

The Society of Thoracic Surgeons  
Adult Cardiac Surgery Database  
Quality Improvement Series: Decreasing Blood Usage  
December 18, 2024

Patient Blood Management

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# Agenda

WELCOME AND  
INTRODUCTIONS

STS UPDATES

PATIENT BLOOD  
MANAGEMENT  
AMANDA REA, DNP  
UNIVERSITY OF MARYLAND  
ST JOSEPH MEDICAL CENTER

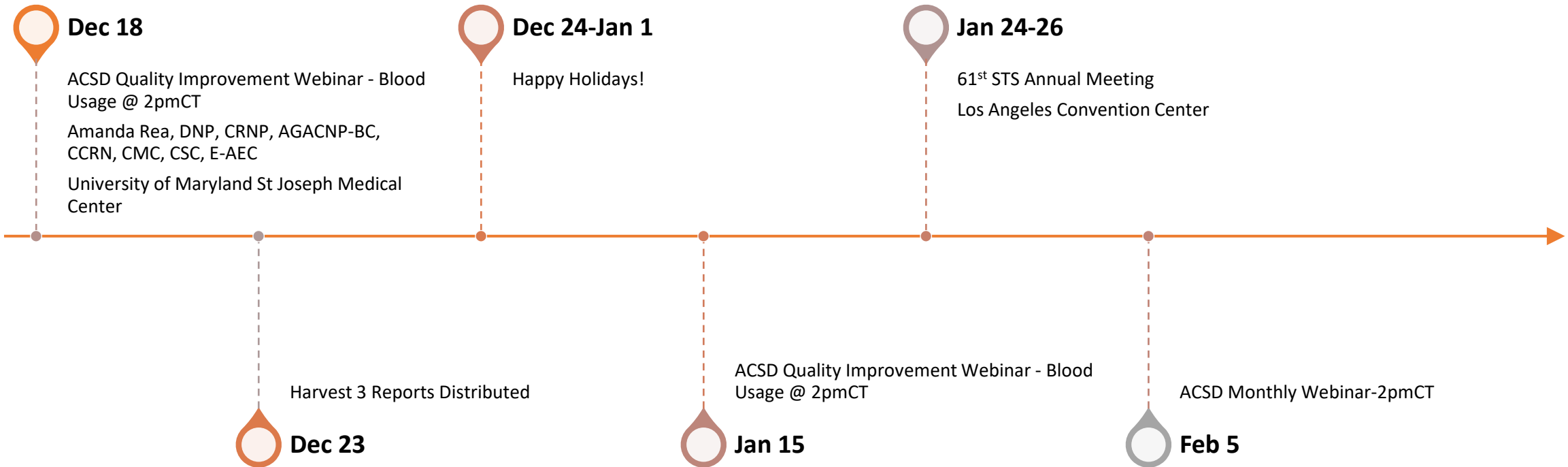
## STS Updates

Harvest 3 2024 Reports  
Available by December 23rd

Vendor Updates

Important Dates

# Important Dates





## ***Patient Blood Management***

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**ERAS<sup>®</sup> Cardiac Society**  
*Perfecting the Surgical Journey*



# Disclosures



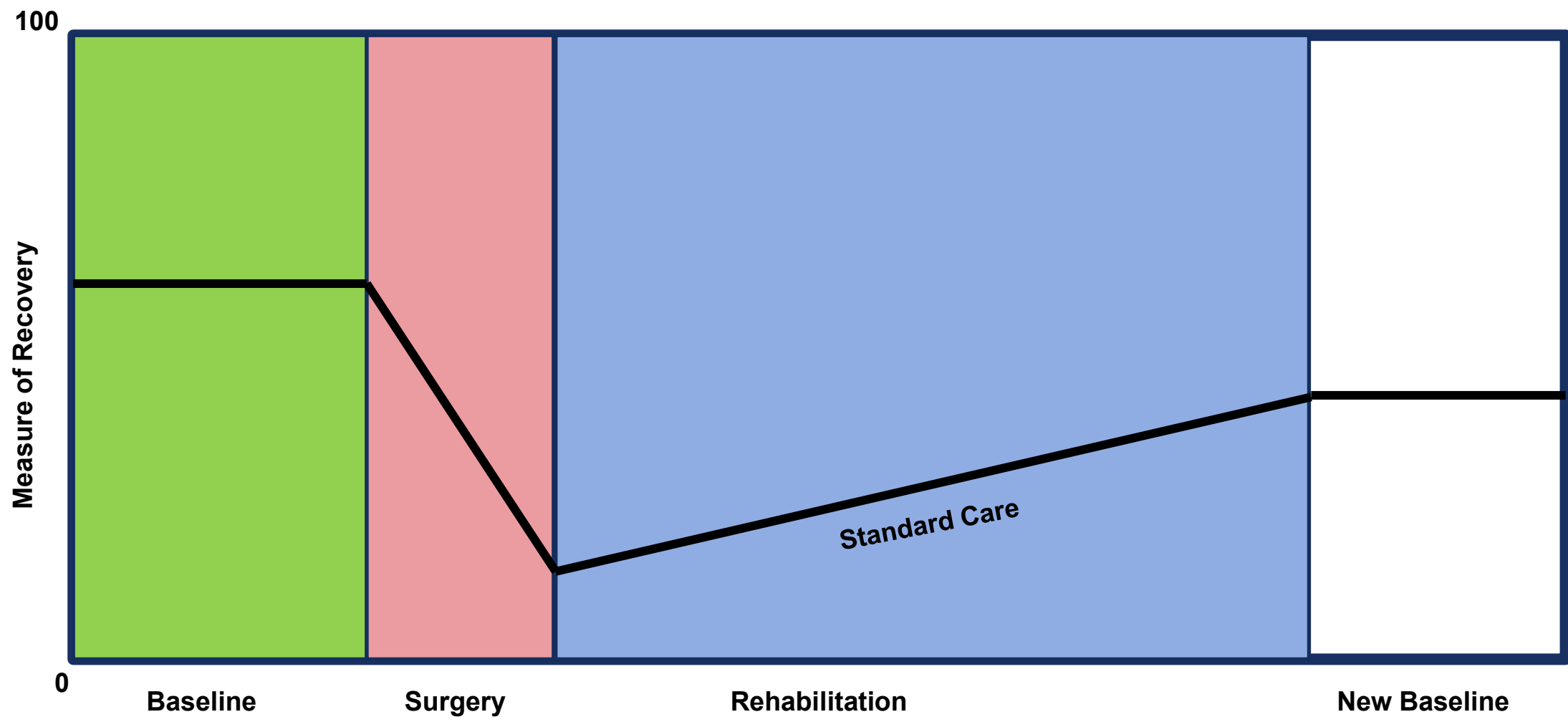
- Speakers Bureau for Edwards
- Advisory Board for ERAS Cardiac Society
- Critical Care Workforce for STS



PBM is part of ERAS

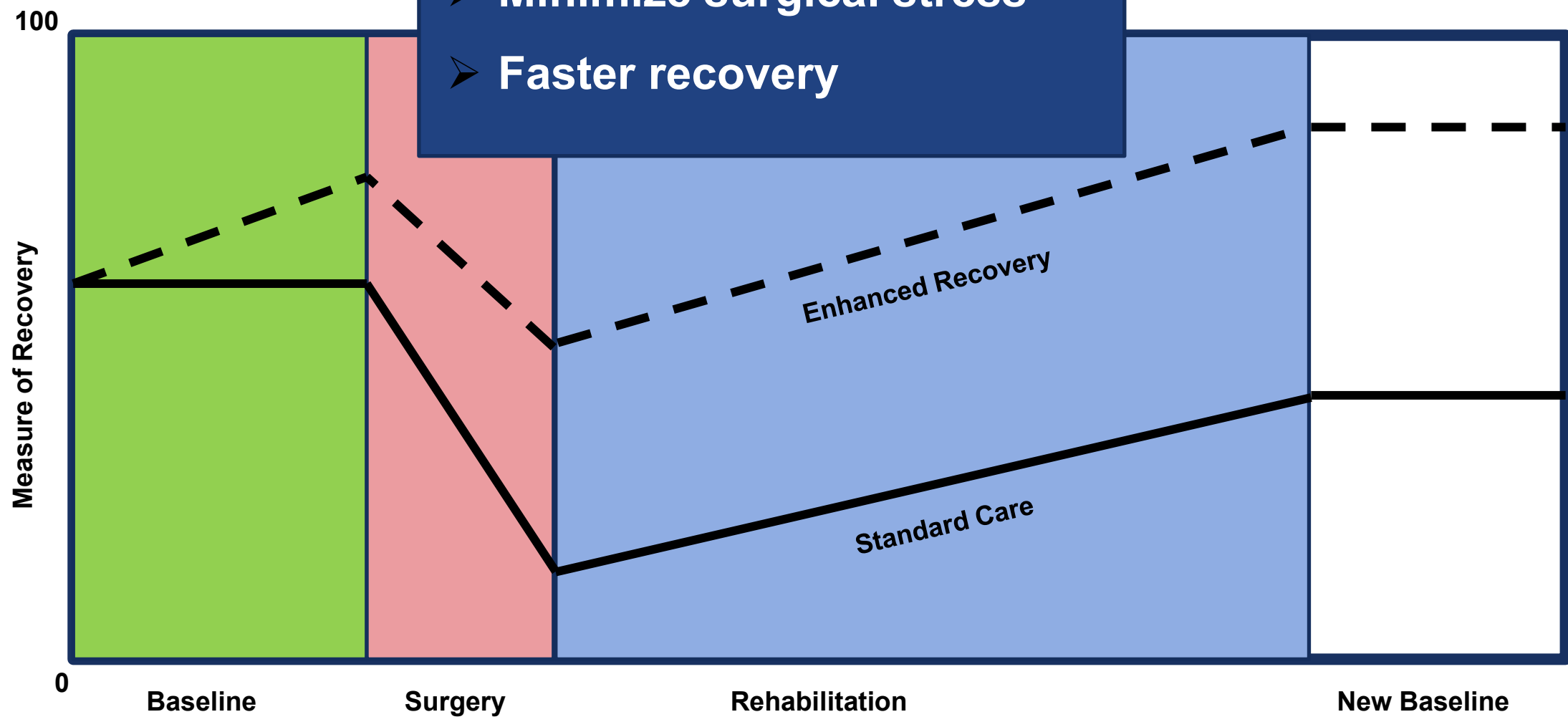
UMSJMC PBM Process

UMSJMC PBM Results





- Optimize preop
- Minimize surgical stress
- Faster recovery





# UMSJMC Cardiac ERAS Program



# Cardiac Surgery ERAS Pathway



## Preoperative

- Education
- Shortened Fast
- Carb Load
- Prehab
- PONV Prophylaxis
- Preop Anemia
- SSI Reduction Bundle
- Discharge Planning



## Intraoperative

- Multimodal Analgesia
- Blood Conservation
- Glycemic Control
- SSI Reduction Bundle
- Maintain Normothermia
- Optimize Oxygen Delivery
- Minimize Crystalloids

Road to Recovery



## Postoperative

- Early Extubation
- PONV Prophylaxis
- Multimodal Analgesia
- Blood Conservation
- Glycemic Control
- Early Mobility
- Early Feeding
- Optimize Oxygen Delivery
- Move in the Tube
- Discharge Planning

FINISH

## Care Team

Patient + Surgeon + Anesthesia + Perfusion + Nursing + Advanced Practice + Rehab Services  
Case Management + Pharmacy + Nutritional Services + Healing Therapy + Respiratory Therapy



- Shared decision making
- Goal-directed therapy
- Goal-directed Perfusion
- Acute Kidney Injury
- Patient Blood Management
- Delirium
- Patient Engagement
- Intraoperative TEE
- Pulmonary artery catheters
- Routine auditing

## EXPERT CONSENSUS STATEMENT

### Perioperative Care in Cardiac Surgery: A Joint Consensus Statement by the Enhanced Recovery After Surgery (ERAS) Cardiac Society, ERAS International Society, and The Society of Thoracic Surgeons (STS)

Michael C. Grant, MD, MSE,<sup>1</sup> Cheryl Crisafi, MS, RN,<sup>2</sup> Adrian Alvarez, MD,<sup>3</sup> Rakesh C. Arora, MD, PhD,<sup>4</sup> Mary E. Brindle, MD, MPH,<sup>5</sup> Subhasis Chatterjee, MD,<sup>6</sup> Joerg Ender, MD,<sup>7</sup> Nick Fletcher, MBBS,<sup>8,9</sup> Alexander J. Gregory, MD,<sup>10</sup> Serdar Gunaydin, MD, PhD,<sup>11</sup> Marjan Jahangiri, MBBS, MS,<sup>12</sup> Olle Ljungqvist, MD, PhD,<sup>13</sup> Kevin W. Lobdell, MD,<sup>14</sup> Vicki Morton, DNP,<sup>15</sup> V. Seenu Reddy, MD, MBA,<sup>16</sup> Rawn Salenger, MD,<sup>17</sup> Michael Sander, MD,<sup>18</sup> Alexander Zarbock, MD,<sup>19</sup> and Daniel T. Engelman, MD<sup>2</sup>

Enhanced Recovery After Surgery (ERAS) programs have been shown to lessen surgical insult, promote recovery, and improve postoperative clinical outcomes across a number of specialty operations. A core tenet of ERAS involves the provision of protocolized evidence-based perioperative interventions. Given both the growing enthusiasm for applying ERAS principles to cardiac surgery and the broad scope of relevant interventions, an international, multidisciplinary expert panel was assembled to derive a list of potential program elements, review the literature, and provide a statement regarding clinical practice for each topic area. This article summarizes those consensus statements and their accompanying evidence. These results provide the foundation for best practice for the management of the adult patient undergoing cardiac surgery.

