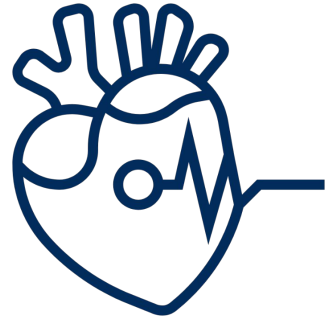




**MPOG Cardiac Anesthesia Subcommittee Meeting**  
**August 22, 2022**

# Agenda

- Welcome & announcements
- Research opportunity discussion: expert-based cardiac anesthesiology non-technical skills assessments
- Sustainability Measure cardiac considerations
- **Hyperthermia** avoidance (TEMP-07) collaboration update
- Glucose management measure specification update and discussion
- Discussion of unblinded measure performance review for next meeting
- 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!

# Research Opportunity

- The VARSITY Surgery group is conducting a study as a part of our NHLBI-funded R01 titled “Reuse of Operating Room Team View Digital Recordings of Cardiac Surgery for Evaluating Non-Technical Practices” that seeks to:
  - (i) learn more about the relationship between peer based assessments of intraoperative non-technical practices and risk-adjusted complication rates after cardiac surgery
  - (ii) evaluate the feasibility of automating computer-based analyses of digital recordings to assess intraoperative non-technical practices

# Research Opportunity

- They plan to recruit cardiothoracic surgeon peer assessors, cardiac anesthesiology peer assessors, and perfusion peer assessors
- **The group is inviting attending cardiac anesthesiologists to participate as peer reviewers**
- Time commitment:
  - Fill out the [Peer Reviewer Informed Consent](#) form (5 mins)
  - Complete a demographic survey (5 minutes)
  - Complete a ~45-50 minute training on a validated anesthesia non-technical skills assessment tool (ANTS)
  - Sign an attestation form prior to viewing any recordings and attest to adhering to data privacy
  - Review and assess video segments representing cardiac surgery operations (~10 minutes each)
  - There is no pre-specified number of recorded segments you may analyze

# Research Opportunity

- Reviewers will receive a \$45 Amazon gift card after completing each peer assessment assignment
- If you or a colleague is willing to participate, please fill out the [Peer Reviewer Informed Consent](#) and email me ([ajanda@med.umich.edu](mailto:ajanda@med.umich.edu)) or Korana Stakich-Alpirez ([kstakich@med.umich.edu](mailto:kstakich@med.umich.edu)) and we will request your contact information to set up a UMich account to view the trainings and video assessments

# Research/Collaboration Opportunity

- Dr. Drake a cardiac surgeon at MSTCVS is developing a peri-interventional cardiac imaging quality program
- Asking our subcommittee for any interested individuals to have a seat at the table as this program is being developed (inside and outside the state of Michigan)
- If you or a colleague is willing to participate, please email me ([ajanda@med.umich.edu](mailto:ajanda@med.umich.edu)) and I will connect you with Dr. Drake with MSTCVS

# SUS-01, SUS-02, and SUS-04 Cardiac Considerations

- **SUS-01:** Percentage of cases with mean fresh gas flow (FGF) equal to, or less than 3L/min, during administration of halogenated hydrocarbons and/or nitrous oxide.
- **SUS-02:** Percentage of cases where carbon dioxide equivalents normalized by hour for cases receiving halogenated agents and/or nitrous oxide is less than carbon dioxide equivalents of 2% sevoflurane at 2L FGF = 2.58 kg CO<sub>2</sub>/hr during the **maintenance period** of anesthesia
- **SUS-04:** Percentage of cases with mean fresh gas flow (FGF) equal to, or less than 2L/min, during administration of halogenated hydrocarbons and/or nitrous oxide.



