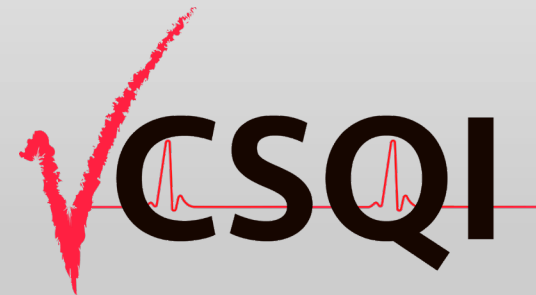


Virginia Cardiac Services Quality Initiative

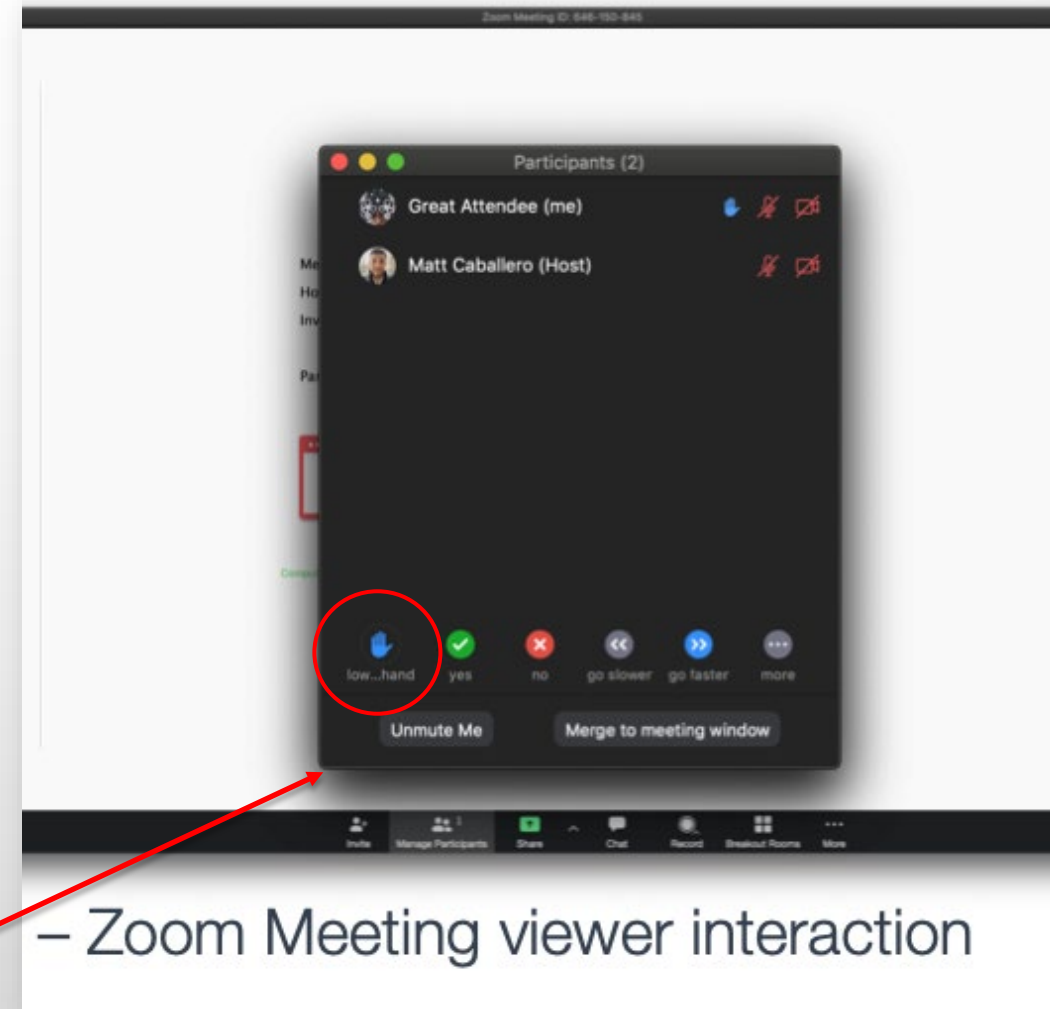
Fall 2025 Quarterly Meeting

Transforming Cardiovascular Care to Improve Patient Experience and Value

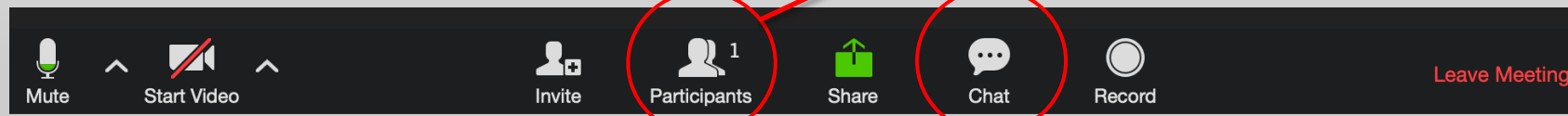


To ensure a smooth meeting...

- Please mute your lines (phone or audio), until called upon
 - Interactive features available under '**participants**' window
- Hold questions until end of presentation
- Use "Raise Hand" feature for questions or comments
- The Chat Room can also be used to ask questions
- **Call/text Sherri (216) 513-3141** if you need assistance



– Zoom Meeting viewer interaction



VCSQI



RESTROOM

RESTROOM

From our DEI 2.0 Workgroup

Grab some...at registration desk!



INICIATIVA DE CALIDAD DE LOS SERVICIOS CARDIACOS DE VIRGINIA

TU CUIDADO. TU VOZ. TU SALUD.

Entendiendo la atención justa y el acceso equitativo en los hospitales de Virginia

LO QUE DEBES SABER

En hospitales de todo Virginia, estamos trabajando juntos para mejorar la atención cardíaca para todos.

Esto significa:

- Comunicación clara y respetuosa
- Acceso a servicios que se adaptan a tus necesidades
- Atención que honra sus valores, antecedentes y voz

Esto se llama Atención Justa y está ocurriendo ahora en los hospitales como este.

POR QUÉ ES IMPORTANTE



Tu mereces:

- Atención que se siente segura, personal, y confiable.
- Voz sobre cómo le tratan y lo que importa
- La oportunidad de compartir con otros que conduzcan a mejoras reales