(Ann Thorac Surg 2023;■:■-■)

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# ERAS Patient Blood Management Turnkey Order Set



The screenshot shows the JTCVS website interface. At the top left is the JTCVS logo with the text 'The Journal of Thoracic and Cardiovascular Surgery'. A navigation menu includes 'Articles', 'Publish', 'Topics', 'Multimedia', 'About', and 'Contact'. A search bar is located on the right. The main content area features the article title 'ERAS Cardiac Society turnkey order set for patient blood management: Proceedings from the AATS ERAS Conclave 2023' and the authors 'Rawan Salenger, MD', 'Sameer Hirji, MD, MPH', 'Amanda Rea, DNP', 'Jacob Raphael, MD', and 'Daniel T. Engelman, MD'. A 'Download Full Issue' button is present. A thumbnail of the journal cover is on the right. At the bottom of the article section are links for 'Affiliations & Notes' and 'Article Info'.



# Patient Blood Management Turnkey Order Set



TABLE 2. PBM turnkey order set

Preoperative
<ul style="list-style-type: none"> <li>• For nonemergent cases in the absence of platelet function studies, discontinue ticagrelor at 3 d, clopidogrel at 5 d, and prasugrel at 7 d before surgery</li> <li>• For elective cases without coronary artery disease, discontinue aspirin for 7 d preoperatively</li> <li>• Clinical communication: minimize phlebotomy</li> <li>• Hemoglobin</li> <li>• Platelet count</li> <li>• PT/INR</li> <li>• PTT</li> <li>• Send platelet aggregation studies for patients receiving DAPT</li> <li>• For patients requiring DAPT bridging: Cangrelor 30 µg/kg IV bolus followed by 4 µg/kg/min IV infusion; discontinue 1 h before OR</li> <li>• For nonemergent patients on a DOAC, discontinue apixaban at 3 d, rivaroxaban at 4 d, and dabigatran at 4 d before surgery</li> <li>• For emergent patients on a DOAC, choose an appropriate antidote: <ul style="list-style-type: none"> <li>◦ Andexanet alfa (for apixaban, rivaroxaban) <ul style="list-style-type: none"> <li>▪ 400 mg IV bolus, then 4 mg/min IV × 2 h (≥8 h since last DOAC)</li> </ul> </li> <li>or <ul style="list-style-type: none"> <li>▪ 800 mg IV bolus, then 8 mg/min IV × 2 h (&lt;8 h since last DOAC)</li> </ul> </li> <li>◦ Idarucizumab 5 g IV × 1 (for dabigatran)</li> <li>◦ Kcentra/Beriplex 0.12 mL/kg/min IV; titrate to goal INR (or alternative prothrombin complex concentrate)</li> </ul> </li> <li>• For nonemergent patients on warfarin, discontinue 5 d prior to surgery</li> <li>• For patients on warfarin who cannot wait 5 d, administer FFP according to parameters below</li> <li>• In patients with atrial fibrillation and high risk for thromboembolic event, bridge with IV heparin, with weight-based titration to therapeutic range (see heparin order sheet)</li> <li>• Preoperative anemia: Hgb &lt;13 g/dL<sup>8</sup>: <ul style="list-style-type: none"> <li>◦ Laboratory tests: <ul style="list-style-type: none"> <li>▪ Total iron binding capacity panel</li> <li>▪ Ferritin</li> <li>▪ Fecal occult blood screening</li> </ul> </li> <li>◦ Medications <ul style="list-style-type: none"> <li>▪ Ferric gluconate 250 mg IV once daily for up to 7 d (see Table E1 for alternate Fe formulations)</li> <li>▪ Erythropoetin alfa-epo 40,000 IU IV × 1</li> <li>▪ Folic acid tablet 5 mg orally once daily until surgery (up to 4 wk)</li> <li>▪ Vitamin B-12 1000 µg orally once daily until surgery (up to 4 wk)</li> </ul> </li> </ul> </li> </ul>
Intraoperative
<ul style="list-style-type: none"> <li>• Administer tranexamic acid: bolus 10 mg/kg IV × 1, then continuous IV drip based on serum creatinine: <ul style="list-style-type: none"> <li>◦ &lt;1.6 = 2 mg/kg/h</li> <li>◦ 1.6-3.2 = 1.5 mg/kg/h</li> <li>◦ 3.3-6.6 = 1 mg/kg/h</li> </ul> </li> <li>• Clinical communication: Limit pre-CPB IV fluid to 250 mL</li> <li>• Clinical communication: Use cell salvage</li> <li>• Clinical communication: Arterial and venous autologous prime</li> <li>• Clinical communication: Centrifuge pump-salvaged blood</li> <li>• Clinical communication: Use point of care viscoelastic testing to diagnose and then treat coagulopathy according to a standard transfusion algorithm</li> <li>• Clinical communication: Utilize a hemoglobin threshold to consider PRBC transfusion (6.0 g/dL<sup>9</sup>)</li> <li>• For heparin resistance: Administer antithrombin III 500 U IV, repeat once as needed to achieve desired ACT</li> </ul>

Postoperative
<ul style="list-style-type: none"> <li>• Utilize a standard transfusion algorithm</li> <li>• Notify provider if Hgb &lt;7.5 g/dL (consider transfusion in nonbleeding patients only for signs of end-organ malperfusion, such as elevated lactate and significant base deficit)</li> <li>• Notify provider for chest tube drainage of 200 mL/h for &gt;1 h</li> <li>• If actively bleeding: <ul style="list-style-type: none"> <li>◦ Perform point of care VET and transfuse according to standard algorithm</li> </ul> </li> <li>or <ul style="list-style-type: none"> <li>◦ PT/INR, PTT</li> <li>◦ Fibrinogen</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>◦ Platelet count</li> <li>◦ Platelet aggregation study</li> <li>◦ Hemoglobin</li> </ul>
<p>Treatment:</p> <ul style="list-style-type: none"> <li>◦ For INR &gt;1.7, transfuse 2 U of FFP</li> <li>◦ For fibrinogen &lt;150 mg/dL, transfuse 10 U of cryoprecipitate or administer Fib Ryga 4 g IV over 10 min (or alternative fibrinogen concentrate)</li> <li>◦ For functional platelets &lt;50 10<sup>3</sup>/µL, transfuse 2 U of platelets</li> <li>◦ PRBC transfusion as needed</li> <li>◦ Kcentra/Beriplex 0.12 mL/kg/min IV titrate if on a DOAC preoperatively and PTT is elevated (or alternative prothrombin complex concentrate)</li> <li>◦ DDAVP 0.3 g/kg IV × 1 for patients with post-CPB platelet dysfunction, uremia, or Von Willebrand disease; repeat once as needed</li> </ul>
<ul style="list-style-type: none"> <li>• Hgb &lt;8 g/dL <ul style="list-style-type: none"> <li>◦ Ferric gluconate 250 mg IV once daily for 3 d</li> <li>◦ Ferrous sulfate 324 mg orally daily for 30 d</li> </ul> </li> </ul>



# SUMMARY OF RECOMMENDATIONS



Source	Total Recommendations	Grade I/IIA	Included in TKO
<b>STS/SCA/AmSECT/SABM Guidelines</b>	19	19	18
<b>EACTS/EACT Guidelines</b>	14	14	13
<b>ASA Guidelines</b>	14	14	13
<b>POQI-8/ERAS-C Consensus Statement</b>	14	14	3



# Turnkey Orders by Phase of Care



	PRE-OP	INTRA-OP	POST-OP
Assessment	<b>Multidisciplinary PBM Program</b>		
	<b>Platelet Aggregation Studies</b>	<i>Hgb threshold 6.0 g/dL</i>	<i>Hgb threshold 7.5 g/dL</i>
	<b>Anemia Screening</b>		<b>Platelet Aggregation Studies</b>
		<b>POC Viscoelastic Testing</b>	
Therapy	<b>Utilize Transfusion Algorithm</b>		
		<i>Meticulous Surgery</i>	
Communication	<b>Hold DAPT/DOACS</b>	<b>Antifibrinolytic</b>	
	<b>Treat Anemia ESA, Fe, B12, Folate</b>	<b>Cell Saver</b>	
		<b>RAP / VAP</b>	



# **Patient Blood Management**



**What's the literature say?**

# Transfusion Requirements in Cardiac Surgery (TRICS)–III

- Largest RCT to date of 5,243 cardiac surgery patients (NEJM,2017)
- Restrictive strategy (hemoglobin < 7.5 g/dL)
- Liberal strategy (hemoglobin < 9.5 g/dL intraoperative and ICU, < 8.5 g/dL non-ICU ward)
- Restrictive noninferior to liberal for 30 day all cause mortality, as well as 6 months f/u
- No difference found in secondary outcomes-LOS, vent hours, infection, bowel ischemia, low output state, AKI, seizure/delirium/encephalopathy

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

## Restrictive or Liberal Red-Cell Transfusion for Cardiac Surgery

C.D. Mazer, R.P. Whitlock, D.A. Fergusson, J. Hall, E. Belley-Cote, K. Connolly, B. Khanykin, A.J. Gregory, É. de Médicis, S. McGuinness, A. Royle, F.M. Carrier, P.J. Young, J.C. Villar, H.P. Grocott, M.D. Seeberger, S. Fremes, F. Lellouche, S. Syed, K. Byrne, S.M. Bagshaw, N.C. Hwang, C. Mehta, T.W. Painter, C. Royle, S. Verma, G.M.T. Hare, A. Cohen, K.E. Thorpe, P. Jüni, and N. Shehata, for the TRICS Investigators and Perioperative Anesthesia Clinical Trials Group\*

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

## Six-Month Outcomes after Restrictive or Liberal Transfusion for Cardiac Surgery

C.D. Mazer, R.P. Whitlock, D.A. Fergusson, E. Belley-Cote, K. Connolly, B. Khanykin, A.J. Gregory, É. de Médicis, F.M. Carrier, S. McGuinness, P.J. Young, K. Byrne, J.C. Villar, A. Royle, H.P. Grocott, M.D. Seeberger, C. Mehta, F. Lellouche, G.M.T. Hare, T.W. Painter, S. Fremes, S. Syed, S.M. Bagshaw, N.-C. Hwang, C. Royle, J. Hall, D. Dai, N. Mistry, K. Thorpe, S. Verma, P. Jüni, and N. Shehata, for the TRICS Investigators and Perioperative Anesthesia Clinical Trials Group\*

# Number and Type of Blood Products Are Negatively Associated with Outcomes After Cardiac Surgery



CARDIOTHORACIC ANESTHESIOLOGY:

The Annals of Thoracic Surgery CME Program is located online at <http://www.annalsthoracicsurgery.org/cme/home>. To take the CME activity related to this article, you must have either an STS member or an individual non-member subscription to the journal.