# SUS-01, SUS-02, and SUS-04 Cardiac Considerations

- Currently includes cardiac cases
- Only captures the anesthesia ventilator fresh gas flow concepts
- Should we exclude cases with inhaled nitric oxide due to mandatory high flows?
- Does not include any of the pump fresh gas flow or sweep concepts on bypass
- While on bypass, we tend to put our FGFs down to 0.2L/min so that is what would be captured by MPOG and the SUS measures
  - What are your practice patterns for FGF on bypass?
- Since we as anesthesiologists do not contribute to the decision as to what FGF or sweep the perfusionists are running on bypass, limiting those FGFs is very challenging, and sweep isn't captured by all institutions in MPOG, we did not include those sweep concepts if they are contributed

# Hyperthermia Avoidance Measure Update

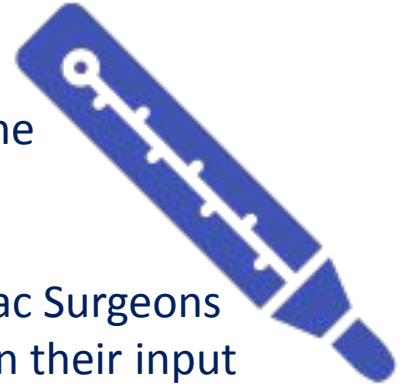
- **TEMP-07:**

- % of patients,  $\geq 18$  years age, who undergo open cardiac surgical procedures using cardiopulmonary bypass under general anesthesia of  $>120$  minutes for whom the temperature did rise above 37.5 degrees Celsius while on bypass for over 5 consecutive minutes (inverse measure)



# TEMP-07 Perfusionist Input

- The Perfusionist Work Group met earlier this year and made some suggestions that have been incorporated, thank you!
- We are working with the Michigan Society of Thoracic and Cardiac Surgeons (MSTCVS) and their network of perfusionists to publicize and gain their input prior to releasing the measure
  - **Recommended discussing with your institutional teams prior to presenting the measure data**
  - **Quick poll: What have you done to reach out to your institution's perfusionist teams and what has their feedback been?**



# Glucose Measure Literature/Guidelines:

- In a study of 510 patients undergoing cardiovascular surgery and found the incidence of AKI to be higher in patients with high HbA1c levels **preoperatively**; Every 1% increase over 6% in HgA1c levels increased the risk of renal complications by 24% <sup>1</sup>
- Glycemic variability, a standard deviation of all POC-BG readings, is associated with increased postoperative LOS-ICU, rise in creatinine, and AKI <sup>2</sup>
- A study including 761 cardiac surgery patients and found that diabetics were at increased risk of infection and glucose control (120-160 mg/dL) reduced the risk of wound infection in diabetics <sup>3</sup>
- In a randomized controlled trial, moderate glucose control defined as 127-179 mg/dl was found to be preferable to tight control  $\leq 126$  in patients undergoing CABG <sup>4</sup>

# Glucose Measure Literature/Guidelines Continued:

- Incidence of AKI was higher in patients with time-weighted average intraop glucose of >150mg/dl (8%) as compared to patients with blood glucose 110-150 mg/dl (3%) <sup>5</sup>
- KDIGO - recommends maintaining blood glucose between 110 - 149 mg/dL in critically ill patients <sup>6</sup>
- Tight glucose control (<150mg/dl) is seen as **controversial** as risks of hypoglycemia are significant: NICE-SUGAR meta-analysis <sup>7</sup>
- Society of Thoracic Surgeons (STS) Practice Guidelines recommend **maintaining serum glucose levels  $\leq$  180 mg/dL for at least 24 hours after cardiac surgery** <sup>8</sup>
- Guidelines for Perioperative Care in Cardiac Surgery from the Enhanced Recovery After Surgery Society **recommends treatment of blood glucose >160-180mg/dL with an insulin infusion** <sup>9</sup>

# Next Cardiac Measure: Glucose Management



- **GLU-06:**

- Percentage of patients,  $\geq 18$  years age, who undergo open cardiac surgical procedures under general anesthesia of 120 minutes case duration or longer for whom any blood glucose measure  $\geq 180$ mg/dL was either treated with insulin or rechecked and found to be below 180mg/dL within 60 minutes.

