we Did

• Provided immediate education to include goals and weaning protocol.
• Reminded staff to use warming measures and made equipment readily available.
• Updated the anesthesia plan to allow for timely weaning including the use of regional blocks and the reversal of paralytics prior to CVICU arrival.
• Added non-narcotic pain management options both intraoperatively and postoperatively.
• Standardized the weaning of sedation postoperatively.
Ventilation Times Progress to Goal

NHPMC CABG Early Extubation

- **Vent <=6h**: 65.22% to 68.00%
- **STS Rate 61.60%**
- **Linear (Vent <=6h)**: 34.62% to 47.37%
Ventilation Times Progress to Goal

NHPMC CABG Mean Ventilation Hours

Mean Vent Hours

STS Mean Vent Hours 15.30

Linear (Mean Vent Hours)
Ventilation Times Progress to Goal

NHPMC CABG Prolonged Ventilation

- Vent>24
- STS Rate 6.10%
- Linear (Vent>24)
What we found

Our interventions helped, but we were still not meeting our goal of extubation in 6h or less.

Surgeons and anesthesia then proposed OR extubation.

- Collaborative
- Conservative approach
- Discussion between surgeon and anesthesia at the beginning and end of case
- Anesthesia rounding in CVICU
<table>
<thead>
<tr>
<th>Exclusions for Operating Room Extubation</th>
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<tbody>
<tr>
<td>Circulatory arrest cases</td>
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<tr>
<td>Multi-valve cases</td>
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<td>Most aorta cases</td>
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<td>Mechanical assist device in place</td>
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<td>Low ejection fraction</td>
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<td>Pulmonary hypertension</td>
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</tbody>
</table>
Ventilation Times Progress to Goal

NHPMC CABG Early Extubation

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- Linear (Vent <=6h)
Ventilation Times Progress to Goal

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Ventilation Times Progress to Goal

NHPMC CABG Prolonged Ventilation

- **Vent>24**
- **STS Rate 6.10%**
- **Linear (Vent>24)**
Questions
Thank you for your attention.
Nancy Honeycutt, BSN RN
nnhoneycutt@novanthealth.org
Contact Information

• Carole Krohn, Director, STS National Database
  • CKrohn@sts.org
  • 312-202-5847

• STSDB@sts.org
  • Database Operational Questions (Billing, Contracts, Contacts)

• STSDB_Helpdesk@sts.org
  • IQVIA/Database Platform Questions (Uploader, DQR, Missing Variable, Dashboard, Password and Login)
Open Discussion

- Please use the raise-hand function.
- Please use the Q&A Function.
- We will answer as many questions as possible.
- We encourage your feedback and want to hear from you!