## Number and Type of Blood Products Are Negatively Associated With Outcomes After Cardiac Surgery



Niv Ad, MD, Paul S. Massimiano, MD, Anthony J. Rongione, MD, Bradley Taylor, MD, MPH, Stefano Schena, MD, Diane Alejo, BA, Clifford E. Fonner, BA, Rawn Salenger, MD, Glenn Whitman, MD, Thomas S. Metkus, MD, and Sari D. Holmes, PhD, on behalf of the Maryland Cardiac Surgery Quality Initiative

- Annals of Thoracic Surg, 2022
- n=24,082 statewide multicenter data, cardiac surgery patients
- Odds for 30-day mortality were 13% greater with each RBC unit and 6% greater for each non-RBC unit

## Preoperative anemia versus blood transfusion: Which is the culprit for worse outcomes in cardiac surgery?

Damien J. LaPar, MD, MSc,<sup>a</sup> Robert B. Hawkins, MD, MSc,<sup>a</sup> Timothy L. McMurry, PhD,<sup>a</sup> James M. Isbell, MD, MSCI,<sup>a</sup> Jeffrey B. Rich, MD,<sup>b</sup> Alan M. Speir, MD,<sup>c</sup> Mohammed A. Quader, MD,<sup>d</sup> Irving L. Kron, MD,<sup>a</sup> John A. Kern, MD,<sup>a</sup> and Gorav Ailawadi, MD,<sup>a</sup> Investigators for the Virginia Cardiac Services Quality Initiative

- JTCVS n=33,411
- After risk adjustment, PRBC transfusion, but not Hct value, demonstrated stronger associations with postoperative mortality, renal failure and stroke (P<.0001)

# Preoperative Anemia vs Blood Transfusion





# Pillars of Patient Blood Management

## Preop

**Multidisciplinary  
Approach**

**Treatment of  
Anemia**

**Platelet  
Aggregation  
Studies**

# Pillars of Patient Blood Management

## Preop

Multidisciplinary  
Approach

Treatment of  
Anemia

Platelet  
Aggregation  
Studies

## Intraop

Meticulous  
Surgery

Antifibrinolytic

Cell Salvage

RAP/VAP

Hgb trigger

# Pillars of Patient Blood Management

## Preop

Multidisciplinary  
Approach

Treatment of  
Anemia

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Studies

## Intraop

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Surgery

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## Postop

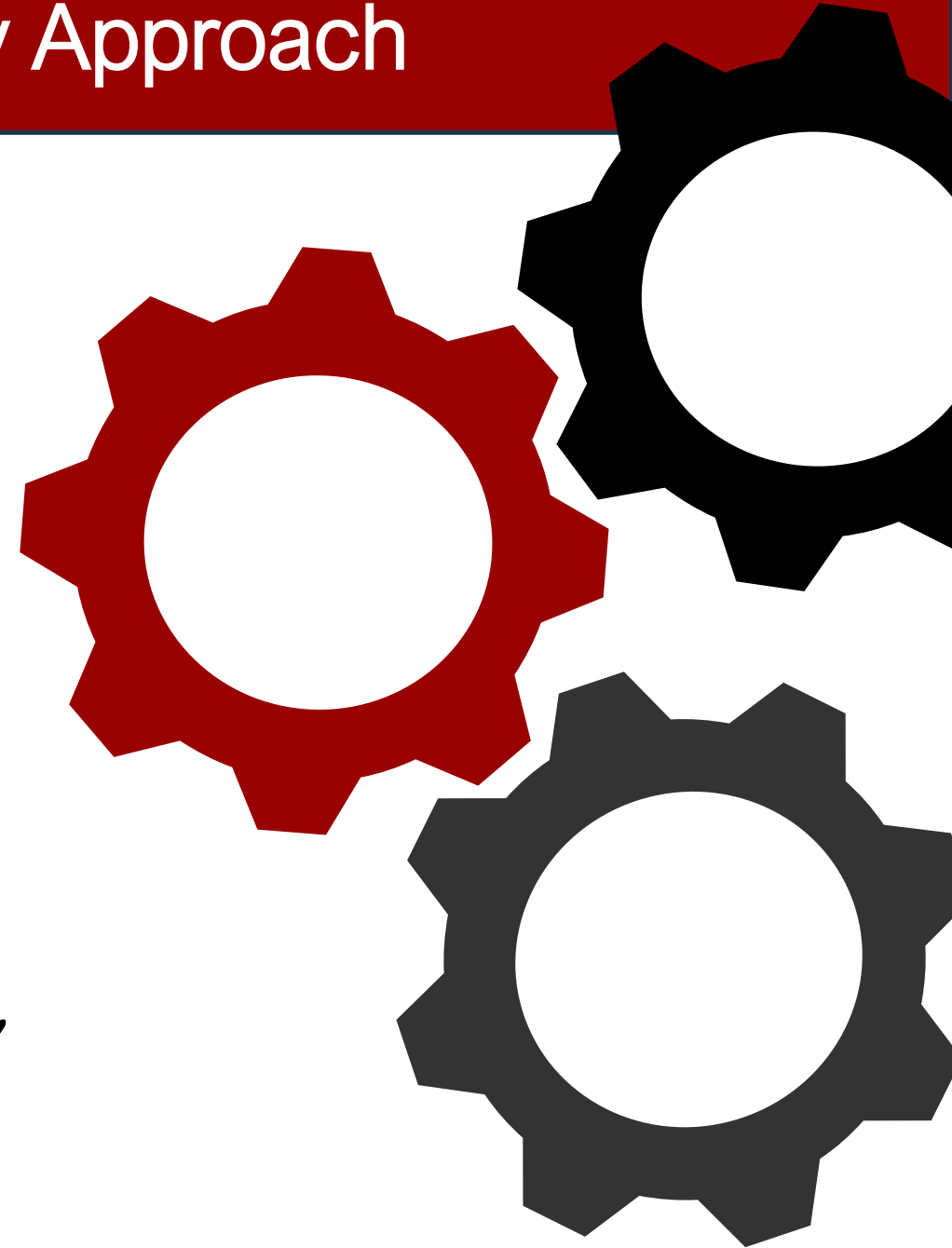
Hgb trigger

Culture of  
conservation



# Preoperative-Multidisciplinary Approach

- Recommended by nearly all major societies with pertinent guidelines.
- Formal hospital-level group & agree on standardization and process
- Ideally, team members include surgeons, anesthesiologists, intensivists, hematologists, the blood bank director, advanced practitioners, nurses, and residents.



# Preoperative-Preoperative Anemia Treatment

## ▼ Preoperative Anemia

### Preoperative Anemia Panel

#### Inclusion criteria:

1. Preoperative Cardiac Surgery
2. Preoperative Hgb <12 mg/dl

### Total Iron Binding Capacity (TIBC) Panel

Routine, once, today at 0838, For 1 occurrence  
Pre-procedure, Sign and Hold

### Ferritin

Routine, once, today at 0838, For 1 occurrence  
Pre-procedure, Sign and Hold

### Fecal Occult Blood Screening

Routine, once, today at 0838, For 1 occurrence  
Pre-procedure, Sign and Hold

## ▼ Medications

### ▼ Preoperative Anemia

#### Preoperative Anemia

Per SR#2735237 TRF 04.28.2022

ferric gluconate (FERRLECIT) 250 mg in NS 0.9% 100 mL IVPB

250 mg every 24 hours, Intravenous, at 100 mL/hr, 4 doses, First dose today at 0900, Last dose on Sun 9/25 at 0900, Pre-procedure, Sign and Hold

↻And

folic acid tablet 5 mg

5 mg 1 time daily, Oral, First dose today at 0900, Until Discontinued, Pre-procedure, Sign and Hold

↻And

other medication: pharmacist to dose

Intravenous, policy/per guidelines, Starting today at 0837, Until Discontinued

Reason for Consult: epoetin alfa-epbx (RETACRIT): pharmacist to dose

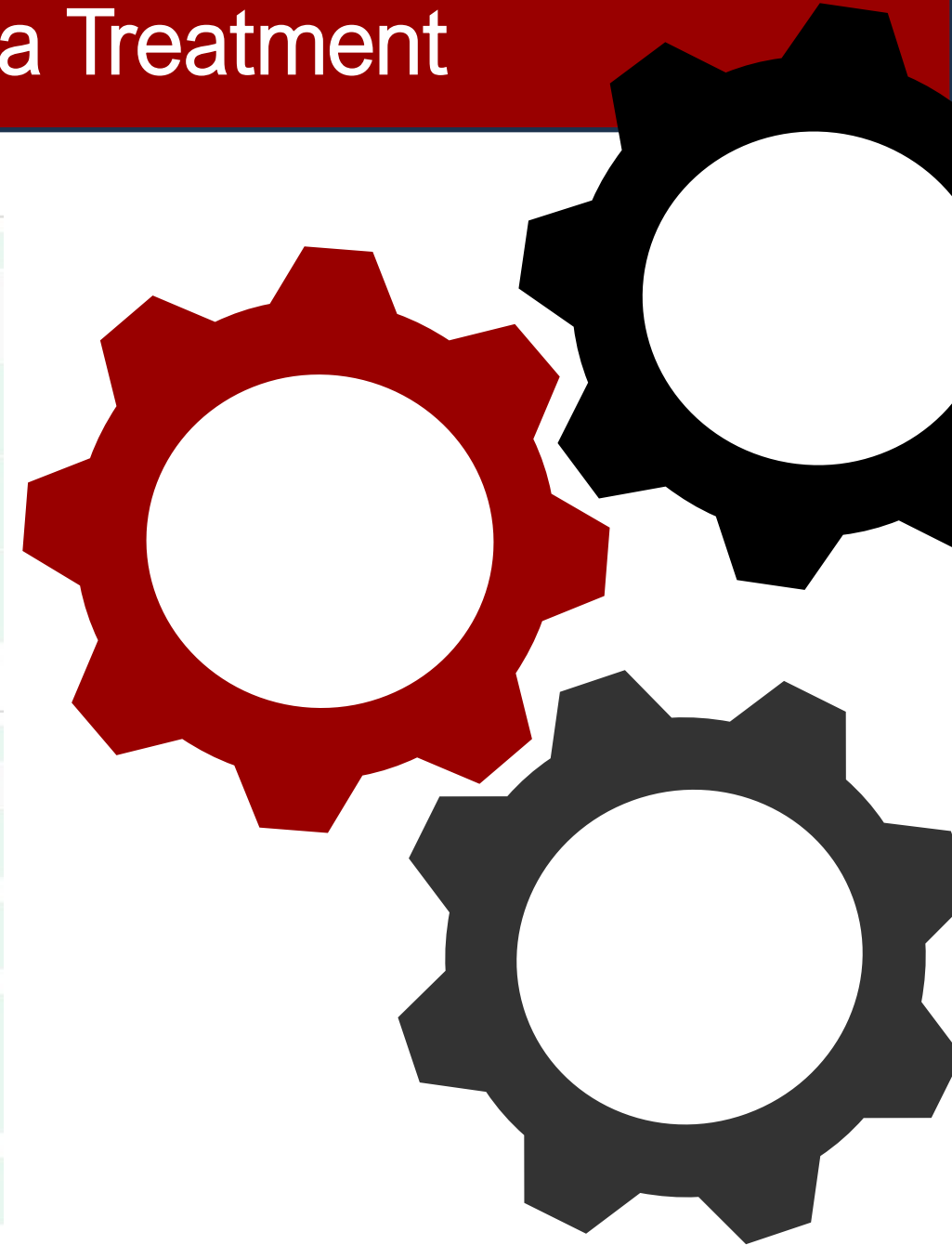
40,000 units ONCE to be given for pre-operative anemia prior to open heart surgery in patients with hemoglobin < 12.

Pre-procedure, Sign and Hold

↻And

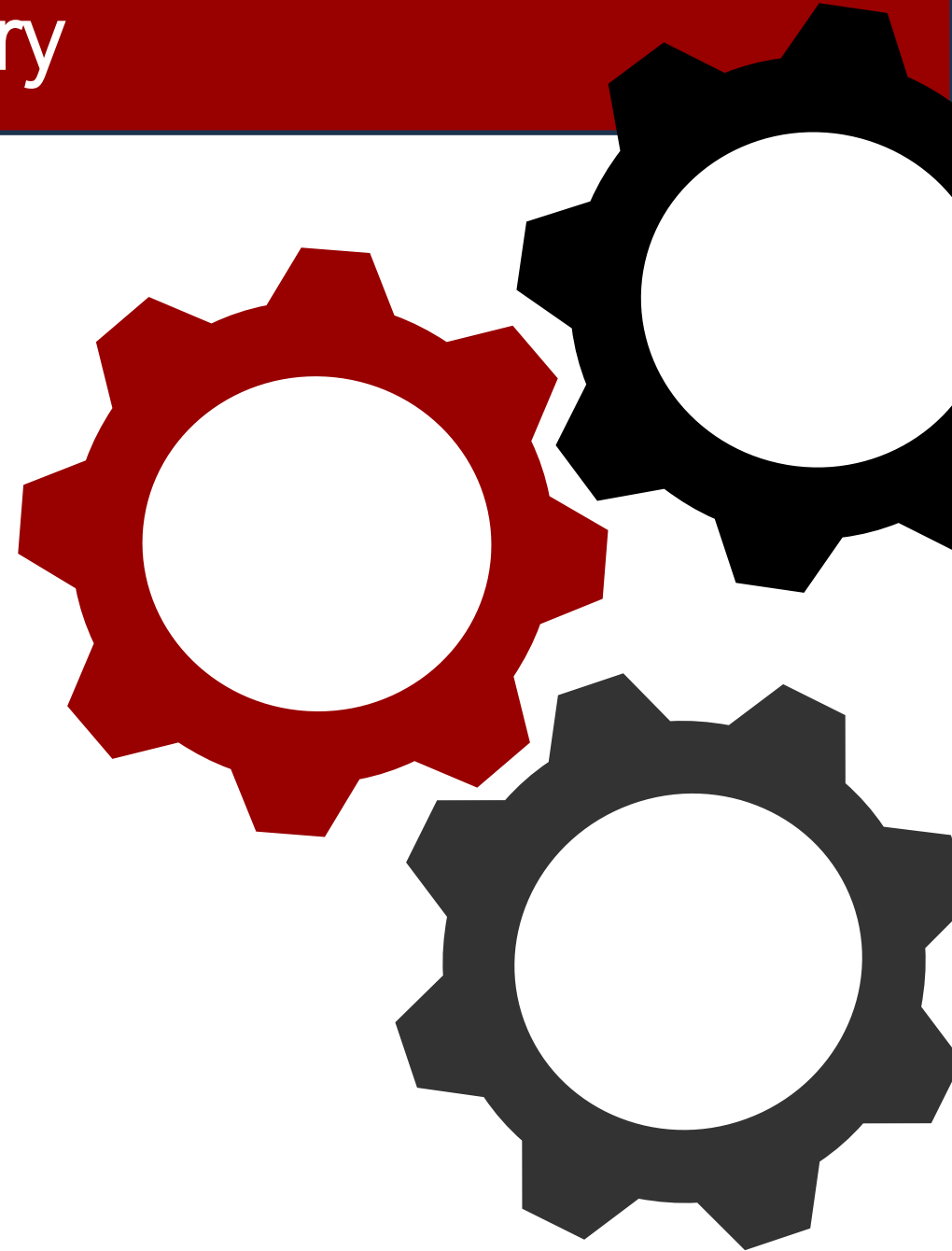
vitamin b-12 (CYANOCOBALAMIN) tablet 1,000 mcg

