Cardiac Anesthesia Subcommittee Minutes

July 20, 2020

1:00-2:00pm EST

Zoom

X	Danny Muehlschlegel, Brigham and Women's		Eric Davies, Henry Ford Health System
X	Doug Shook, Brigham and Women's		Michael Grant, Johns Hopkins
	Dirk Varelmann, Brigham and Women's	X	Jake Abernathy, Johns Hopkins
	Cantwell Clark, Dartmouth		Amanda Rhee, Mount Sinai
	Ying Low, Dartmouth		Peter Neuburger, NYU Langone
X	Brandi Bottiger, Duke		Brent Luria, NYU Langone
X	Eleanor Vega, Duke		Valerie Sera, OHSU
X	Eric JohnBull, Duke	X	Govind Rangrass, University of Chicago
	Nazish Hasmi, Duke	X	Allison Janda, Michigan Medicine
X	Negmeldeed Mamoun, Duke		Anna Dubovoy, Michigan Medicine
X	Mihai Podgoreanu, Duke	X	Mike Mathis, Michigan Medicine
X	Gaurav Katta, Henry Ford Health System		Ian Gannon, Michigan Medicine
X	Jayakar (Jay) Guruswamy, Henry Ford Health System	X	Thomas (TJ) Krall, University of California- San Francisco
	Srdjan Jelacic, University of Washington	X	Ashanpreet (Ashan) Grewal, University of Maryland
X	Josh Billings, Vanderbilt	X	Nirav Shah, MPOG Associate Director
X	Andrea Reidy, Washington University	X	Kate Buehler, MPOG Clinical Program Manager
X	Yunwei Chen, Washington University	X	Brooke Szymanski, MPOG QI Coordinator
X	Josh Douin, University of Colorado	X	Meridith Bailey,
X	Rob Schonberger, Yale	X	Victoria Lacca, MPOG Administrative Program Manager

1. **Introductions & Background of MPOG/ASPIRE**
    a. Roles within ASPIRE and Roll Call
        i. Nirav Shah, MD – MPOG Director of Quality
        ii. Michael Mathis, MD – MPOG Director of Research
        iii. Kate Buehler, MSN – Clinical Program Manager
        iv. Allison Janda, MD – MPOG Cardiac Anesthesia Subcommittee Lead
        v. Roll call for attendance- see above
    b. MPOG History
        i. Formed in 2008
        ii. >50 hospitals (Academic and private practice)
        iii. 13 million cases

iv. 27 billion physiologic observations to date
v. Dual mission of research and quality improvement

c. Data Collected through MPOG
i. Demographic Information
ii. Preoperative H&P
iii. Medications / Infusions / Fluids / Outputs
iv. Physiologic values/ Laboratory values
v. Intraop events
vi. IV Access
vii. Staff in / out
viii. Professional fee CPT codes
ix. Discharge ICD 9/10 codes
x. Outcome record / Outcome registry

d. MPOG provides a reporting dashboard to assist sites with quality improvement as well as provider feedback emails that are sent monthly to participating sites
i. Some of the ASPIRE measure are pertinent to cardiac cases though not specific to cardiac anesthesia
ii. Individual providers can review their email to identify practice opportunities to improve care

2. Current Status of Cardiac data/measures within MPOG

a. Cardiac cases: 4% of total cases in MPOG registry
i. Total: 194,819 cardiac cases
ii. 146,042 from 1/2014-12/2019
iii. 33,307 from 2018-2019

b. 1 cardiac-specific measure: FLUID-01-C: Minimizing Colloid Use (Cardiac)

c. MPOG offers the option for STS-integration for sites interested:
i. STS-Adult Cardiac Surgical Database (STS-ACSD, aka "STS Cardiac") → 3 sites
ii. STS-General Thoracic Surgical Database (STS-GTSD, "STS Thoracic") → 8 sites
iii. STS-Intemacs (LVAD database) → tentative
iv. More STS-MPOG integrated sites are in the pipeline

d. MPOG Cardiac-related resources: AKI Toolkit- Cardiac section
i. Please send any feedback you may have to: Allison Janda (ajanda@med.umich.edu) and Kate Buehler (kjbucrek@med.umich.edu)

