MPOG Cardiac Anesthesia Subcommittee Meeting
February 12, 2021
Agenda

• Welcome & interim updates
• Cardiac dashboard announcement
• Refresher on progress so far
• Literature review for hypothermia avoidance
• Discussion of measure exclusions
• Discussion of measure attribution
• Action items
• 2021 Plans & Goals
• Subcommittee Membership and Future Meeting Schedule
Introductions

• ASPIRE Quality Team
  – Allison Janda, MD – MPOG Cardiac Anesthesia Subcommittee Lead
  – Nirav Shah, MD – MPOG Director of Quality
  – Michael Mathis, MD – MPOG Director of Research
  – Kate Buehler, MSN – Clinical Program Manager

• Cardiac Anesthesiology Representatives joining us from around the US!
Basecamp

• We will be using Basecamp to communicate
• Please accept your Basecamp invitations (sent via email) to stay in the loop
Individual Performance E-mails link to new QI Reporting Tool

Your Performance vs All Other Attendings

- **High Glucose Treated**
  - You, 100% (N = 8)
  - All Other Attendings, 98.3% (N = 241)

- **Low Glucose Treated**
  - N/A You did not encounter this event
  - All Other Attendings, 96.7% (N = 6)

- **Train of Four Taken**
  - All Other Attendings, 92.5% (N = 1,725)
  - You, 93.8% (N = 32)

- **Neostigmine Administered**
  - All Other Attendings, 97.5% (N = 1,898)
  - You, 100% (N = 31)

- **Low Tidal Volume**
  - All Other Attendings, 96.6% (N = 1,244)
  - You, 100% (N = 20)

An asterisk (*) denotes that the difference between your performance and everyone else's was statistically significant.
Cardiac-Specific Reporting Dashboard

Cardiac Anesthesia Dashboard

The following performance metrics show performance for cardiac cases only

October 1, 2019 - August 31, 2020

3,063 Cases
278 Providers

- AKI-01: Acute Kidney Injury
  - 23.8% Cases
  - Threshold ≤ 10%

- BP-02: Avoiding Monitoring Gaps
  - 90% Cases
  - Threshold ≥ 90%

- FLUID-01-C: Minimizing Colloid Use (Cardiac)
  - 84% Cases
  - No threshold

- GLU-01: High Glucose Treated, Intraop
  - 99% Cases
  - Threshold ≥ 90%

- GLU-02: Low Glucose Treated, Intraop
  - 100% Cases
  - Threshold ≥ 90%

- GLU-03: High Glucose Treated, Periop
  - 97% Cases
  - Threshold ≥ 90%

- GLU-04: Low Glucose Treated, Periop
  - 100% Cases
  - Threshold ≥ 90%

- MORT-01: 30 Day Post-Op In-Hospital Mortality
  - 1.6% Cases
  - No threshold
Call for measure survey results overview

• 16 providers completed the survey – Thank you!

• Highest rated measures (no overwhelming consensus)
  #1: Post-bypass hypothermia avoidance (62% listed in the top 3)
  #2: Glucose management (56% listed in the top 3)
  #3: Postoperative AKI avoidance (44% listed in the top 3)
  #4: Hypotension avoidance (44% listed in the top 3)
  #5: Antibiotic timing (38% listed in the top 3)

• FYI: MPOG data capture - measure limitations
  - 4 Hours before Anesthesia Start ☐ 6 hours after Anesthesia End
Post-bypass hypothermia avoidance

• Current TEMP-03 Measure:
  – % of patients, with procedures >60 minutes under GA/neuraxial, with at least one body temperature $\geq 36^\circ$C
  – Excludes cardiac surgeries

• Considerations in new measure development:
  – Threshold?
  – Timing (post-CPB)?
  – Exclusions for specific cardiac cases?
  – Attribution?
Variation data - post-bypass hypothermia avoidance

% of Total Cardiac Cases with Last Temp Above Threshold, 2019

- 35.5-36
- 36.1-36.5
- >36.5
Variation data - post-bypass hypothermia avoidance >35.5 C

- Mean: 85%
- SD: 13%
Variation data - post-bypass hypothermia avoidance >36 C

• Mean: 66%
• SD: 21%
Variation data - post-bypass hypothermia avoidance >36.5 C

- Mean: 35%
- SD: 19%
Variation data - post-bypass hypothermia avoidance >38 C
Hypothermia Avoidance – Literature Review

• Current guidelines and consensus statements:
  – 2020 Updates from the Adult Cardiac Anesthesiology Section of STS ¹
    – Avoidance of temp >37 while on bypass
    – Avoidance of post bypass hypothermia and states that more work is needed to determine the full picture/impact on all organ function but summarizes that hypothermia has been associated with postop. bleeding, surgical site infections, increased hospitalizations and morbidity and also cites ERACS consensus statements and protocols
  – Guidelines for perioperative care in cardiac surgery: enhanced recovery after surgery recommendations ²
    – Avoid >37C for arterial outlet blood temperature while on bypass
    – Avoid hypothermia (defined as <36C) post bypass due to increased bleeding, infection, a prolonged hospital stay, and death