1,000 mcg 1 time daily, Oral, First dose today at 0900, Until Discontinued, Pre-procedure, Sign and Hold



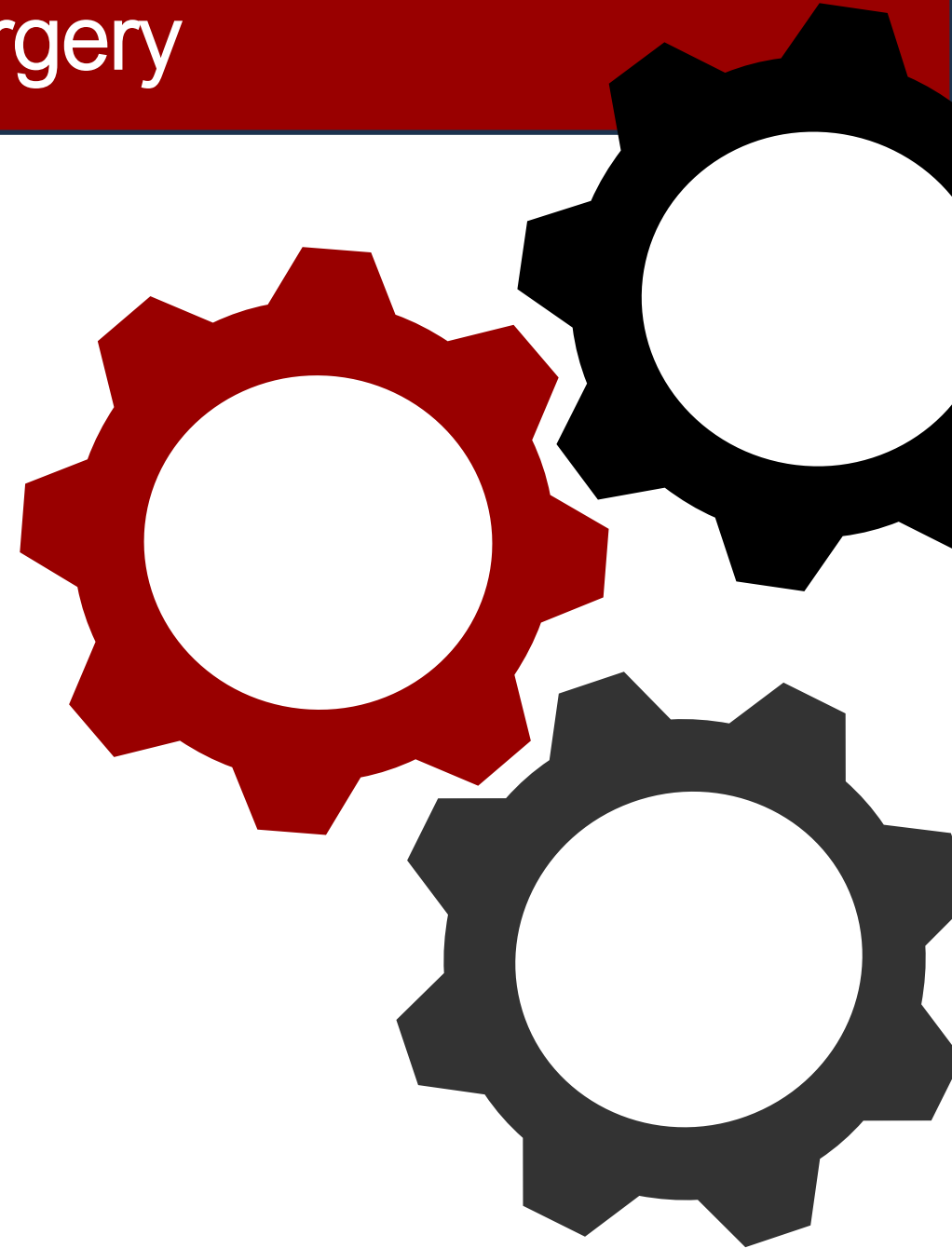
# Preoperative-Timing of Surgery

- Holding anticoagulation & antiplatelets
- Antiplatelet effects and drug metabolism can vary despite available guidelines
- Platelet aggregation or VET quantitates the degree of residual platelet inhibition to assist with proper timing of surgery



# Intraoperative-Meticulous Surgery

- Careful opening and a methodical routine for ensuring hemostasis prior to chest closure.
- The use of a checklist to exclude surgical bleeding at the conclusion of the case has been shown to decrease the need for re-exploration in cardiac surgery.



# Intraoperative-Meticulous Surgery

## Maryland Checklist

Neck

Cannulation Sites

Proximals

Otomies

Diaphragm Well

Pit of Despair

Mammary

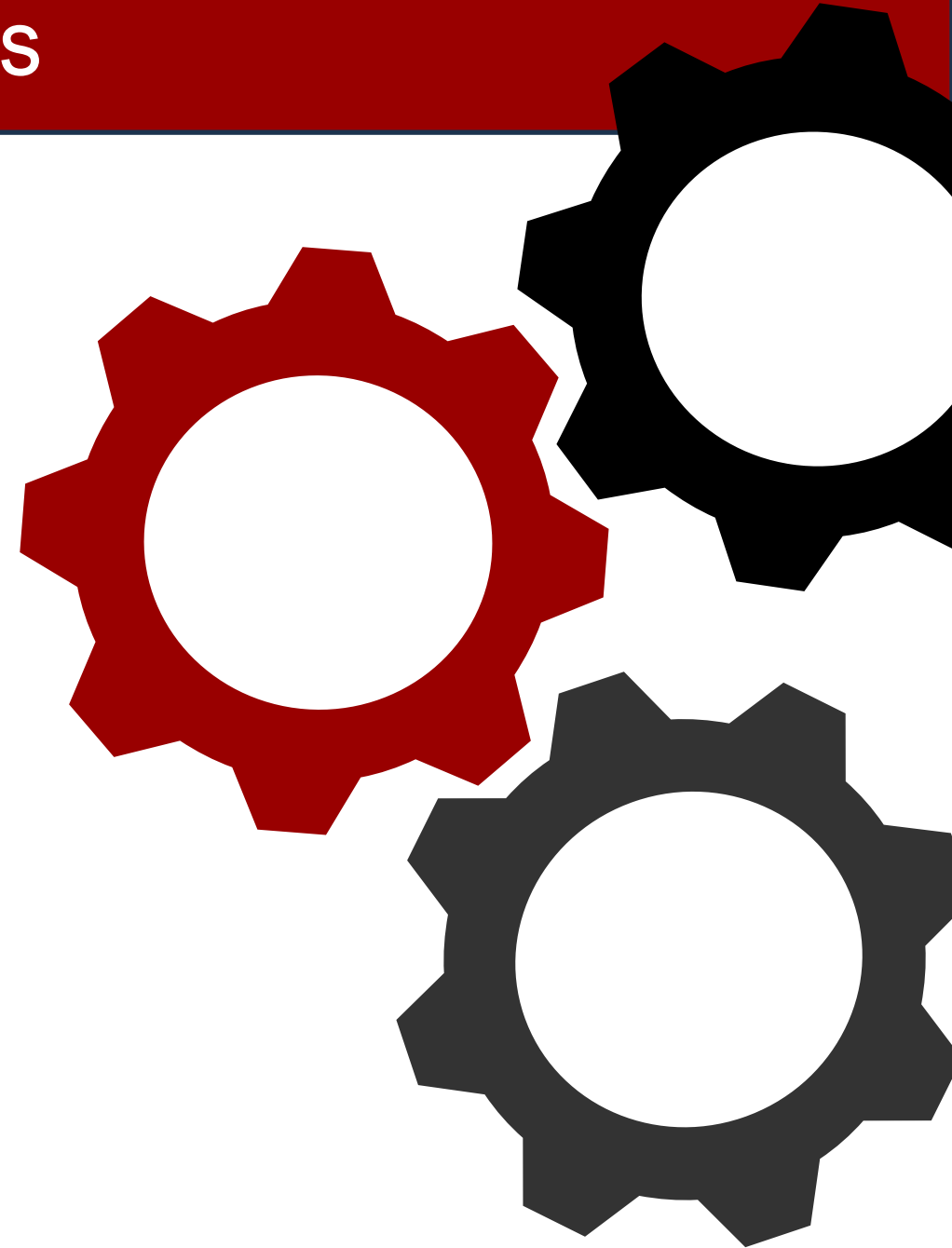
Wires

Mammary Bed



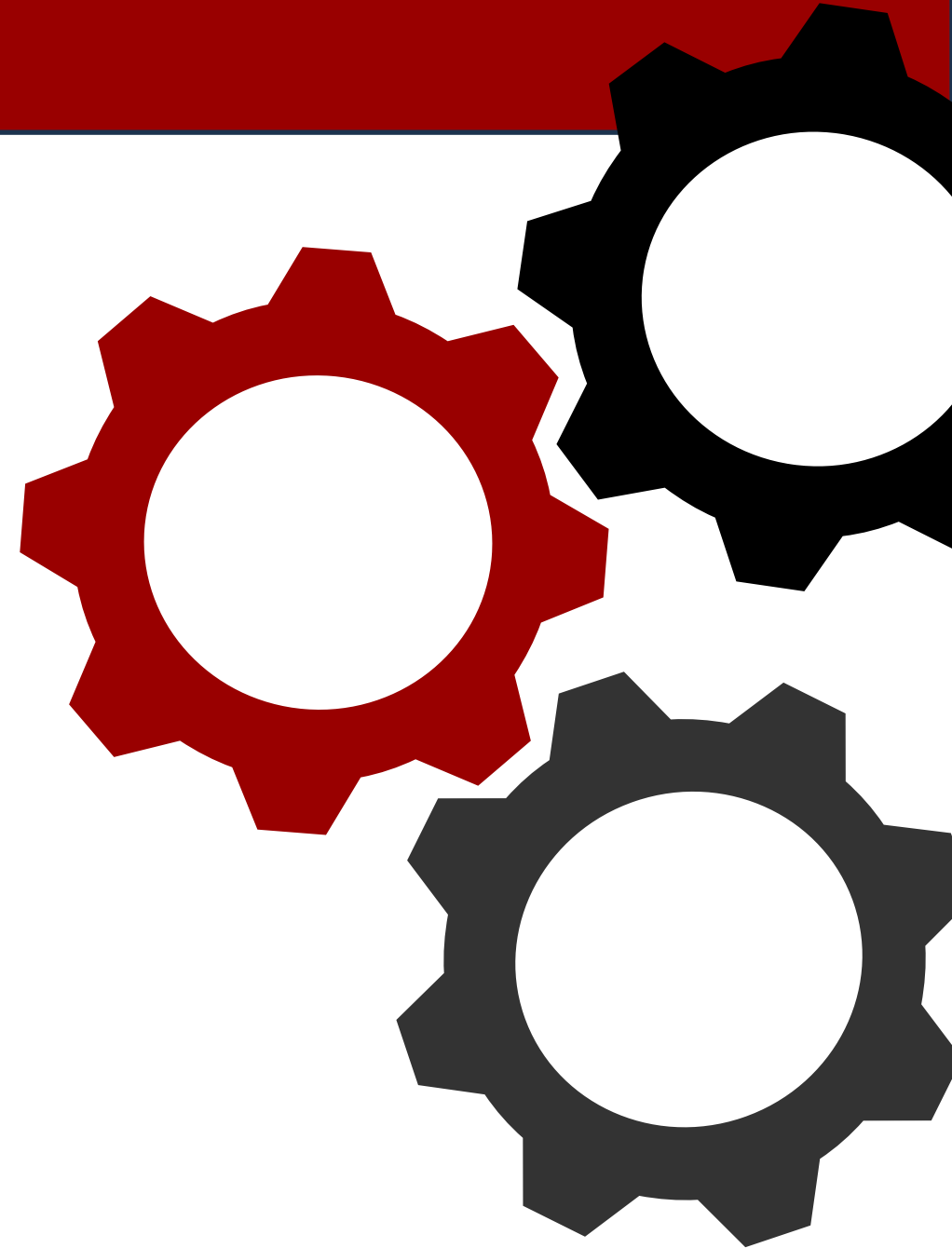
# Intraoperative-Antifibrinolytics

- Antifibrinolytics should be administered routinely unless contraindicated.
- Have been demonstrated to be safe and reduce the need for blood transfusions.
- Tranexamic acid was also demonstrated in a randomized trial to decrease the incidence of re-exploration for bleeding



