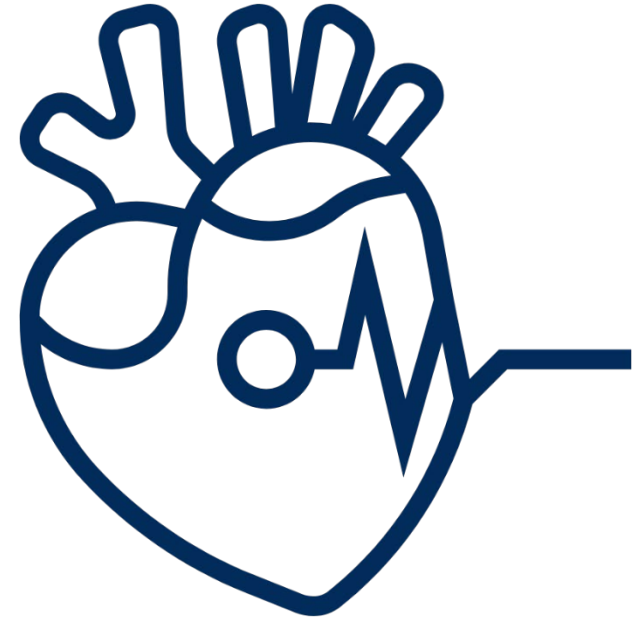




**MPOG Cardiac Anesthesia Subcommittee Meeting**  
**July 20, 2020**

# Agenda

- Introductions & Background of MPOG/ASPIRE
- Current Status of Cardiac Data/Measures
- 2020-21 Plans
  - Measure Goals
  - Call for Measure Survey Results
- Subcommittee Membership and Meeting Schedule