- **Timing:**

- Start: Anesthesia Start
- End: Anesthesia End

# Next Cardiac Measure: Glucose Management



- **Concepts Queried:**

Insulin MPOG Concept IDs		Glucose MPOG Concept IDs	
<b>10229</b>	Insulin Aspart	<b>3361</b>	POC- Glucose (Fingerstick)
<b>10230</b>	Insulin Glargine	<b>3362</b>	POC- Glucose (Unspecified Source)
<b>10231</b>	Insulin Novolin	<b>3405</b>	POC- Blood Gas - Glucose
<b>10232</b>	Insulin NPH	<b>5003</b>	Formal Lab-Glucose, Serum/Plasma
<b>10233</b>	Insulin Regular	<b>5036</b>	Formal Lab-Blood Gas, Glucose
<b>10659</b>	Insulin- Unspecified		

- **Attribution:**

- The provider signed in at the first glucose recheck or first administration of insulin. If neither occurred, then the responsible provider is the one signed in 60 minutes after the high glucose measurement

# Next Cardiac Measure: Glucose Management



- **Inclusions:**

- All patients, 18 years of age or older, who undergo open cardiac surgical procedures (as determined by Procedure Type: Cardiac phenotype) under general anesthesia of 120 minutes duration or longer.

- **Exclusions:**

- ASA 6
- Organ harvest (CPT: 01990)
- Non-cardiac cases as defined as those cases not meeting criteria for the cardiac case type phenotype
- Within the general cardiac case type phenotype, exclude:  
Transcatheter/Endovascular, EP/Cath groups and Other Cardiac
- Cases with age <18



# Next Cardiac Measure: Glucose Management



- **Limitations:**

- Any glucose checks not entered into the EHR will not be captured

- **Remaining Questions:**

- Restrict to “open cardiac” only? Or also “transcatheter/endovascular”?
- Any considerations for escalations of insulin treatment?
- Any considerations for frequency of checks?
- Also develop a measure directly mirroring the STS threshold of any glucose  $<180$  resulting in a flag?