Los hospitales están escuchando y cambiando gracias a lo que dicen pacientes como usted.

¿QUIERES SABER MÁS?

Visita: vcsqi.org/dei-for-patients

Encontrarás:

- Historias reales de pacientes de Virginia
- Quié están haciendo los hospitales para mejorar el acceso, la comunicación y la confianza
- Cómo puedes hablar y participar

Conozca sus derechos. Comparta su experiencia. Contribuya a forjar el futuro de la atención cardíaca.

TU VOZ IMPORTA

VCSQI es una colaboración estatal de organizaciones cardíacas que trabajan juntas para mejorar la atención en Virginia.

Sus comentarios hacen la diferencia, en este hospital y en todo el estado.

Este folleto fue proporcionado por VCSQI, en asociación con su hospital.



VIRGINIA CARDIAC SERVICES QUALITY INITIATIVE

YOUR CARE. YOUR VOICE. YOUR HEALTH.

Understanding Fair Care and Equal Access in Virginia Hospitals

WHAT YOU SHOULD KNOW

At hospitals across Virginia, we're working together to make heart care better for everyone.



That means:

- Clear, respectful communication
- Access to services that fit your needs
- Care that honors your values, background, and voice

This is called Fair Care - and it's happening now in hospitals like this one.

WHY IT MATTERS TO YOU



You deserve:

- Care that feels safe, personal, and trustworthy
- A say in how you're treated and what matters most to you
- The chance to share feedback that leads to real improvements

Hospitals are listening - and changing - because of what patients like you are saying.