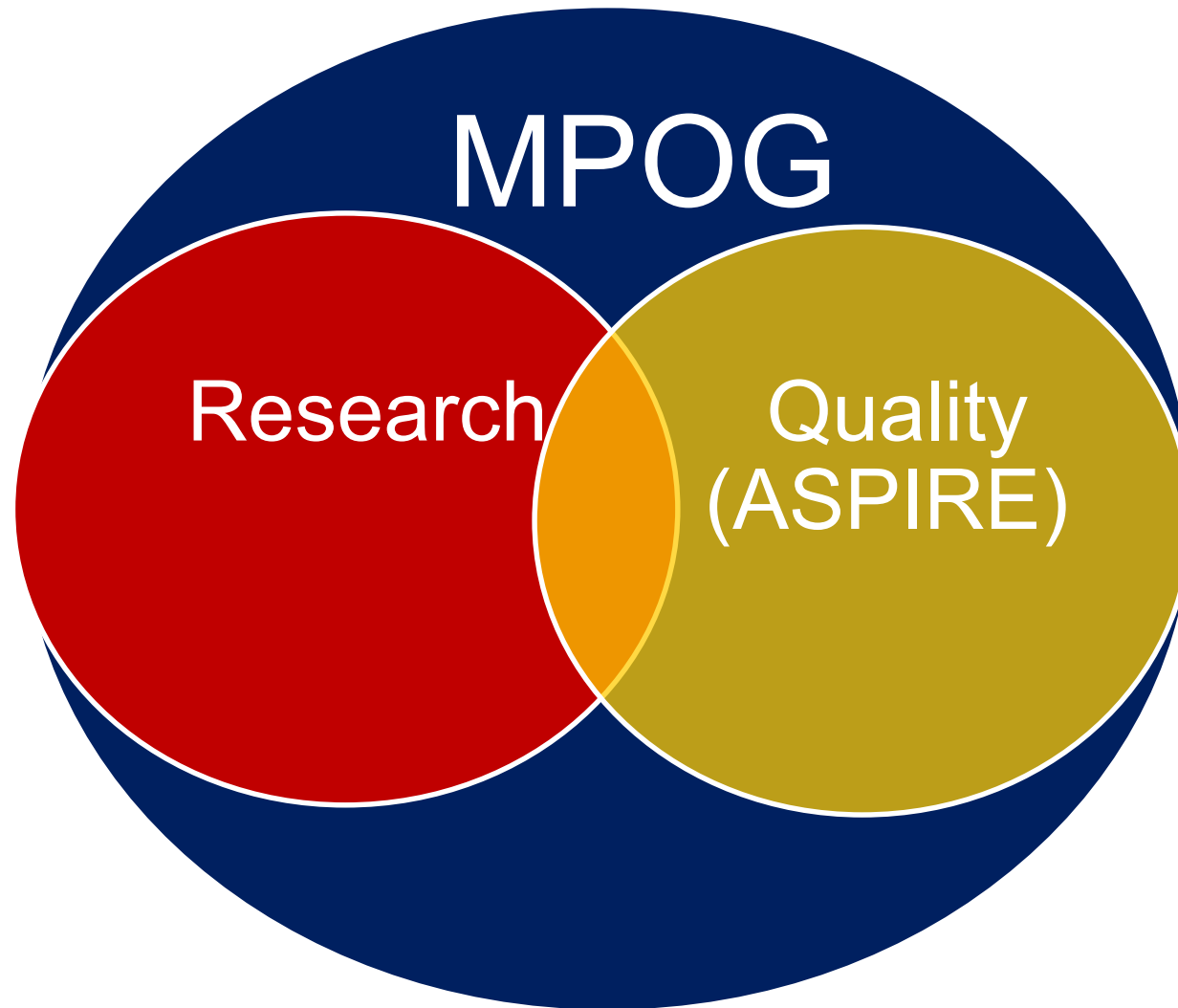


# Introductions

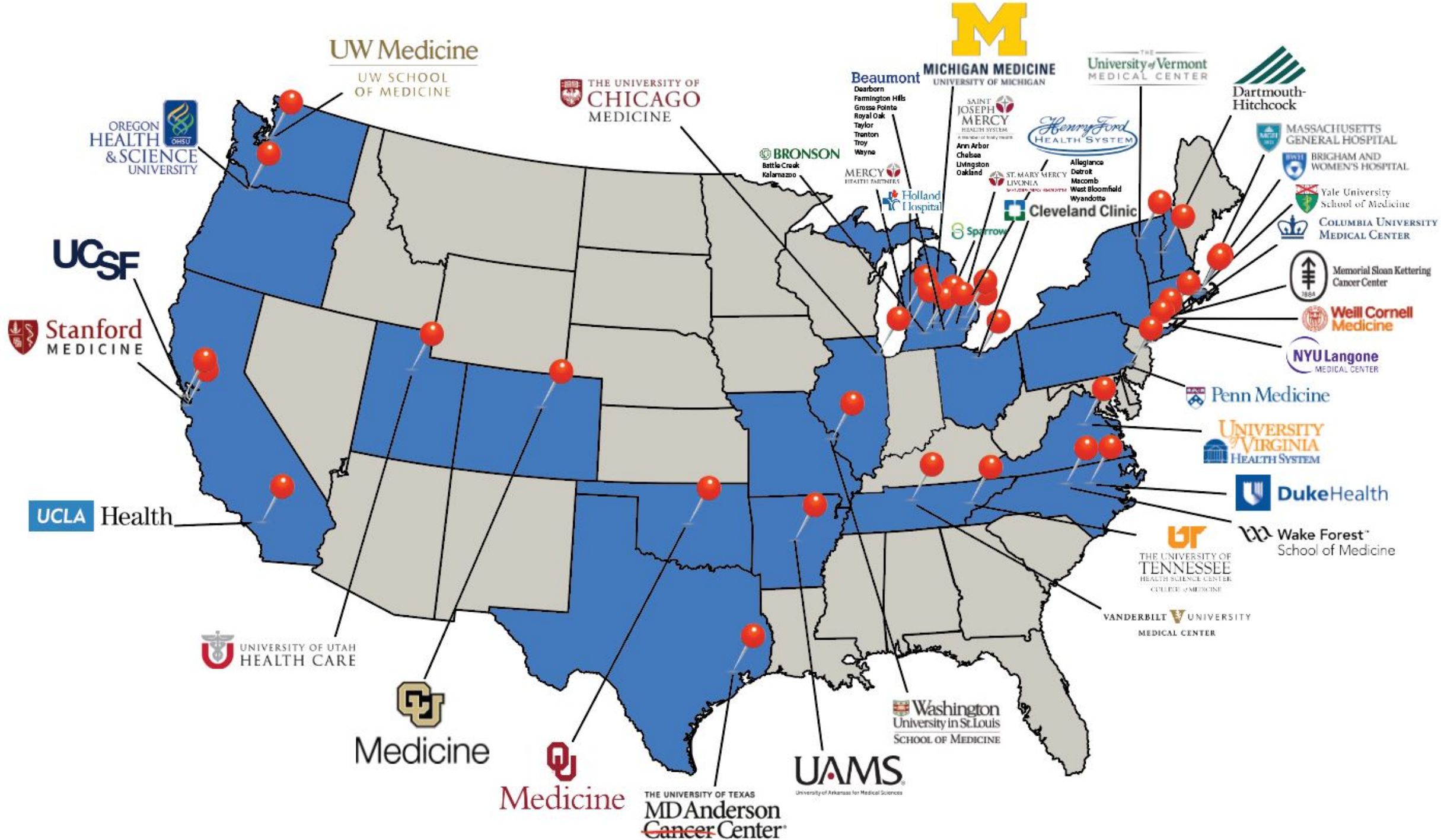
- **ASPIRE Quality Team**
  - **Nirav Shah, MD** – MPOG Director of Quality
  - **Michael Mathis, MD** – MPOG Director of Research
  - **Kate Buehler, MSN** – Clinical Program Manager
  - **Allison Janda, MD** – MPOG Cardiac Anesthesia Subcommittee Lead
- Cardiac Anesthesiology Representatives joining us from around the US!
- Roll Call