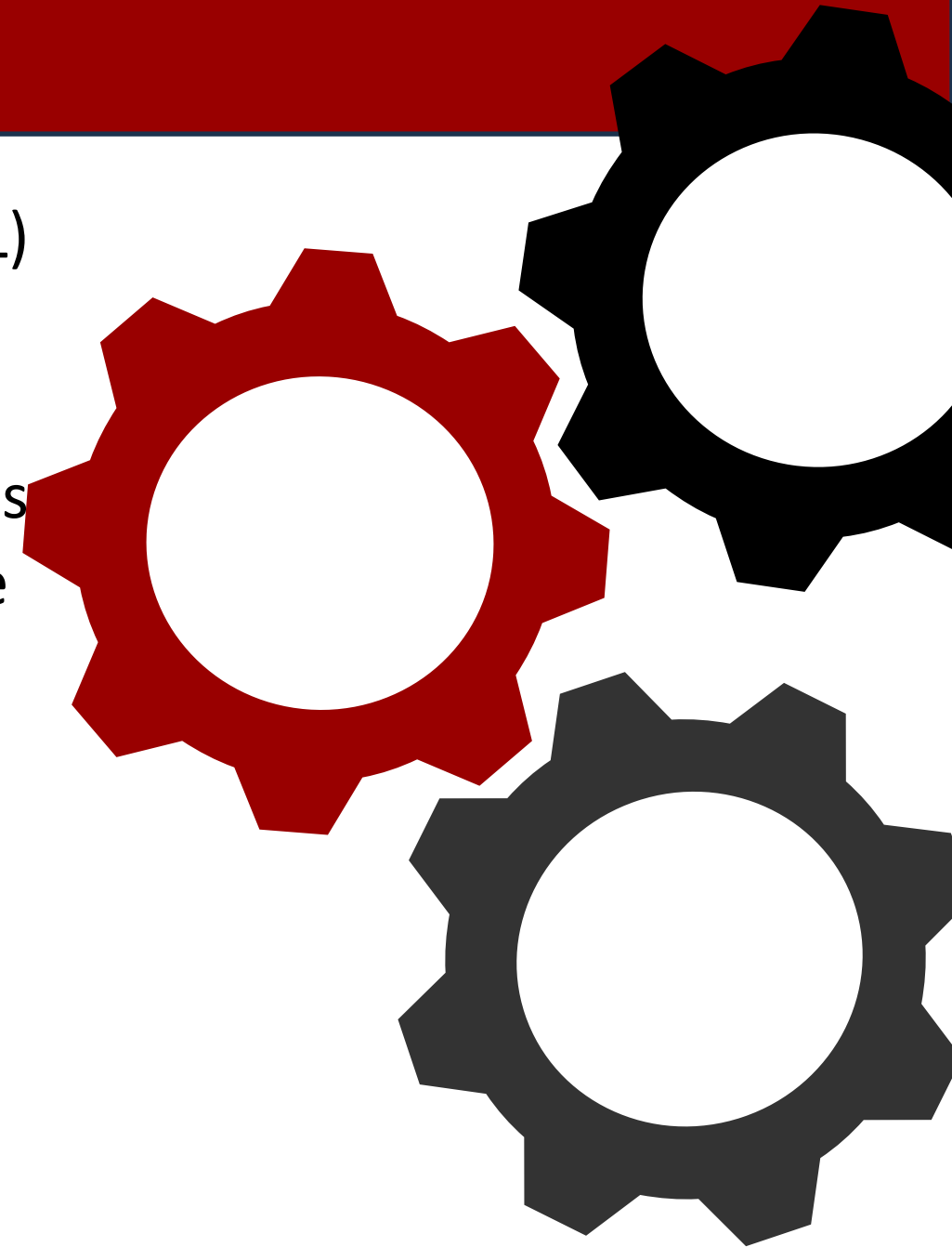
# Intraoperative-Cell Salvage

- Use of cell saver is associated with a decreased need for RBC transfusion and decreased inflammation.
- These results have been duplicated by multiple cohort studies as well as a systematic Cochrane Review.
- One study also demonstrated a reduced incidence of postoperative lung injury with the use of cell salvage.



# Intraoperative-RAP/VAP

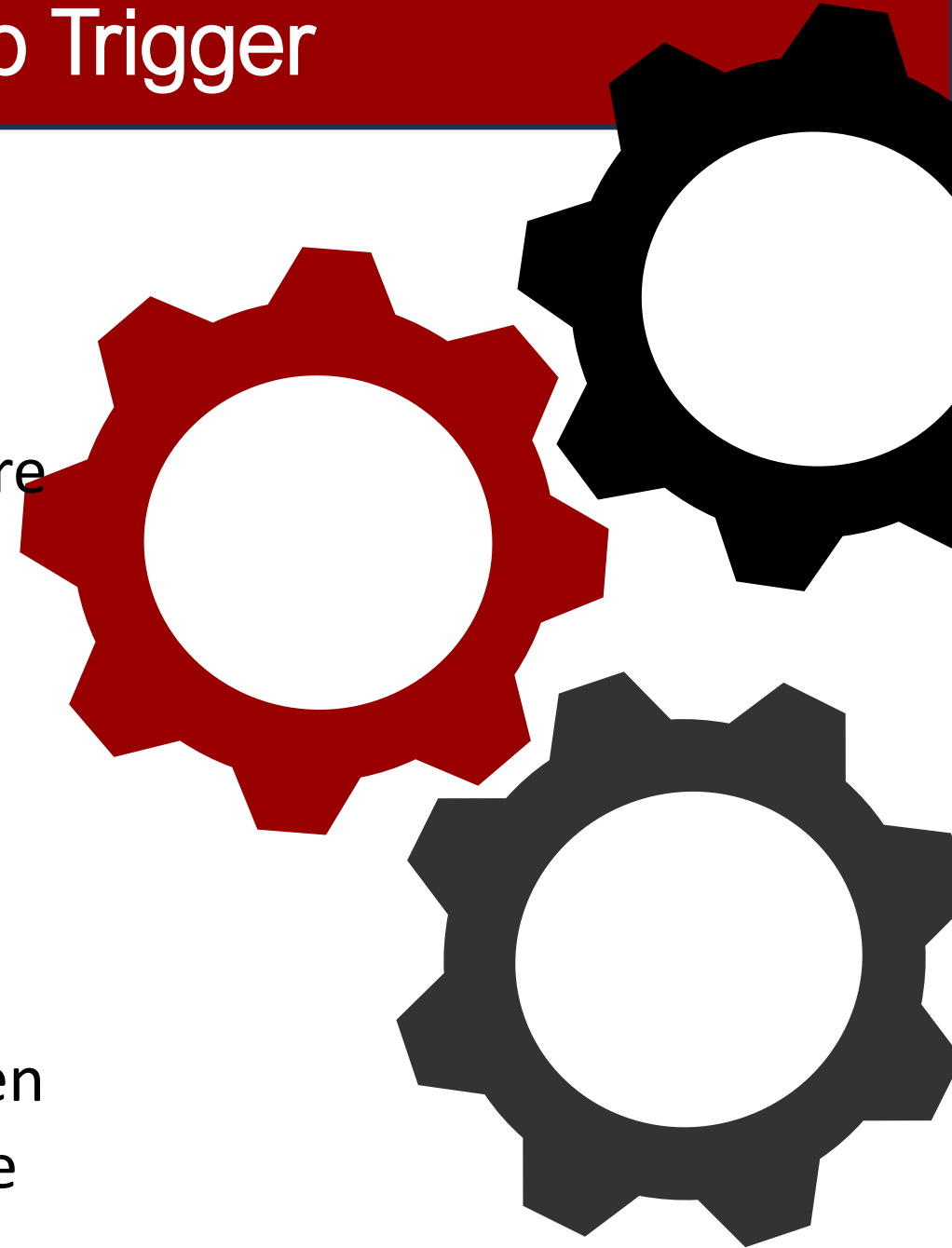
- Bypass circuit volume (typically 1000 to 1800 mL) can cause significant hemodilution up to 30%
- Retrograde autologous priming (RAP) and venous autologous priming (VAP) can be used to replace the crystalloid in the tubing with the patient's own blood prior to going on cardiopulmonary bypass (CPB).
- Class I recommendation for performing RAP within the 2021 combined STS, SCA, AMSECT, and SABM guidelines for PBM.





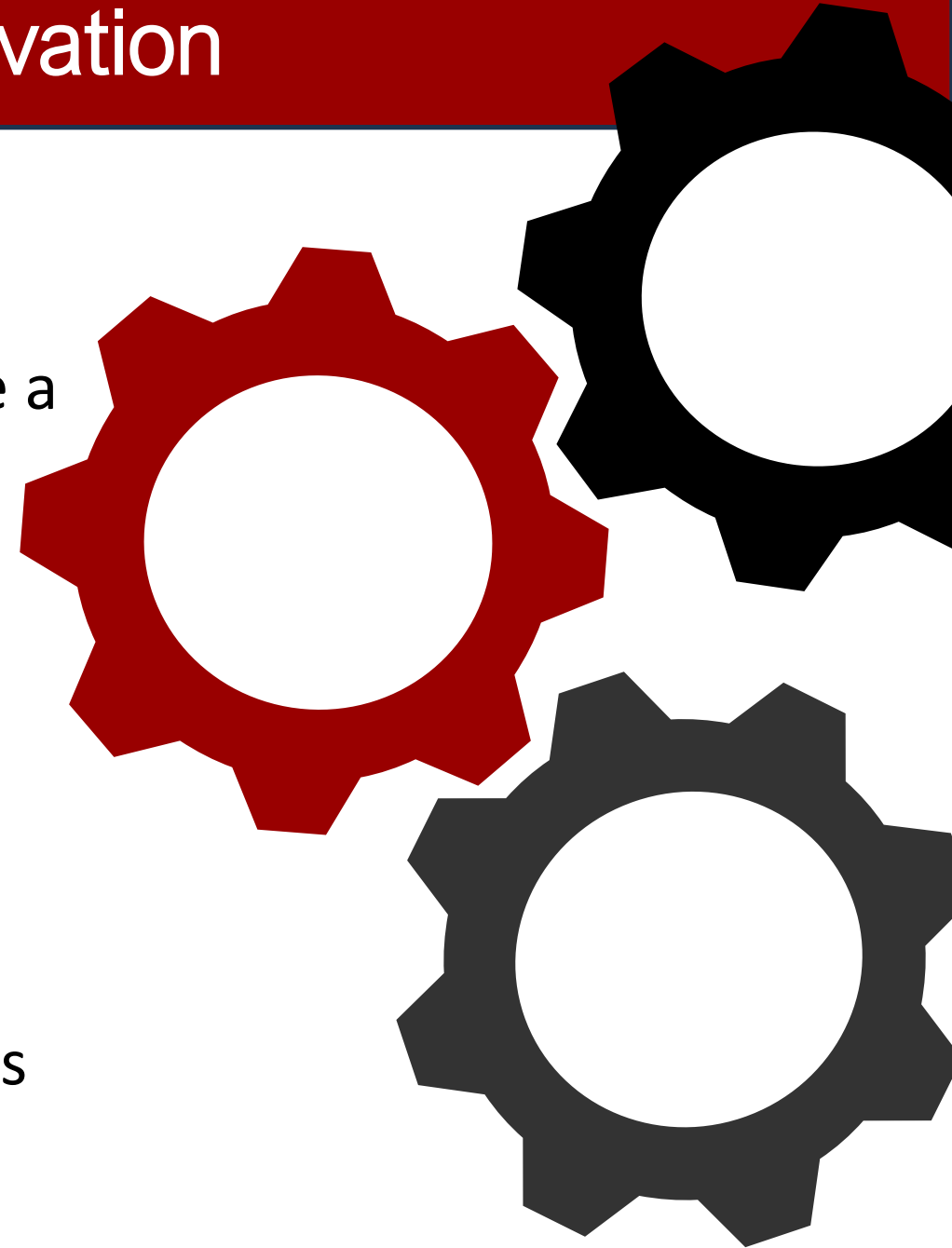
# Intraoperative/Postoperative-Hgb Trigger

