



**MPOG Cardiac Anesthesia Subcommittee Meeting
September 30th, 2024**

Agenda

- Introduction & announcements
- Transfusion measure cardiac inclusion updates ([TRAN-01](#)/[TRAN-02](#))
- ABX-03-C Update
- New Measures: AKI-02-C, ABX-04-C, & ABX-05-C
- CONTRACTION-CS Study: Inotrope barriers/facilitators to use in cardiac surgery
- New Measure Brainstorming
- Summary and next steps

Introductions

- **ASPIRE Quality Team**

- **Allison Janda, MD** – MPOG Cardiac Anesthesia Subcommittee Lead
- **Michael Mathis, MD** – MPOG Director of Research
- **Kate Buehler, MS, RN** – Clinical Program Manager

- Cardiac Anesthesiology Representatives joining us from around the US!







Measure Review Process

- Review literature for given measure topic and provide review using [MPOG Measure Review Template](#)
- Present review of literature and recommendations at Cardiac Subcommittee meetings
- Reviewers names will be added to measure specifications as well as [MPOG Measure Reviewer website](#)

Measure Reviewers

MPOG Measure Reviewers are clinical and quality improvement experts that critique our QI Measures. They review the best available evidence and current standards of care to ensure that our measures stay relevant.

Please [select this link](#) for additional detail on our measure review process.

 <p>Sharon Abramovitz MD Associate Professor of Anesthesiology Weill Cornell</p> <p>GA-01-OB – General Anesthesia During Cesarean Deliveries GA-02-OB – General Anesthesia after Neuraxial in Cesarean Deliveries</p>	 <p>Michael Andrewes, MD Program Director, Adult Cardiothoracic Anesthesiology Fellowship Massachusetts General Hospital</p> <p>CARD 02 – Myocardial Infarction CARD 03 – Myocardial Infarction, High Risk Patients</p>	 <p>Dan Biggs, MD Associate Professor of Anesthesiology University of Oklahoma</p> <p>BP-04-OB – SBP < 90 in Cesarean Deliveries</p>
 <p>Alex Bouwhuis, MD Anesthesiologist Holland Hospital</p> <p>TOC 01 – Intraoperative Transfer of Care</p>	 <p>Mike Burns, MD Clinical Assistant Professor of Anesthesiology University of Michigan</p> <p>OME – Opioid Equivalency</p>	 <p>Sunny Chiao, MD Assistant Professor of Anesthesiology University of Virginia</p> <p>TEMP 01 – Thermoregulation Vigilance – Active Warming</p>

Upcoming Cardiac-Focused Measure Reviews

Measure	Review Date	Reviewers
TEMP-06-C: Hypothermia Avoidance	February 2025	Mariya Geube, Cleveland Clinic
TEMP-07-C: Hyperthermia Avoidance	February 2025	Ashan Grewal, UMaryland
GLU-06-C: Hyperglycemia Management	June 2026	Josh Billings, Vanderbilt
GLU-07-C: Hypoglycemia Management	June 2026	Rob Schonberger, Yale
GLU-08-C: Hyperglycemia Treatment	June 2026	Josh Billings, Vanderbilt

Thank you in advance for ensuring MPOG Cardiac-specific measures remain relevant & consistent with published recommendations!