Brigham and Women's Hospital
Dartmouth
Duke
Henry Ford Health System
Johns Hopkins
Mount Sinai
NYU Langone
OHSU
University of California San Francisco
University of Chicago
University of Colorado
University of Maryland
University of Michigan
University of Washington
Vanderbilt
Washington University St. Louis
Yale

# What is MPOG?



- Formed in 2008
- >50 hospitals (academic & private practice)
- 13 million cases
- 27 billion physiologic observations
- Dual mission of Research & Quality Improvement



# What we have achieved so far

- Demographic Information
- Preoperative H&P
- Medications / Infusions / Fluids / Outputs
- Physiologic values/ Laboratory values
- Intraop events
- IV Access
- Staff in / out
- Professional fee CPT codes
- Discharge ICD 9/10 codes
- Outcome record / Outcome registry

51 institutions, 5 EHR vendors

~13 million cases extracted, mapped, de-identified, and available for QI and research

~190 million medication doses

27 billion physiologic observations

# Reporting Dashboard

- Overview
- Neuromuscular Monitoring
  - NMB-01
  - NMB-02
- Glucose Management
  - GLU-01
  - GLU-02
- Transfusion Management
  - TRAN-01
  - TRAN-02
- Blood Pressure
  - BP-01
  - BP-02
- Pulmonary
  - PUL-01
  - PUL-02
- Medication Overdose
  - MED-01
- Fluids
  - FLUID-01-NC
  - FLUID-01-C
- Normothermia
  - TEMP-01
  - TEMP-02
  - TEMP-03
- Avoiding MI
  - CARD-01
- AKI
  - AKI-01
- Transfer of Care
  - TOC-02
- PONV
  - PONV-01