WANT TO LEARN MORE?



Visit: vcsqi.org/dei-for-patients

You'll find:

- Real stories from Virginia patients
- What hospitals are doing to improve access, communication, and trust
- How you can speak up and get involved

Learn your rights. Share your experience. Help shape the future of heart care.

YOUR VOICE MATTERS

VCSQI is a statewide collaborative of cardiac service organizations working together to improve heart care in Virginia.

Your feedback makes a difference - in this hospital and across the state.

This flyer was provided by VCSQI, in partnership with your hospital.



VIRGINIA CARDIAC SERVICES QUALITY INITIATIVE

Fall Quarterly Meeting - October 9, 2025 - 5:30-7:30 PM

Lewis Ginter Botanical Gardens

Course Description: *This series is tailored for VCSQI Quarterly Meetings, focusing on the evolving landscape of cardiac care, including diagnostic, therapeutic, and professional practices. The meetings serve as a platform to review, assess, and integrate new technologies and research in the realm of cardiac surgery and care. By employing a multidisciplinary approach, these gatherings ensure that cardiac patients receive prompt, guideline-aligned treatment, leading to an overall improvement in the quality of care. Participants will enhance their collaborative skills with peers and experts in the cardiac community, gain familiarity with the resources and programs available in their service areas, and benefit from the insights of leading subject matter experts in cardiac health.*

Target Audience: Physicians, Nurses, Pas

Desired Outcomes: *At the conclusion of these activities, participants will be able to:*

- Gain a deeper understanding of the latest research and data in cardiovascular care
- Integrate data-driven insights into clinical practice, leading to better patient outcomes.
- Increase consistency in applying value-based practices across different healthcare settings.
- Develop enhanced skills in interpreting and applying cardiovascular data, such as insights from STS and CathPCI registries, to improve clinical decision-making and patient care strategies.
- Learn knowledge and practical strategies for aligning their clinical practices with the latest evidence-based guidelines and best practices in cardiovascular care.
- Apply consistent, high-quality care techniques that positively impact patient outcomes, focusing on reducing variability in treatment and enhancing patient-centered approaches in cardiovascular care.

AGENDA

5:30-5:50 PM

Welcome and Highlights from the Board

Robert Lancey, MD, Sentara Norfolk

- Describe and assess recent achievements, initiatives, and the strategic direction of the Virginia Cardiac Services Quality Initiative (VCSQI) to understand its role in advancing cardiovascular care.
- Identify and evaluate key priorities and challenges in cardiac quality improvement, and propose strategies for addressing barriers within healthcare systems.

5:50-6:10 PM (VCSQI MEMBERS ONLY)

Cost and Quality Data Review

Eddie Fonner, VCSQI Executive Director

- Analyze and interpret current trends in cost, quality, and outcome data to enhance understanding of system-level performance in cardiovascular care.
- Identify and apply opportunities for improving patient care by integrating data-driven decision-making into clinical practice and systems-based initiatives.

6:10-6:30PM

VHAC Updates

Peter O'Brien, MD, Centra Lynchburg

- Describe the mission and goals of the Virginia Heart Attack Coalition (VHAC) in improving AMI outcomes statewide.
- Summarize current VHAC initiatives, protocols, and metrics aimed at enhancing STEMI and NSTEMI care pathways.

6:30-7:00PM

Improving Efficiency in Performing TAVR Procedure

Mohammed Quader, MD, Virginia Commonwealth University

- Review the indications, patient selection criteria, and pre-procedural assessment strategies for TAVR, incorporating lessons from 1,000 cases.
- Identify key procedural techniques and decision points that optimize outcomes and reduce complications during TAVR.

7:00-7:30PM

Implementation of a patient blood management program: Challenges abound!

Karen E. Singh, MD, FASE, University of Virginia

- Define the core principles of Patient Blood Management (PBM) and its relevance to evidence-based clinical practice.
- Identify institutional and systemic barriers to implementing PBM programs.