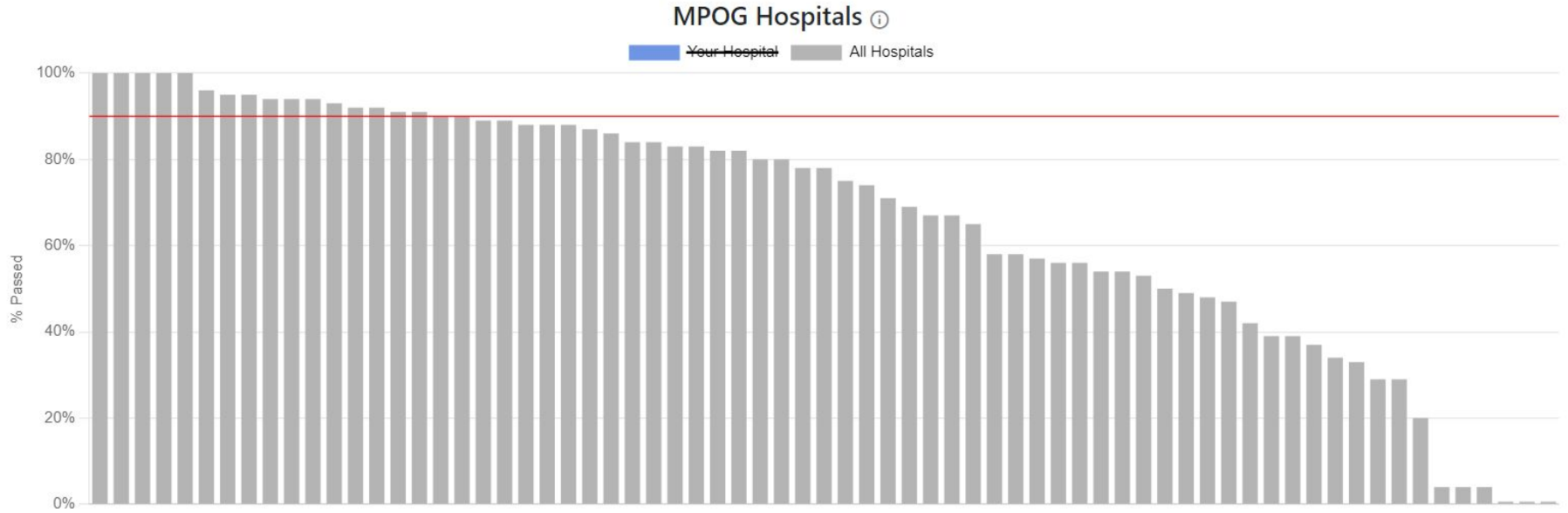
Contact Allison with any questions: ajanda@med.umich.edu

Dissemination of Anonymized Performance Data

Background

- At the 9/23 meeting, Quality Committee voted to approve sharing anonymized multicenter data with AQI.
- Anesthesiology Quality Institute (AQI) had requested approval to receive screenshots from MPOG to show variation in care for antibiotic redosing in cardiac surgery (ABX-03-C)
- AQI may submit the following screenshot (next slide) to CMS as part of their QCDR measure submission
- Demonstrating variation in care could help the AQI measures obtain approval as QCDR measures

ABX-03-C Performance



Transfusion Measure Cardiac Inclusion Update

Background

- Transfusion measures were due for review in May 2024.
- Measure reviews performed by assigned Quality Champions & Coordinating Center and presented to Quality Committee
 - Jacek Cywinski, MD (Cleveland Clinic) Transfusion Management Vigilance measure review: [TRAN-01](#)
 - Linda Liu, MD (UCSF) Overtransfusion measure review: [TRAN-02](#)
- Quality Committee requested Cardiac Subcommittee review transfusion measure exclusion of cardiac cases and determine if:
 - Only open cardiac cases should be excluded rather than all cardiac cases or,
 - Would separate measure(s) for patient blood management in the cardiac population be appropriate?

TRAN-01: Transfusion Management Vigilance

TRAN-01: Percentage of adult patients receiving a blood transfusion with documented hemoglobin or hematocrit value prior to administration.

- Exclusions:
 - Age <18 years
 - ASA 5 & 6
 - Postpartum hemorrhage cases
 - Massive blood loss with EBL \geq 2000mL and/or 4 or more units of blood transfused
 - Labor Epidurals
 - Burn Cases
 - Cardiac Cases
- Success: Documentation of hemoglobin or hematocrit within 90 minutes prior to transfusion*

*See spec for exceptions.

TRAN-02: Overtransfusion

TRAN-02: Percentage of adult patients with a post transfusion hemoglobin or hematocrit value greater than or equal to 10 g/dL or 30%.

- Exclusions:
 - Age < 18 years
 - ASA 5 & 6
 - Postpartum hemorrhage cases
 - Massive blood loss with EBL \geq 2000mL and/or 4 or more units of blood transfused
 - Labor epidurals
 - Burn cases
 - Cardiac cases
- Success: Hematocrit value documented as \leq 30% and/or hemoglobin as \leq 10 g/dL or,
No hematocrit or hemoglobin checked within 18 hours of Anesthesia End

Update

- Cardiac cases are now included in TRAN-01 and TRAN-02
- “Ignore” autologous blood transfusion for cardiac cases - cases with only autologous units administered are excluded.
- Scores for most sites increased modestly. A few sites had a decrease in performance scores for both measures, based on site cardiac transfusion practices.

ABX-03-C Update

ABX-03-C: Antibiotic Re-dosing, Open Cardiac Procedures

- **Description:**

- Percentage of adult patients undergoing open cardiac surgery with an appropriate antibiotic administered for surgical site infection prophylaxis.