## Neuromuscular Monitoring

NMB-01  
✓ 98% Target 90%

NMB-02  
✓ 99% Target 90%

## Glucose Management

GLU-01  
✓ 97% Target 90%

GLU-02  
✓ 93% Target 90%

## Transfusion Management

TRAN-01  
✗ 82% Target 90%

TRAN-02  
✓ 91% Target 90%

## Blood Pressure

BP-01  
✓ 99% Target 90%

BP-02  
✓ 93% Target 90%

## Pulmonary

PUL-01  
✓ 98% Target 90%

PUL-02  
✗ 78% Target 90%

## Fluids

FLUID-01-NC  
i 99%

FLUID-01-C  
i 84%

## Medication Overdose

MED-01  
✓ 100% Target 95%

## Normothermia

TEMP-01  
✗ 90% Target 90%

TEMP-02  
✗ 86% Target 90%

TEMP-03  
✓ 99% Target 90%

## Avoiding MI

CARD-01  
✓ 100% Target 95%

## AKI

AKI-01  
✓ 94% Target 90%

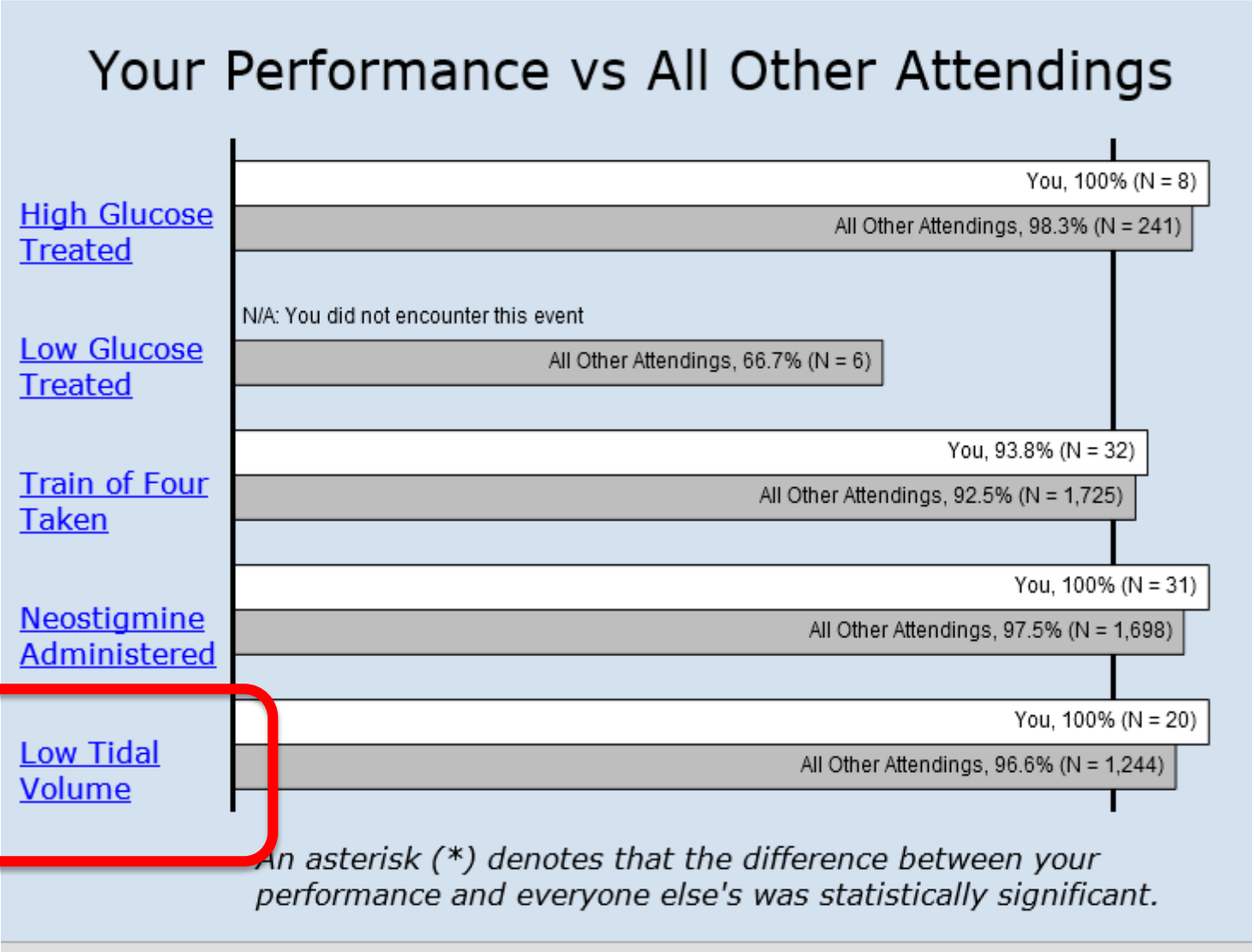
## Transfer of Care

TOC-02  
✓ 96% Target 90%

## PONV

PONV-01  
✗ 82% Target 90%

# Individual Performance E-mail





## Cardiac Measures – Current State

- 4% of total cases in MPOG Registry
- 1 Cardiac-specific measure
  - FLUID-01-C: Minimizing Colloid Use (Cardiac)
- STS Integration
  - STS-Adult Cardiac Surgical Database (STS-ACSD, aka “STS Cardiac”) → 3 sites
  - STS-General Thoracic Surgical Database (STS-GTSD, “STS Thoracic”) → 8 sites
  - STS-Intemacs (LVAD database) → tentative
- More STS-MPOG integrated sites are in the pipeline!

Date Range	Case Count
Total	<b>194,819</b>
1/2014- 12/2019 (recent 5 years)	146,042
2018 – 2019 (last year)	33,307

# Cardiac-Related Resources

- AKI Toolkit
  - Includes 6 tools
  - One is cardiac-specific
- Feedback?