Hypothermia Avoidance – Literature Review

• Current guidelines and consensus statements:
  – STS Practice Guidelines for temperature management while on bypass
    – Avoid >37C for arterial outlet blood temperature while on bypass
  – ERAS cardiac recommendations
    – Avoid >37.9C while on bypass
    – Does not comment on the exact definition of hypothermia, but does state to avoid post-bypass hypothermia and references articles in the cardiac and non-cardiac realms which use a definition of <36C

Hypothermia Avoidance – Literature Review

• Current guidelines and consensus statements:
  – Current non-cardiac hypothermia avoidance MIPS measure
    – MIPS 424, uses 35.5C
  – Current cardiac hyperthermia avoidance Anesthesia Quality Institute measure
    – AQI65, for cerebral hyperthermia avoidance defines hyperthermia as ≥37C while on bypass

Hypothermia Avoidance – Literature Review

• Additional Literature:
  – Retrospective observational study in cardiac patients \(^7\)
    – Persistent hypothermia (<36) in the 1st 24h after surgery was associated with an increased risk of death after cardiac surgery (notably transient hypothermia was not associated with this finding)
  – Retrospective study evaluating the impact of hypothermia on morbidity and mortality after off-pump CAB surgery \(^8\)
    – Patients with either mild or moderate to severe hypothermia had significantly higher risk adjusted mortality, rates of respiratory failure and unplanned operations

Hypothermia Avoidance – Literature Review

• Additional Literature:
  – RCT in non-cardiac surgery patients with cardiac comorbidities
    – Decreased morbid cardiac events and VT with normothermia (temp >36C)
  – Systematic review of the impact of mild perioperative hypothermia on blood loss for non-cardiac surgery
    – Mild hypothermia (<1 degree C) was associated with significantly increased blood loss by approximately 16% (4-26%) and increases the relative risk for transfusion by approximately 22% (3-37%)

Hypothermia Avoidance

• Considerations in new measure development:
  – Threshold
  – Timing
  – Exclusions
  – Attribution
Hypothermia Avoidance

• Considerations in new measure development:
  – Threshold
    – Discussion in basecamp:
      – ≥35.5°C
Hypothermia Avoidance

• Considerations in new measure development:
  – Timing
    – Discussion in basecamp:
      – Last non-artifact temperature documented, if more than one, preferentially use core temperature
Hypothermia Avoidance

• Considerations in new measure development:
  – Exclusions for specific cardiac cases
  – Discussion today
Hypothermia Avoidance - Exclusions

• Limit to open cardiac cases?
  – Exclude EP and TAVRs for example
  – Exclude cases with a short duration (<120 minutes)
  – Exclude cases without an arterial line
  – Exclude sternal debridements (Anesthesia CPT 00550)

• Limit to bypass cases?
  – Exclude off-pump CABGs for example

• Exclude cases requiring circulatory arrest in light of hypothermia contributing to neuroprotection?
  – Exclude Anesthesia CPT 00563 (heart surgery with circulatory arrest)
  – Exclude if a lumbar drain is present
Hypothermia Avoidance

• Considerations in new measure development:
  – Attribution
    – Discussion today
Hypothermia Avoidance - Attribution

• Attending signed in for the most number of minutes following cardiopulmonary bypass end; if cardiopulmonary bypass not used, then attending signed in for the most number of minutes total
  - OR-
• Attending signed in upon transport from OR
  - OR-
• Attending signed in during the minute of the case which yielded the temperature used for the measure
  - OR-
• Additional ideas?
Hypothermia Avoidance – Next Steps

• We will incorporate your feedback and draft a measure specification
• Apply the measure specification to past cases and test functionality
• Circulate the measure specification for approval
• Set up a meeting with SCA-STS leadership once we have a measure specification for them to comment on?
Goals

• Build 1 cardiac-specific measure in 2020/early 2021
  – Post-bypass hypothermia avoidance

• Build 2-3 cardiac-specific measures in 2021
  – Glucose management?
  – On-bypass hyperthermia avoidance?
  – Antibiotic timing?

• More discussion
  – Hypotension avoidance
  – AKI avoidance

• Opportunities for STS-merged outcome reports requires institutions to integrate with STS
Where to start?

• Consult the Surgical Registry page and the FAQ
  – Surgical Registry page: https://mpog.org/surgicalregistries/
  – Surgical Registry FAQ: https://mpog.org/surgicalregistriesfaq/
Cardiac Anesthesia Subcommittee Membership

• Open to all anesthesiologists or those interested in improving cardiothoracic measures
  – Do not have to practice at an active MPOG institution

• Proposed 2020 – 2021 Meeting Schedule
  – Spring 2021 Meeting: April/May, 2021
  – Summer 2021 Meeting: July/August, 2021
  – Fall 2021 Meeting: October/November, 2021
  – Winter, 2022 Meeting: January/February, 2022

• Thank you for using the forum for discussion between meetings!
THANK YOU!

Allison Janda, MD
MPOG Cardiac Anesthesia
QI Subcommittee Lead
ajanda@med.umich.edu