Accreditation and Designation Statement



In support of improving patient care, this activity has been planned and implemented by the UVA Health Continuing Education and VCSQI. UVA Health Continuing Education is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

Physicians

UVA Health Continuing Education designates this live activity for a maximum of **2.0 AMA PRA Category 1 Credits.TM** Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Nurses

UVA Health Continuing Education awards up to **2.0 contact hour(s)** for nurses who participate in this educational activity and complete the post activity evaluation.

Hours of Participation

UVA Health Continuing Education awards **2.0 hours of participation** (consistent with the designated number of *AMA PRA Category 1 Credit(s)TM* or ANCC contact hours) to a participant who successfully completes this educational activity. UVA Health Continuing Education maintains a record of participation for six (6) years.

Physician Associates

UVA Health Continuing Education has been authorized by the American Academy of PAs (AAPA) to award AAPA Category 1 CME credit for activities planned in accordance with AAPA CME Criteria.

This activity is designated for **2.0 AAPA Category 1 CME credits**. PAs should only claim credit commensurate with the extent of their participation.

Successful completion of this CME activity, which includes participation in the evaluation component, enables the participant to earn up to **2.0 MOC points** in the American Board of Internal Medicine's (ABIM) Maintenance of Certification (MOC) program. It is the CME activity provider's responsibility to submit participant completion information to ACCME for the purpose of granting ABIM MOC credit.



Disclosures

The following faculty and planners have disclosed financial relationships as follows:

All financial relationships have been mitigated to ensure independence and integrity in the educational content.

No one in a position to control content has disclosed any financial relationships.

All financial relationships have been mitigated to ensure independence and integrity in the educational content.

No one else in a position to control content has disclosed any financial relationships.

Disclosure of Financial Relationships

UVA Health Continuing Education as a Joint Accreditation Provider adhere to the ***ACCME Standards for Integrity and Independence in Accredited Continuing Education***, as well as Commonwealth of Virginia statutes, University of Virginia policies and procedures, and associated federal and private regulations and guidelines.

All individuals involved in the development and delivery of content for an accredited CE activity are required to disclose relevant financial relationships with ineligible companies occurring within the past 24 months (such as grants or research support, employee, consultant, stock holder, member of speakers bureau, etc.). UVA Health Continuing Education employs appropriate mechanisms to resolve potential conflicts of interest and ensure the educational design reflects content validity, scientific rigor and balance for participants. Questions about specific strategies can be directed to UVA Health Continuing Education at uvacme@uvahealth.org.

Disclosure of discussion of non-FDA approved uses for pharmaceutical products and/or medical devices

As a Joint Accreditation provider, UVA Health Continuing Education requires that all faculty presenters identify and disclose any off-label or experimental uses for pharmaceutical and medical device products. It is recommended that each clinician fully review all the available data on new products or procedures prior to clinical use.

Disclaimer Information: CE activities accredited by UVA Health Continuing Education are offered solely for educational purposes and do not constitute any form of certification of competency. Learners should always consult additional sources of information and exercise their best professional judgment before making clinical decisions of any kind. Learners are not authorized to copy, modify, reproduce, re-publish, sub-license, sell, upload, broadcast, post, transmit or distribute any of the course materials.

How to Claim CE Credit

At the conclusion of this program

- Go to www.cmevillage.com

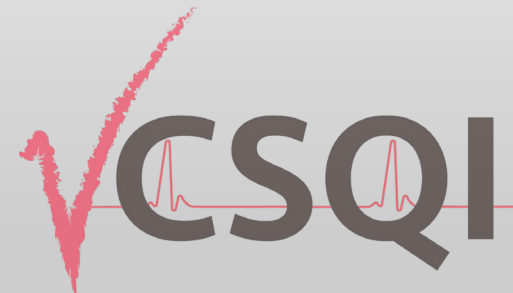


- Select **“Sign In”, Use your email and password**
- Click **“My CE, Claim Credit”**
- Enter Activity ID: **28144**
- Complete **Evaluation and submit.**
- Return to **My CE, Transcript** to view and save your official documentation.
- If you have any problems or questions, please email the UVA CME office at uvacme@uvahealth.org
- **Participants need to complete within 7 days of this activity. After this date, credit cannot be awarded.**