The screenshot shows the MPOG (Multicenter Perioperative Outcomes Group) website. The header includes the MPOG logo, navigation links (About, Join, Research, Quality, Tools, Downloads, Events / News), and buttons for Dashboard Login and Dashboard Beta. The main content area features four resource cards, each with an image, a title, a description of ASPIRE measures addressed, and a 'Click Here' button. The 'Acute Kidney Injury' card is highlighted with a red border and a green 'NEW' tag.

Resource Title	ASPIRE Measures Addressed
Acute Respiratory Complications	PUL 01, NMB 01 & 02
Perioperative Transfusion Stewardship	TRAN 01 & 02
Surgical Site Infection	TEMP 01, 02, 03 & GLU 01
Acute Kidney Injury	AKI 01

# Call for Measure Survey Results

- 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
  - What can't we do?

# Goals for Measure Development

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

# Post-bypass hypothermia avoidance

- Current TEMP-03 Measure:
  - % of patients, with procedures >60 minutes under GA/neuraxial, with at least one body temperature  $\geq 36^{\circ}\text{C}$
  - Excludes cardiac surgeries
- Considerations in new measure development:
  - Threshold?
  - Timing (post-CPB)?
  - Exclusions for specific cardiac cases (e.g. spinal protection w/ thoracic aortic)?



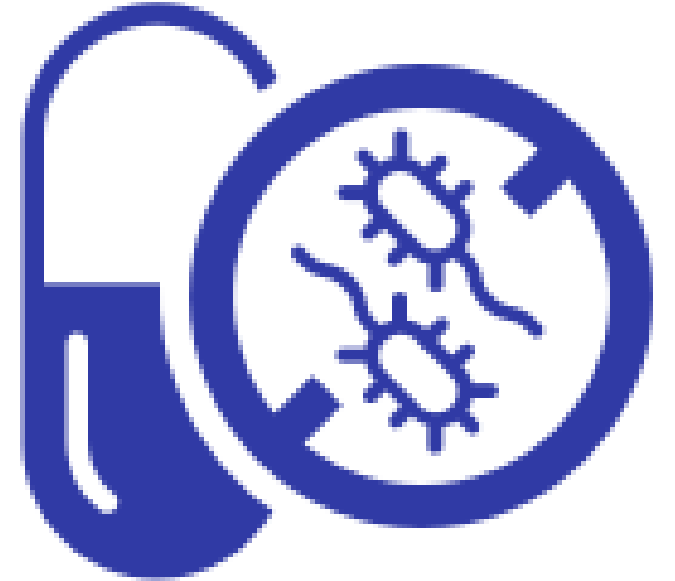
# Glucose Management

- Current GLU-01 Measure:
  - % of cases with perioperative glucose  $> 200$  mg/dL with administration of insulin or glucose recheck within 90 minutes of original glucose measurement
- Considerations:
  - Lower glucose threshold?
  - Set a shorter threshold for rechecks?
  - Initiation of an insulin infusion or treatment requirement?