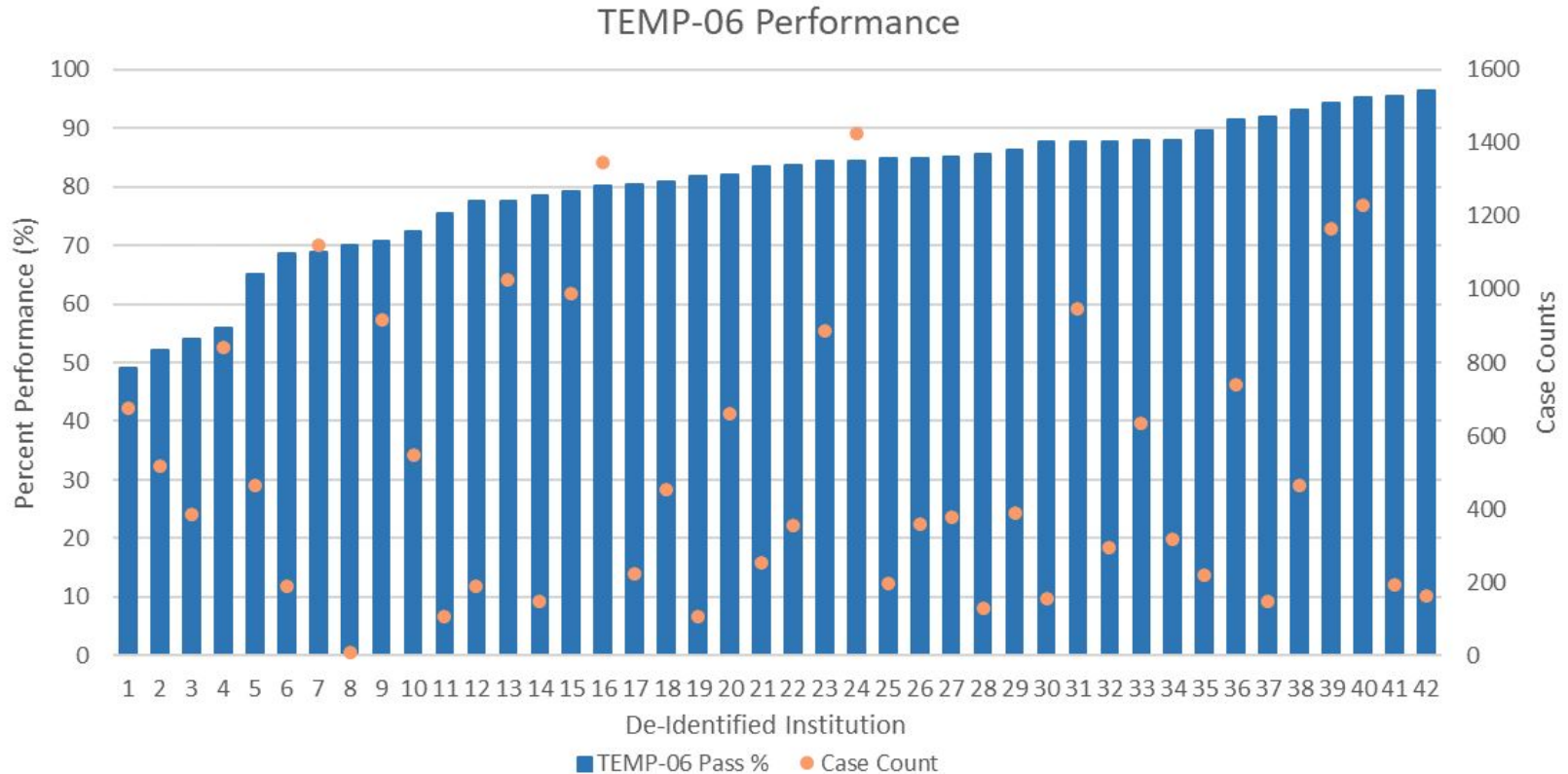
# TEMP-06 is Live and TEMP-07 is coming soon!

- TEMP-06 was released in December, 2021
  - Check out your personal and site performance on your dashboards
  - If you see any issues, please reach out to: [ajanda@umich.edu](mailto:ajanda@umich.edu)
- TEMP-07 will be released soon after further collaboration
- Thank you for all of your input!