- **Timing:**

- 120 minutes prior to Anesthesia Start through Anesthesia End

- **Attribution:**

- All anesthesia providers signed in at the time of Anesthesia Start Time

- **Change: the following antibiotics are now excluded from the measure due to varying half-lives**

- **Ceftriaxone, Cefotetan, Cefoxitin**

Acute Kidney Injury - Open Cardiac Surgery

AKI-02-C: Acute Kidney Injury in patients undergoing Open Cardiac Surgery

Description: Percentage of patients undergoing an open cardiac procedure with a baseline creatinine increase of more than 1.5 times within 7 postoperative days or the baseline creatinine level increases by ≥ 0.3 mg/dL within 48 hours postoperatively.

Inclusion: Adult patients undergoing open cardiac surgical procedures (determined by Procedure Type: Cardiac value code: 1)

Success:

1. The creatinine level does not go above 1.5x the baseline creatinine within 7 days post-op
2. The creatinine level does not increase by ≥ 0.3 mg/dL obtained within 48 hours after anesthesia end.

AKI-02-C: Acute Kidney Injury in patients undergoing Open Cardiac Surgery

Exclusions:

- ASA 6 (including CPT:01990)
- Cases where a baseline creatinine is not available within 60 days preoperatively
- Cases where a creatinine lab is not available within 7 postoperative days.
- Patients with more than one case in a 7-day period. The first case will be excluded if a postop creatinine is not documented for that first case. For example, a patient that has surgery twice in a 7-day period, the first surgery is excluded if a creatinine is not drawn in between cases
- Patients with pre-existing renal (stage 4 or 5) failure based upon BSA-Indexed EGFR < 30 mL/min/1.73m² determined by Preop EGFR (most recent) or MPOG Complication - Acute Kidney Injury value code -2.
- Open cardiac procedures performed in conjunction with procedures affecting the kidney, bladder, or ureter (specific anesthesia and surgical CPT codes).

Antibiotic Selection Measure

ABX-04 Antibiotic Selection for Open Cardiac Procedures

- **Description:**

- Percentage of adult patients undergoing open cardiac surgery with the recommended antibiotic agents administered for surgical site infection prophylaxis.

- **Timing:**

- 120 minutes prior to Anesthesia Start through Anesthesia End

- **Attribution:**

- All anesthesia providers signed in at the time of Anesthesia Start Time

ABX-04 Antibiotic Selection Considerations

- **Inclusions:**

- Adult patients undergoing open cardiac surgical procedures

- **Exclusions:**

- Age < 18 years
- ASA 6 including Organ Procurement
- Patients already on scheduled antibiotics or had a documented infection prior to surgery, as determined by “Patient on Scheduled Antibiotics/Documented Infection” (value: 2) of the [ABX Notes Phenotype](#)
- Non-cardiac, Transcatheter/Endovascular, EP/Cath groups and Other Cardiac cases as determined by the [Procedure Type: Cardiac](#) phenotype
- Lung Transplant cases as determined by the [Procedure Type: Lung Transplant](#) phenotype

ABX-04 Antibiotic Selection Considerations

- **Acceptable antibiotic combinations for Open Cardiac Procedures:**
 - Vancomycin + Cephalosporin
 - Vancomycin + Aminoglycoside
 - Vancomycin Only
 - Cephalosporin Only

ABX-04 Antibiotic Selection Considerations

- **Cases will be assigned one of the following result reasons:**
 - Passed - Vancomycin + Cephalosporin
 - Passed - Vancomycin + Aminoglycoside
 - Passed - Vancomycin Only
 - Passed - Cephalosporin Only
 - Flagged - Non-standard antibiotic selection
 - Flagged - Prophylactic antibiotic not administered (Not documented in MAR)
 - Flagged - Antibiotic not ordered/indicated per surgeon
 - Flagged - Not administered for medical reasons
 - Excluded - Scheduled antibiotics/documentated infection

ABX-05 Composite Antibiotic Compliance for Open Cardiac

- **Description:**

- Percentage of adult patients undergoing open cardiac surgery with appropriate antibiotic selection, timing, and re-dosing administered for surgical site infection prophylaxis.