- Setting an Hgb transfusion trigger
- Multiple studies demonstrate that a low Hgb trigger is equivalent, or possibly superior, to more liberal blood transfusion in cardiac surgical patients.
- **Anemia tolerance!** There is no definitive transfusion trigger by literature.
- Physiologic signs of inadequate end-organ oxygen delivery guide the decision to transfuse once the threshold is reached



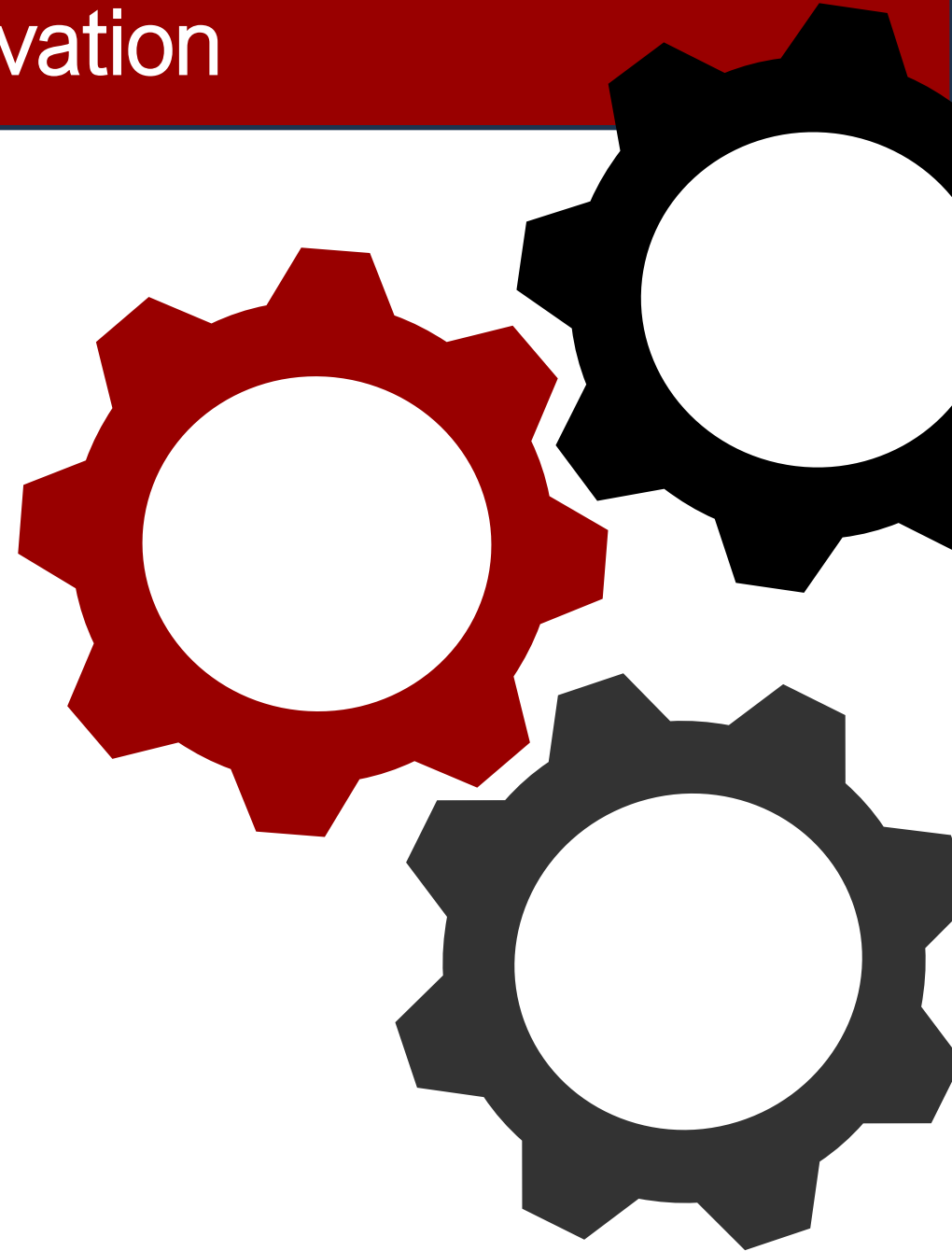
# Postoperative-Culture of Conservation

- Manage as a change project-case for change.
- Recruit key stakeholders and leaders who share a common vision.
- Assess variability in care, gaps in existing protocols, and team member knowledge base.
- Examine the program's current preoperative anemia screening, transfusion rates, and re-exploration rates.
- Motivation for change= avoiding the added morbidity associated with high transfusion rates and program cost savings.



# Postoperative-Culture of Conservation

- Cultural shift can occur through openly discussing outcomes and showing providers their results benchmarked to their peers.
- Blood transfusions for non-bleeding patients should become thoughtful decisions based on appropriate Hgb triggers and a demonstrated need for improved oxygen delivery.





**01**

Multidisciplinary Approach

**02**

Treatment of Preop Anemia

**03**

Timing of Surgery

**04**

Meticulous Surgery

**05**

Cell Savage/RAP/VAP

**06**

Hgb Trigger

**07**

Culture of Conservation

# Highest / Lowest Transfusion Hospital

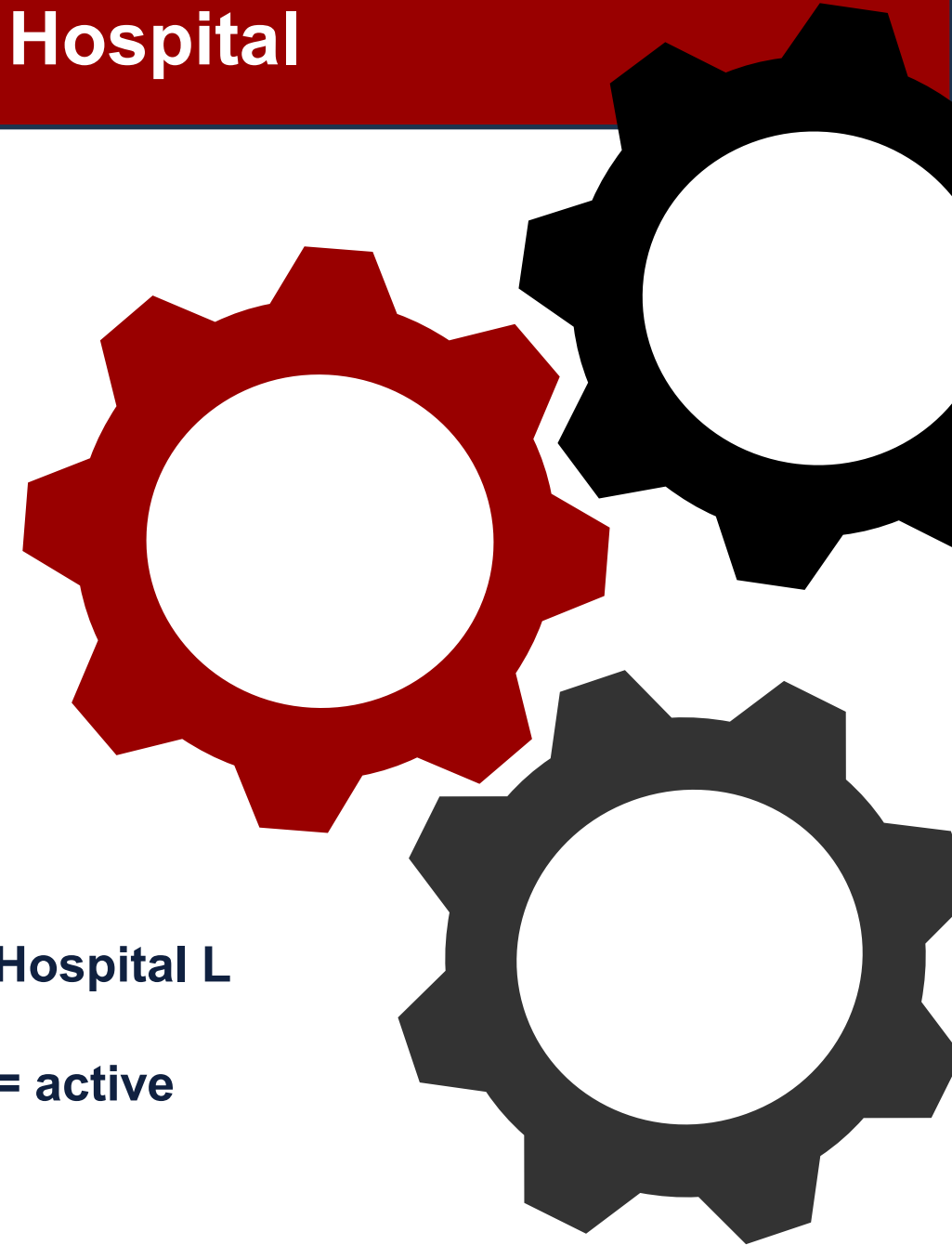
Mauney et al

Perioperative Management

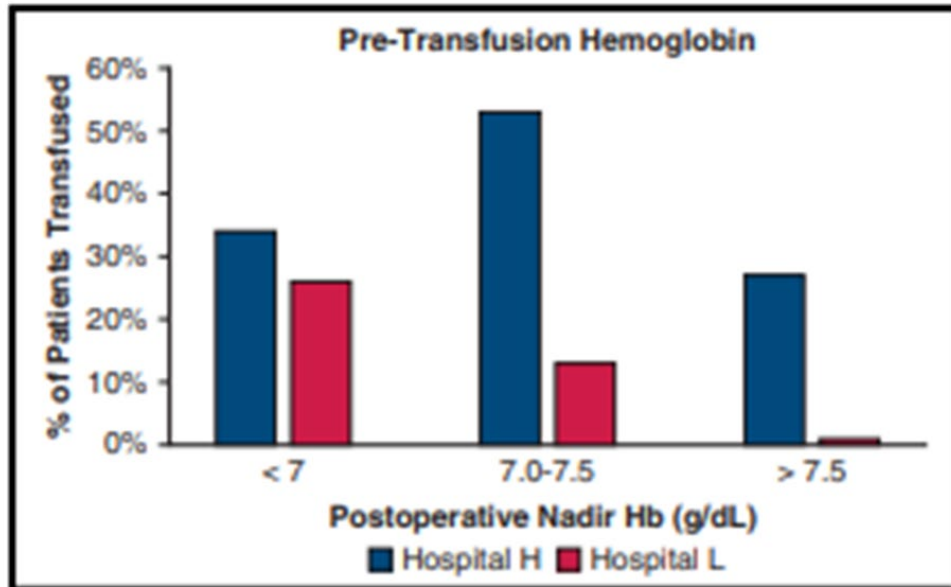
## What drives variability in postoperative cardiac surgery transfusion rates?