3. 2020-2021 Plans

a. Call for Measure Survey Results
i. 16 providers completed the survey – Thank you!
ii. 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)
iii. FYI: MPOG data capture - measure limitations
1. 4 Hours before Anesthesia Start → 6 hours after Anesthesia End (for hemodynamic and medication administration granular data)
2. Laboratory values are included within 365 days of the procedure
3. What can't we do?
a. Limited outcome data at this point

        b. Unable to provide feedback for STS data as only a few sites have merged STS data at this point
    4. *TJ Krall, UCSF - Is MPOG able to capture bypass start and end times?*
        a. *Allison Janda, MPOG Coordinating Center- Yes, it's not 100% accurate, occasionally arterial line placement may be mis-mapped to bypass cannulation if "arterial cannula inserted" was selected by the in-room provider, for example, so the time may be incorrect for a few cases but overall, data capture for those times is pretty accurate*
        b. *Nirav Shah, MPOG Director of Quality- MPOG uses phenotypes to determine these times based on site mapping to standardized MPOG concepts. A number of MPOG concepts make up the phenotypes to determine specific times or case types. These phenotypes are created and validated using MPOG data.*
        c. *Mike Mathis, MPOG Director of Research – The phenotypes are constructed by using a number of concepts (data fields) to serve as ques or validation that something such as initiating bypass is occurring.*

b. Measure Goals
    i. Discuss viable measure options with current state
        1. Limitations exist within MPOG
    ii. Build 1 cardiac-specific measure in 2020
    iii. Build 2-3 cardiac-specific measures in 2021
    iv. Table those topics requiring more discussion for later
    v. Future potential for STS/INTERMACS-MPOG merged outcome reports

c. Post-bypass hypothermia avoidance
    i. Current TEMP-03 Measure:
        1. Percentage of patients, with procedures >60 minutes under GA/neuraxial, with at least one body temperature ≥ 36^{o}C
        2. Excludes cardiac surgeries
    ii. Considerations in new measure development:
        1. Threshold?
        2. Timing (post-CPB)?
        3. Exclusions for specific cardiac cases (e.g. spinal protection w/ thoracic aortic)?
    iii. Govind Rangrass, University of Chicago- Another consideration in the development would be source of temperature (Swan vs. esophageal vs. skin) Do esophageal temperature from the TEE probe get recorded in some sites buy not others? Blood temperature may be the optimal core temperature…we could also discuss the merits of an absolute cutoff for the measure of 'hypothermia' vs. temporal trends in temp changes
    iv. Rob Schonberger, Yale- Need to make sure we are not encouraging hyperthermia. Would 'normothermia' be a better measure- or perhaps two separate measures?
        1. Mike Mathis, MPOG Coordinating Center - Agrees with Rob. There will be cases where hypothermia is actually helpful (e.g. spinal cord protection for thoracic aortic procedures)
    v. Jake Abernathy, Johns Hopkins- CPOM created an avoidance of hyperthermia measure that will be incorporated soon- could look to that measure for guidance

vi. *Mike Mathis, MPOG Coordinating Center - Some of these issues can be addressed via carefully designed inclusions/exclusions; others addressed via careful risk adjustment (in the case of outcome measures)*
vii. *Brandi Bottiger, Duke- If including all cardiac surgery, might be interesting for the user to assess their performance by case type (e.g. aortic surgery v. CABG v. valve v. LVAD, etc.) instead of excluding*
    1. *Mike Mathis, MPOG Coordinating Center - Agrees with Brandi. To do this, need surgical CPT codes which MPOG does not currently capture for all sites*
viii. *Mihai Podgoreanu, Duke- Is DHCA captured as a procedural phenotype in MPOG?*
    1. *Mike Mathis, MPOG Coordinating Center- Not yet- although could consider doing this, just depends on where we want to focus our effort. To see what phenotypes we currently have developed, can go to MPOG website (mpog.org) – Tools – Phenotype Browser: https://collations.mpogresearch.org/Collations?type=general&query=na*
ix. *Josh Billings, Vanderbilt- Are there data that mild hypothermia post bypass or surgical insult protects organs? Do we know or assume that normothermia is indeed best practice before we make it a goal?*
    1. *Allison Janda, MPOG Coordinating Center- Great point! If we move forward with a measure, needs to evidence to support it and want to make sure whatever measures we endorse that it is practice we want to support.*

d. Glucose Management
    i. Current GLU-01 Measure:
        1. Percentage of cases with perioperative glucose > 200 mg/dL with administration of insulin or glucose recheck within 90 minutes of original glucose measurement
    ii. Considerations:
        1. Lower glucose threshold?
        2. Set a shorter threshold for rechecks?
        3. Initiation of an insulin infusion or treatment requirement?
    iii. *Gaurav Katta, Henry Ford Health System - Is the current GLU 01 measure recheck or treatment? Is the requirement to simply recheck within 90 minutes not necessarily treat?*
        1. *Nirav Shah, ASPIRE Director- That is correct. For cardiac, could modify this measure to consider treatment alone if determine appropriate by this committee.*
e. Antibiotic Timing
    i. Current ABX-01 Measure:
        1. % of cesarean deliveries with documentation of antibiotic administration initiated within one hour before surgical incision
        2. Currently only applies to cesarean deliveries
    ii. Considerations:
        1. Timing?
        2. Type of antibiotics?
f. Hypotension and AKI Avoidance
    i. Hypotension avoidance considerations:
        1. BP threshold?