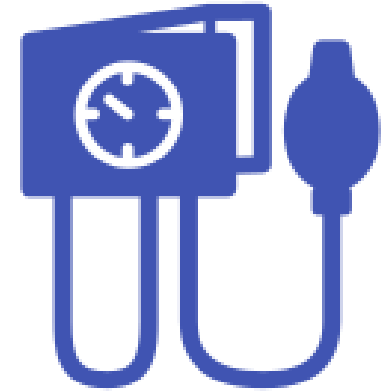
# Antibiotic timing

- Current ABX-01 Measure:
  - % of cesarean deliveries with documentation of antibiotic administration initiated within one hour before surgical incision
  - Currently only applies to cesarean deliveries
- Considerations:
  - Timing?
  - Type of antibiotics?



# Hypotension and AKI avoidance

- Hypotension avoidance considerations:
  - BP threshold?
  - Varying thresholds for on pump or off?
  - Couple with evidence of malperfusion (e.g. rising lactate?)
  - Excluding specific types of cardiac cases is challenging without consistent contribution of surgical CPTs
- AKI avoidance considerations:
  - Current AKI-01 still includes cardiac cases
  - Change the threshold for flagged cases?
  - STS and KDIGO definitions are inconsistent





# ASPIRE Opioid Dashboard

- Is this of interest to the cardiac subcommittee?

## CARDIAC

Average administration: Based on a 6.7 hour case and 70kg patient (mg morphine IV)

76 Average (all sites) 77

## SPINE

Average administration: Based on a 3.3 hour case and 70kg patient (mg morphine IV)

15 Average (all sites) 20

## UPPER ABDOMEN

Average administration: Based on a 3.1 hour case and 70kg patient (mg morphine IV)

21 Average (all sites) 22

## LOWER ABDOMEN

Average administration: Based on a 2.7 hour case and 70kg patient (mg morphine IV)

18 Average (all sites) 20

## HYSTERECTOMY

Average administration: Based on a 3.7 hour case and 70kg patient (mg morphine IV)

23 Average (all sites) 23

## KNEE/POPLITEAL

Average administration: Based on a 2.5 hour case and 70kg patient (mg morphine IV)

7 Average (all sites) 10

## HIP

Average administration: Based on a 2.5 hour case and 70kg patient (mg morphine IV)

8 Average (all sites) 12

# Recommendation

- Build 1 cardiac-specific measure in 2020
  - Glucose management?
  - Post-bypass hypothermia avoidance?
  - Antibiotic timing?
- Build 2-3 cardiac-specific measures in 2021
  - Glucose management?
  - Post-bypass hypothermia avoidance?
  - Antibiotic timing?
- More discussion
  - Hypotension avoidance
  - AKI avoidance
- Opportunities for STS-merged outcome reports → requires institutions to integrate with STS

# 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
- Basecamp forum: best format for communication between members?
- How often should this group meet?
  - Need help with measure build questions
  - Approval Process
- Proposed 2020 – 2021 Meeting Schedule
  - Summer 2020 Meeting: July 20, 2020
  - Fall 2020 Meeting: October/November, 2020
  - Winter 2021 Meeting: January, 2021
  - Spring 2021 Meeting: April, 2021

# THANK YOU!

Allison Janda, MD

MPOG Cardiac Anesthesia  
QI Subcommittee Lead

[ajanda@med.umich.edu](mailto:ajanda@med.umich.edu)