Carrinton Mauney, BS,<sup>a</sup> Eric Etchill, MD, MPH,<sup>b</sup> Amanda Rea, MSN, CRNP,<sup>c</sup> Clifford Edwin Fonner, BS,<sup>d</sup> Glenn Whitman, MD,<sup>e</sup> and Rawn Salenger, MD<sup>c,f</sup>

- ✓ Propensity matched CABG and valves
- ✓ Hospital H transfused 36% = 1,483 units of PRBC
- ✓ Hospital L transfused 12% = 198 units of PRBC
- ✓ For all pts Hgb >7.5 Hospital H transfused 27% v. 0.9% Hospital L
- ✓ At Hospital L, sole transfusion indication for Hgb > 7.5 = active bleeding

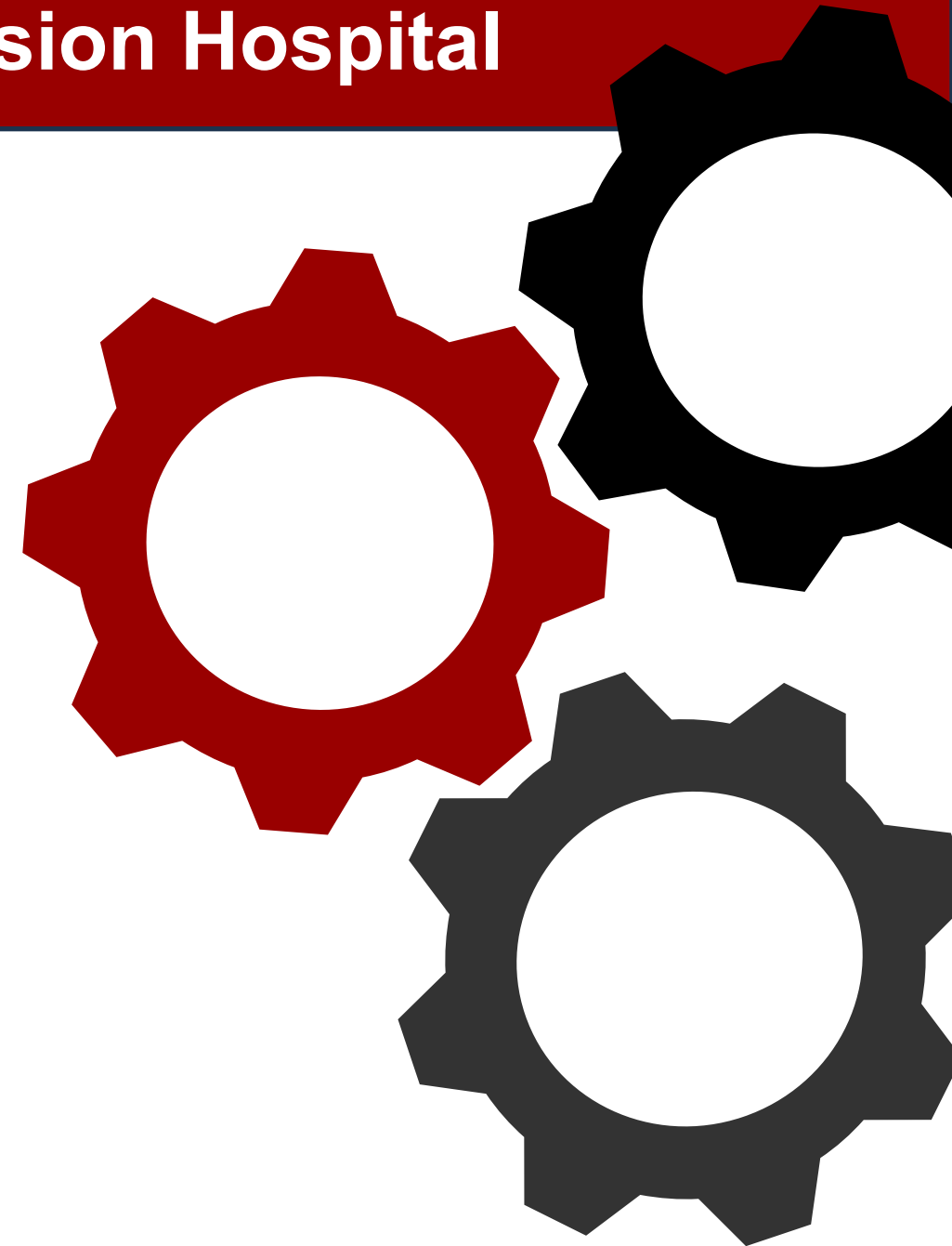


# Highest / Lowest Transfusion Hospital

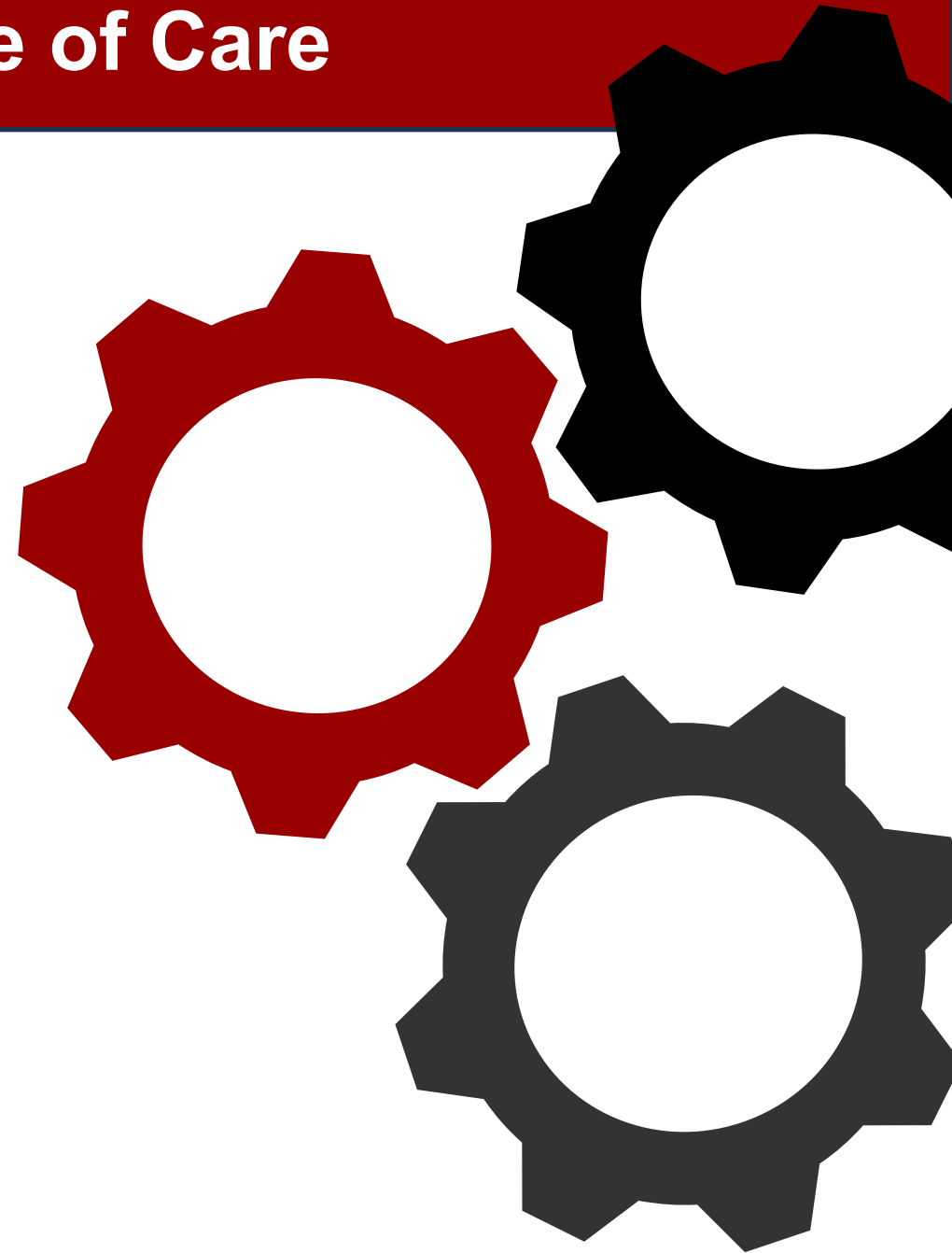
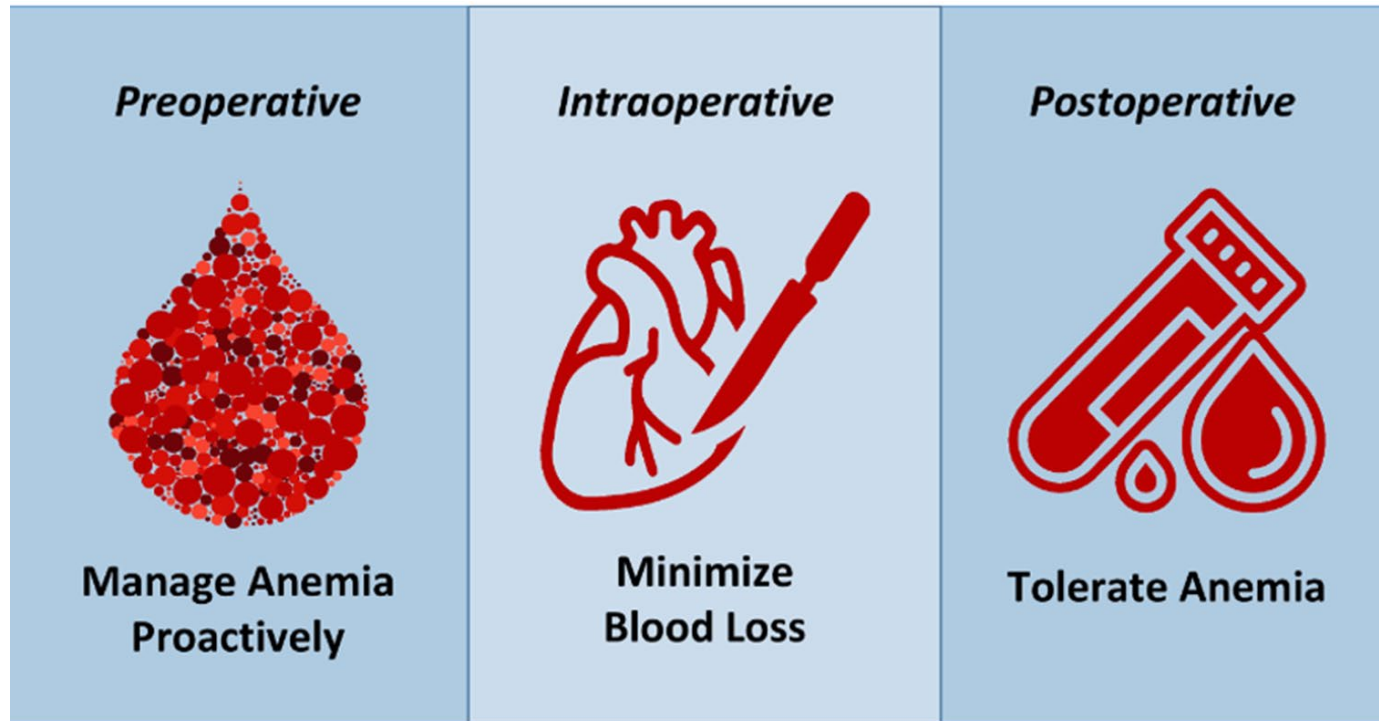


Pretransfusion hemoglobin (g/dL) and transfusion indications at hospitals H and L.

- ✓ Highly restrictive protocol
- ✓ Narrow indications for transfusion
- ✓ High compliance

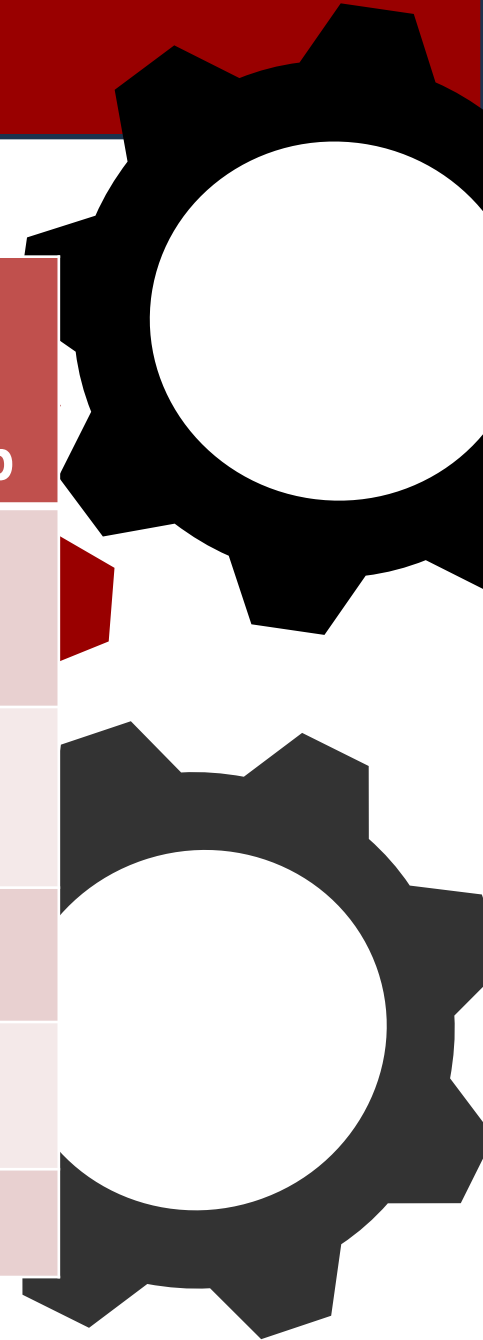


# Main Points by Phase of Care



# UMSJMC PBM Data

	2018	2019	2020	2021	2022	2023	STS Like Group
Intraoperative Transfusion (%)	1.7	1.3	1.2	2.0	2.9	0.7	18.1
Postoperative Transfusion (%)	10.8	10.5	9.4	10.8	10.9	10.0	25.2
Renal Failure (%)	0.5	1.1	1.9	1.7	1.2	1.4	1.8
CVA (%)	0.7	1.0	0.7	1.2	1.4	1.1	1.4
Mortality (%)	0.3	0.8	0.3	1.6	0.3	0.5	1.4