Promotional Support

We would like to thank the following companies for their promotional support of this program:

Johnson & Johnson MedTech
Medtronic
Viz AI
ZOLL TherOx



IN MEMORIAM: DR. CURT TRIBBLE



Friend of VCSQI and Stellar Human

Welcome and Highlights from the Board

Robert Lancey, MD (Sentara Rockingham)
VCSQI Chairman

VCSQI Strategic Plan

Mission

Transform Cardiovascular Care to Improve Patient Experience and Value

Vision

Optimize Heart Care Outcomes Through National Collaboration, Innovation and Research

Core Values

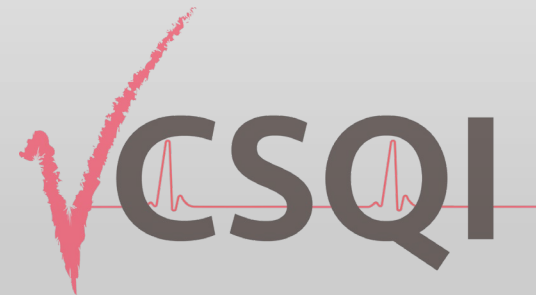
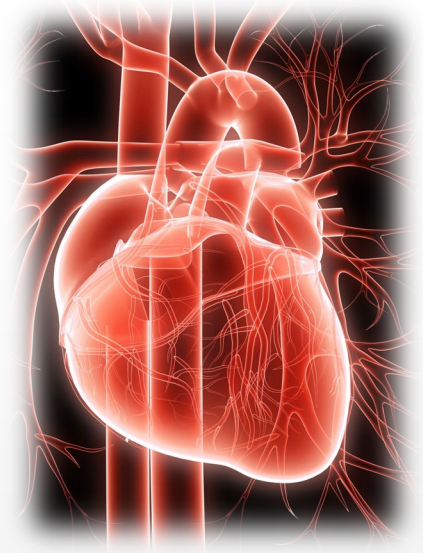
Value-Based Best Practices

Collaboration & Transparency

Stewardship of Healthcare & Costs

Quality and Patient Centered

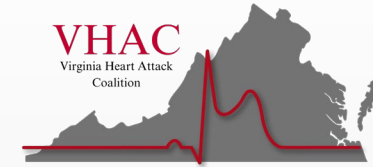
Innovation; Data and Analytic-Driven



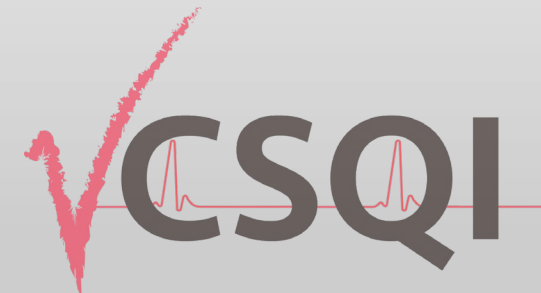
Board Updates: 2025 YTD Highlights



- Aortic Dissection Task Force
- Ambulatory Surgical Centers (ASCs):
Contemplating Future VCSQI Members
- Marketing Campaigns and VCSQI Web Updates
- Patient- and Provider-Centric DEI Resources
- Balanced Scorecard and Project Tracking
- Protocol Implementation Tool
- Increased Meeting Sponsorships



- VHAC Board of Directors Formation
- Ongoing Workgroups: ECG education, ED Bypass, Thrombolytics, PE Response Team (PERT) and Cardiogenic Shock.