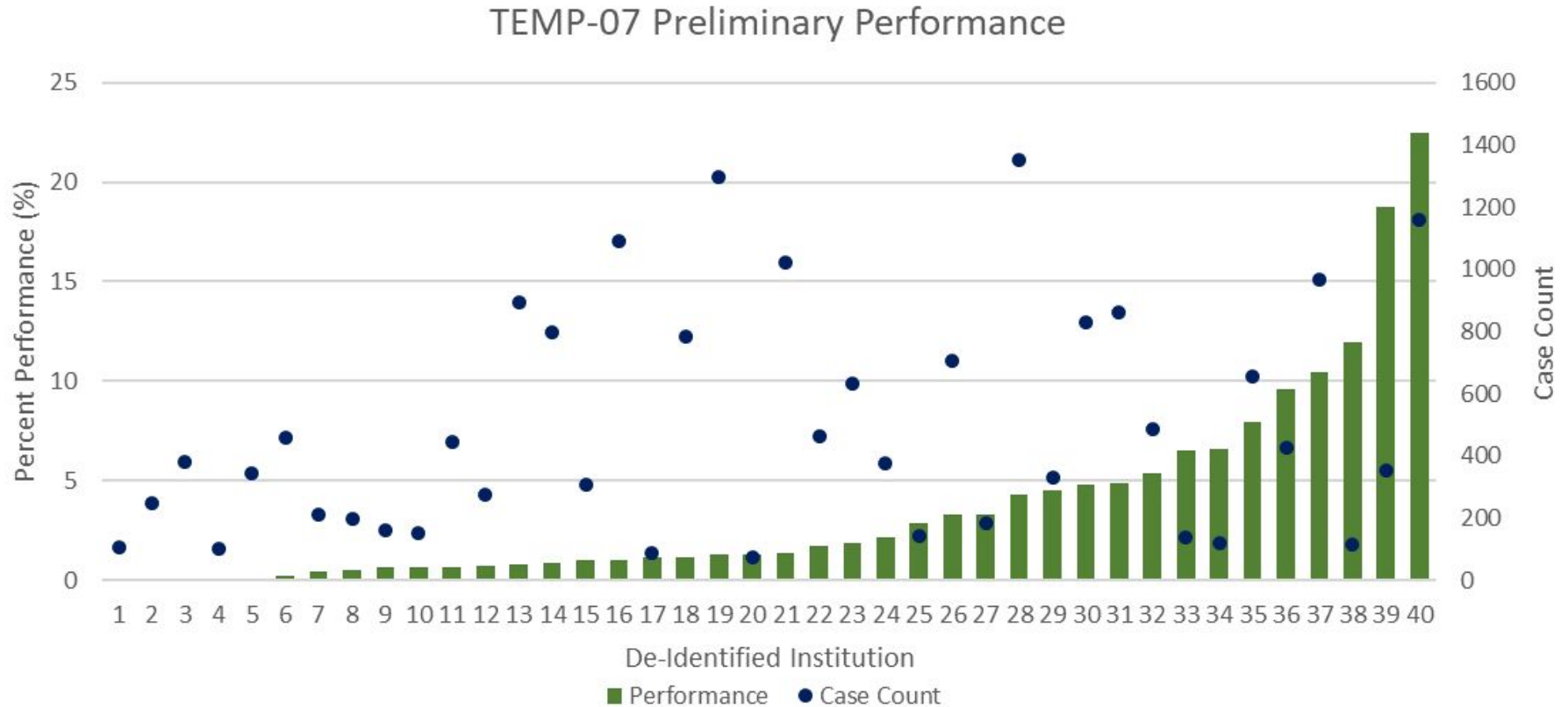
# Unblinded Review at Next Meeting

- TEMP-06 and TEMP-07 measure performance data for your hospital will be included as your hospital is represented on the Cardiac Subcommittee
- The unblinded data will consist of site comparison graphs of scores for the two measures with the institution names visible (examples to follow)
- Members will be asked to register for this meeting and **attest to a confidentiality statement beforehand**
- If the Cardiac Subcommittee member from your hospital will not be attending the meeting and you would like your hospital's data to not be shown, please let us know so that your data can be removed from the graphs
- We will also email the quality champions at your institution who may not be members of the Cardiac Subcommittee

# TEMP-06 Performance (past 12 months)



# TEMP-07 Preliminary Performance (Inverse Measure)



# Goals

- Build 1 cardiac-specific measure in 2021 (completed)
  - Post-bypass **hypothermia** avoidance
- Build 1 cardiac-specific measure in early 2022 (nearly completed)
  - On-bypass **hyperthermia** avoidance
- Plan and build next measure in mid-2022 (in progress)
  - Glucose management

# 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 2022 Meeting Schedule
  - Fall 2022 Meeting: November 2022
- Thank you for using the forum for discussion between meetings

# References

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9. Engelman DT, Ben Ali W, Williams JB, Perrault LP, Reddy VS, Arora RC, Roselli EE, Khoynezhad A, Gerdisch M, Levy JH, Lobdell K, Fletcher N, Kirsch M, Nelson G, Engelman RM, Gregory AJ, Boyle EM: Guidelines for Perioperative Care in Cardiac Surgery: Enhanced Recovery After Surgery Society Recommendations. *JAMA Surg* 2019 doi:10.1001/jamasurg.2019.1153

# Thank you!

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