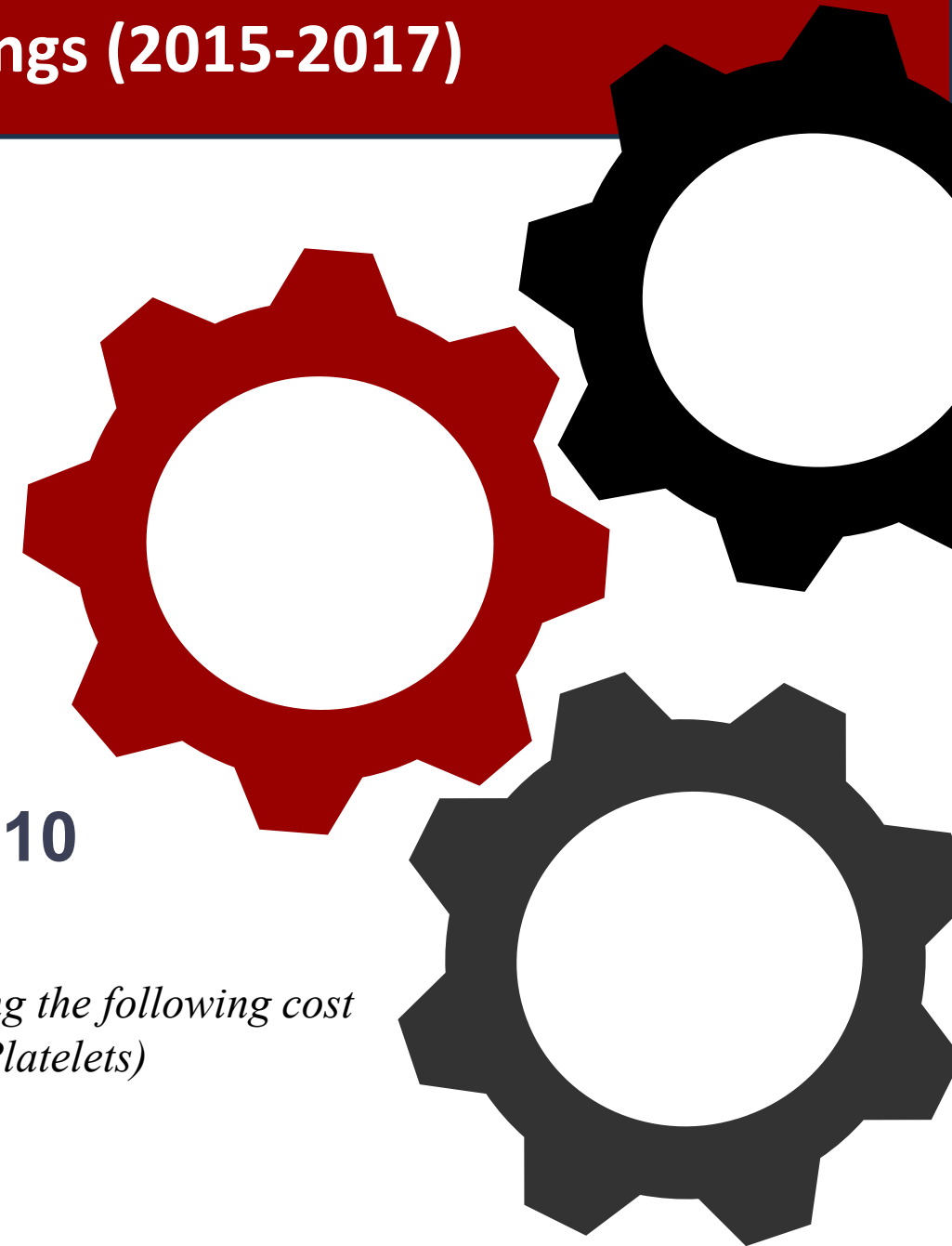


# UMSJMC CABG Blood Cost Savings (2015-2017)

<b>RBC</b>		<b>CY 2015-2017</b>
Total Intra and Post-OP CABG only	\$	757,783
Total Intra and Post-OP All OHS	\$	1,182,210
<b>Other Blood Products</b>		
<b>CY 2015-2017</b>		
Total Intra/Post-Op Plasma + Cryo CABG only	\$	36,800
Total Intra/Post-OP Platelets CABG only	\$	260,000

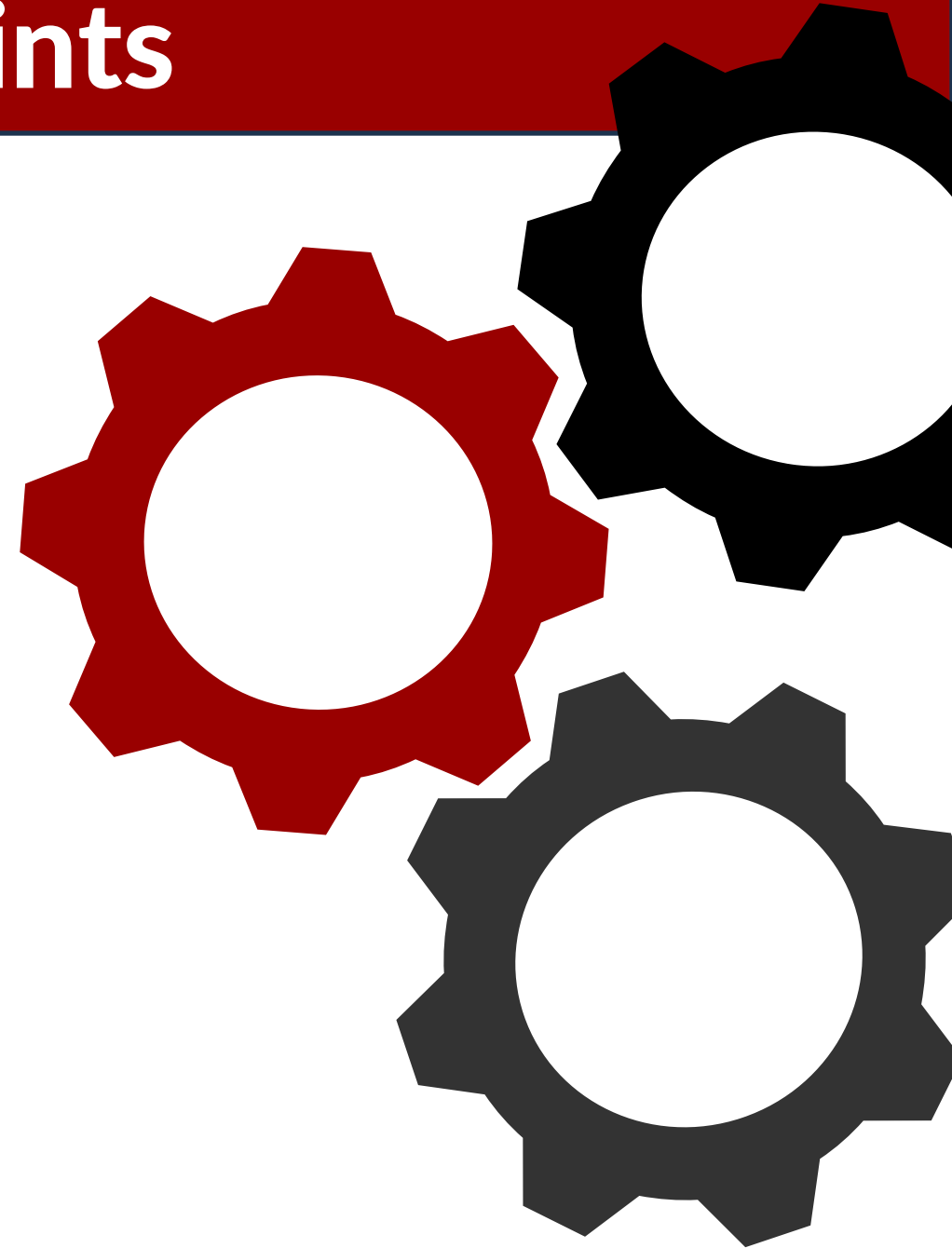
**Total Blood Cost Savings = \$1,442,210**

*Note: Using CY 2014 as a baseline; blood savings were calculated assuming the following cost benchmarks: (\$250 per unit of PRBCs, \$200 FFP and Cryo; \$650 pooled Platelets)*

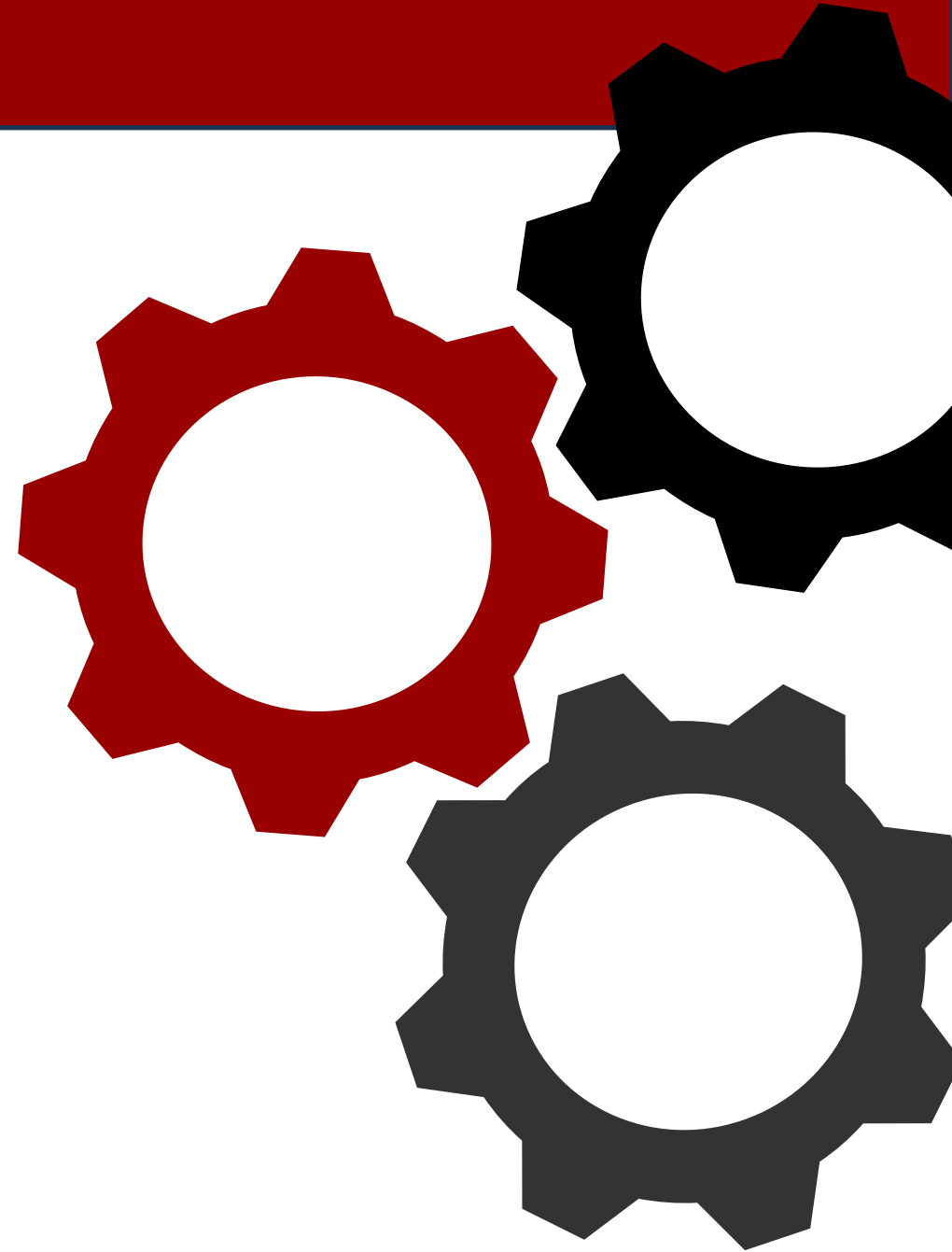


# Take Home Points

- Restrictive PBM strategy = equivalent outcomes plus savings
- Hgb of 7.5 g/dl safe, likely lower



Contact info  
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# Open Discussion

Please use the  
raise-hand  
function.

Please use the  
Q&A Function.

We will answer as  
many questions as  
possible.

We encourage  
your feedback and  
want to hear from  
you!

# Contact Information

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  - Database Operational Questions (Billing, Contracts, Contacts)
- [STSDB Helpdesk@sts.org](mailto:STSDB_Helpdesk@sts.org)
  - IQVIA/Database Platform Questions (Uploader, DQR, Missing Variable, Dashboard, Password and Login)



# *Thank You for Joining!*

If your site has had success implementing a blood conservation project and decreasing blood usage, we invite you to share your story with us on an upcoming ACSD QI Series Webinar!



Happy  
Holidays