- **Timing:**

- 120 minutes prior to Anesthesia Start Time through Anesthesia End Time

- **Attribution:** Departmental Only

- Case level attribution, viewable on the dashboard at the case level, not provided to individual clinicians

- **Success:**

- Case must pass all 3 antibiotic prophylaxis for open cardiac procedure measures
 - ABX-02-C / ABX-03-C / ABX-04-C

ABX-05 Composite Antibiotic Compliance Considerations

- **Inclusions:**

- Adult patients undergoing open cardiac surgical procedures

- **Exclusions:**

- Age < 18 years
- ASA 6 including Organ Procurement
- Patients already on scheduled antibiotics or had a documented infection prior to surgery, as determined by “Patient on Scheduled Antibiotics/Documented Infection” (value: 2) of the [ABX Notes Phenotype](#)
- Non-cardiac, Transcatheter/Endovascular, EP/Cath groups and Other Cardiac cases as determined by the [Procedure Type: Cardiac](#) phenotype
- Lung Transplant cases as determined by the [Procedure Type: Lung Transplant Phenotype](#)

ABX-05-C - Other Measure Build Details

- **Cases will be assigned one of the following result reasons:**
 - Passed - Antibiotic Prophylaxis Standards Met
 - Flagged - Timing, Re-dosing, & Selection Not Met (ABX-02-C, ABX-03-C, & ABX-04-C flagged)
 - Flagged - Timing & Selection Not Met (ABX-02-C & ABX-04-C flagged)
 - Flagged - Re-dosing & Selection Not Met (ABX-03-C & ABX-04-C flagged)
 - Flagged - Timing & Re-dosing Not Met (ABX-02-C & ABX-03-C flagged)
 - Flagged - Antibiotic not administered on time (ABX-02-C flagged)
 - Flagged - Antibiotic not appropriately re-dosed (ABX-03-C flagged)
 - Flagged - Non-standard antibiotics selection (ABX-04-C flagged)
 - Excluded - Scheduled antibiotics/documentated infection

COmparing iNoTRope prACTice variaTION in Cardiac Surgery (CONTRACTION-CS)



The Problem

Cardiac inotropes have tradeoffs impacting complications after cardiac surgery, yet current evidence fails to capture the nuanced clinical contexts in which they are harmful versus helpful.

The Big Questions

- What factors currently drive inotrope decision-making?
- What are barriers and facilitators to inotrope practice change?
- Can we use integrated health data to better estimate context-specific causal effects of inotropes on outcomes?

Specific Aims



Cardiac
Surgery
Patient

Aim 1
Identify
Phenotypes
Associated
with
Inotrope Use



MPOG Database

- >40 US academic and community hospitals
- Granular inotrope choice / timing data & validated covariates

STS Database

- 100% US hospital capture, enabling MPOG sample weighting to reflect US practice

Aim 2
Characterize
and Quantify
Local Barriers
to Inotrope
Use



Interview Data

- 30 clinicians across 6 institutions
- Characterization of themes driving inotrope use

Survey Data

- 1,000-1,500 clinicians across 12 institutions
- Quantify local barriers/facilitators to inotrope use

Complication

Recovery

Aim 3
Estimate Context-
Specific Causal
Effects of Inotropes



Integrated MPOG-STS Database

- >25,000 data points per patient
- Precise characterizations of inotrope use, patient-centered outcomes, and confounders

Next Measure Discussion:

Previous suggested topics include:

- Antibiotic selection and timing **Complete!** (ABX-04-C and ABX-02-C)
- Neuromuscular blockade reversal
- Pulmonary complication avoidance
- Hypotension avoidance
- Acute kidney injury avoidance **Complete!** (AKI-02-C)
- Handoffs
- Transfusion **Update** - added cardiac cases to TRAN-01/TRAN-02
- Other ideas?

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
- Upcoming Meetings
 - December 2024 (unblinded data review)
 - February 2025
 - June 2025
 - November 2025
- Thank you for using the [forum](#) for discussion between meetings

Summary/Next Steps

- Cardiac cases are now included in TRAN-01 and TRAN-02 measures
- Cefoxitin, Cefotetan, and Ceftriaxone are now excluded from the ABX-03-C measure
- New measures released!:
 - [AKI-02-C](#): Acute Kidney Injury, Open Cardiac
 - ABX-04-C: Antibiotic Selection for Open Cardiac Procedures
 - ABX-05-C: Composite Measure: Antibiotic Compliance for Open Cardiac Procedures
- CONTRACTION-CS Study
- New measure discussion - next steps
- Please register for the unblinded review of ABX-02-C, ABX-03-C, ABX-04-C, ABX-05-C, and AKI-02-C measures for our December Subcommittee meeting
- Next Meeting:
 - TBD, December 2024

Thank you!

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