2. Varying thresholds for on pump or off?
3. Couple with evidence of malperfusion (e.g. rising lactate?)
4. Excluding specific types of cardiac cases is challenging without consistent contribution of surgical CPTs

ii. AKI avoidance considerations:
1. Current AKI-01 still includes cardiac cases
2. Change the threshold for flagged cases?
3. STS and KDIGO definitions are inconsistent

g. ASPIRE Opioid Dashboard: Is this of interest to the cardiac subcommittee?

h. Recommendations
i. Build 1 cardiac-specific measure in 2020
1. Glucose management?
2. Post-bypass hypothermia avoidance?
3. Antibiotic timing?
4. Where to start? Glucose management or temperature management?
a. Ashanpreet (Ashan) Grewal, University of Maryland - glucose management may be the lowest hanging fruit
i. Gaurav Katta, - I agree. I think glucose management would be better since there is likely more variability between providers, it already has an MPOG framework, and it is mostly affected by the anesthesia provider. Post-bypass hypothermia is affected by multiple providers (e.g. when perfusion and cardiac surgery decide to separate from bypass). Not that we shouldn't tackle that and it's an excellent measure, but glucose would in my opinion be easier to tackle due to anesthesia involvement/ownership.
b. Danny Muehlschlegel, Brigham and Women's - Vote for temp management
c. Jake Abernathy, Johns Hopkins- Which measure has more variation with the general ASPIRE population? Perhaps pulling some initial data to assess where the variation lies may help us determine which measure to start with. CPOM has built measures in the past that are topped out as soon as they're rolled out due to no variation in performance. Would be nice to avoid that if possible.
i. Rob Schonberger, Yale- Fantastic point! The areas of large variability overlapping with strong evidence should be the focus.
ii. Mike Mathis, MPOG Coordinating Center – Would agree with this approach
iii. TJ Krall, UCSF - Would be useful information
d. Yunwei Chen, Washington University- Glucose management may be easier as there's already a framework in MPOG
e. TJ Krall, UCSF - No particularly strong opinion but also feel that a purely on-bypass hypotension avoidance would be reasonable to tackle. Pre- and post- bypass hypotension avoidance would be more challenging, but there seems to be a lot of variability in the bypass MAP goal

f. *Ashanpreet (Ashan) Grewal, University of Maryland – If CABG data is easier to isolate, then we can start by focusing on those specific cases*
    i. *Andrea Reidy, Washington University - Not doing many isolated CABGs at our center*

ii. Build 2-3 cardiac-specific measures in 2021
    1. Glucose management?
    2. Post-bypass hypothermia avoidance?
    3. Antibiotic timing?

iii. More discussion
    1. Hypotension avoidance
    2. AKI avoidance
        a. *Josh Douin, University of Colorado- Since MPOG data is the most granular to only 6 hours postop, how are we capturing patients with AKI on postop day 2 or 3? Do we have lab data which could be used to satisfy KDIGO criteria?*
            i. *Mike Mathis, MPOG Coordinating Center- Labs are captured 365 days before and after surgery, so should be able to get these POD #2 or 3 for AKI. We don't have ICU flowsheet data post 6 hours however, so hard to capture urine output or RRT. Although again, STS-cardiac integration could capture these components of an AKI outcome.*

iv. Opportunities for STS-merged outcome reports → requires institutions to integrate with STS
    1. Please reach out to Mike Mathis (mathism@med.umich.edu) and Allison Janda (ajanda@med.umich.edu) if you're interested merging MPOG and STS at your institution; we're happy to help.

4. Subcommittee membership and meeting schedule

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

b. Basecamp forum: best format for communication between members?
    i. Yes, the group agreed that Basecamp would work great.

c. How often should this group meet?
    i. Need help with measure build questions and the approval process
    ii. Decided to meet quarterly with intermittent electronic communications via Basecamp in between

d. Proposed 2020 – 2021 Meeting Schedule
    i. Summer 2020 Meeting: July 20, 2020
    ii. Fall 2020 Meeting: October/November, 2020
    iii. Winter 2021 Meeting: January, 2021
    iv. Spring 2021 Meeting: April, 2021

e. *Doug Shook, BWH- Agree this meeting schedule seems appropriate and Basecamp is great for continued conversation between meetings. Is the goal to provide this measure feedback directly to the providers or will they remain at the department level?*
    i. *Allison Janda, MPOG Coordinating Center- Initially will roll-out to department first to confirm results are valid and then ultimately offer for all providers to access via provider feedback emails and dashboards.*

Meeting adjourned at 1400