## ASPIRE Measures

- **AKI 01 (Excludes Baseline Cr  $\leq$  0.2):** Percentage of cases that baseline creatinine increased more than 1.5 times within 7 postoperative days *or* the baseline creatinine level increased by  $\geq$  0.3 mg/dL within 48 hours after anesthesia end.
- **MED 01:** Percentage of cases that required the use of naloxone or flumazenil for medication overdose.
- **BP 01:** Percentage of cases where intraoperative hypotension (MAP < 55 mmHg) was sustained for less than 20 minutes.
- **BP 02:** Percentage of cases where gaps greater than 10 minutes in blood pressure monitoring are avoided.
- **BP 03:** Percentage of cases where intraoperative hypotension (MAP < 65 mmHg) was sustained for less than 15 minutes

# ASPIRE Measures

- **CARD 02:** Percentage of cases with elevated postoperative Troponin levels or documentation of perioperative myocardial injury.
- **CARD 03:** Percentage of high cardiac risk cases with significantly elevated postoperative troponin levels.
- **FLUID 01-NC:** Percentage of non-cardiac cases in which colloids were not administered intraoperatively.
- **GLU 01:** Percentage of glucose labs with perioperative glucose  $> 200$  mg/dL with administration of insulin or glucose recheck within 90 minutes of original glucose measurement.
- **GLU 02:** Percentage of glucose labs with perioperative glucose  $< 60$  with administration of dextrose containing solution or glucose recheck within 90 minutes of original glucose measurement

# ASPIRE Measures

- **NMB 01:** Percentage of cases with a documented Train of Four (TOF) after last dose of non-depolarizing neuromuscular blocker.
- **NMB 02:** Administration of neostigmine, Sugammadex, and/or edrophonium before extubation for cases with nondepolarizing neuromuscular blockade
- **PONV 02:** Percentage of patients aged 3 through 17 years of age, who undergo a procedure under general anesthesia in which an inhalational anesthetic is used for maintenance AND who have two or more risk factors for post-operative vomiting (POV), who receive combination therapy consisting of at least two prophylactic pharmacologic anti-emetic agents of different classes preoperatively and/or intraoperatively.
- **PONV 03:** Percentage of patients, regardless of age, who undergo a procedure and have a documented nausea/emesis occurrence postoperatively OR receive a rescue antiemetic in the immediate postoperative period.

# ASPIRE Measures

- **PUL 01:** % of cases with median tidal volumes less than 10ml/kg.
- **PUL 02:** % of cases with median tidal volumes less than 8ml/kg.
- **PUL 03:** % of cases in which Positive End Expiratory Pressure (PEEP) is used for patients undergoing mechanical ventilation during anesthesia.
- **SUS 01:** % of cases with mean fresh gas flow (FGF) equal to, or less than 3L/min, during administration of halogenated hydrocarbons and/or nitrous oxide.
- **TEMP 01:** % of cases that active warming was administered by the anesthesia provider- includes fluid warming for c-sections
- **TEMP 02:** % of cases with increased risk of hypothermia that the anesthesia provider documented core temperature.
- **TEMP 03:** % of patients, who undergo general or neuraxial anesthesia of  $\geq 60$  minutes for whom at least one body temperature  $\geq 36$  degrees Celsius was recorded within 30 minutes before or 15 minutes after anesthesia end.



# ASPIRE Measures

- **TOC 01:** Percentage of patients who undergo a procedure under anesthesia in which a permanent intraoperative anesthesia staff change occurred, who have a documented use of a checklist or protocol for the transfer of care from the responsible anesthesia practitioner to the next responsible anesthesia practitioner.
- **TOC 02:** Percentage of patients who are under the care of an anesthesia practitioner and are admitted to a PACU in which a post-anesthetic formal transfer of care protocol or checklist which includes the key transfer of care elements is utilized
- **TOC 03:** Percentage of patients who undergo a procedure under anesthesia and are admitted to an Intensive Care Unit (ICU) directly from the anesthetizing location, who have a documented use of a checklist or protocol for the transfer of care from the responsible anesthesia practitioner to the responsible ICU team or team member

## ASPIRE Measures

- **TRAN 01:** Percentage of cases with a blood transfusion that have a hemoglobin or hematocrit value documented prior to transfusion.
- **TRAN 02:** Percentage of cases with a post transfusion hemoglobin or hematocrit value less than 10/30.