Board Updates: Fall 2025

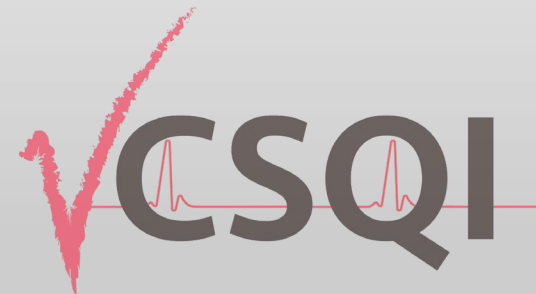
➤ Finances - Good Standing

➤ Scorecard Update:

	Quality	Workforce	Financial	Research
PROGRESS TRACKER	68%	69%	89%	39%

➤ Marketing Material - www.vcsqi.org/promote

➤ Project Highlight - MACPAQ Reviews



VCSQI ECMO / ELSO Workgroup

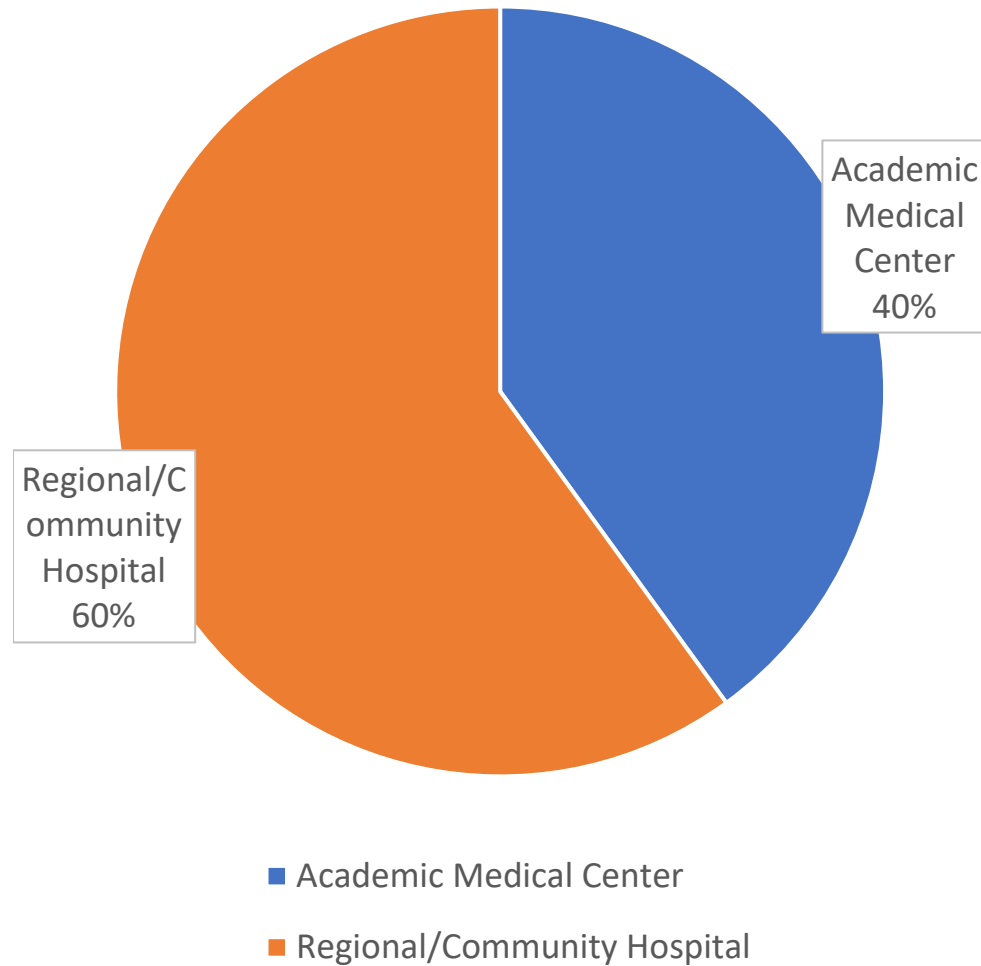
Eve Dallas

Who responded...

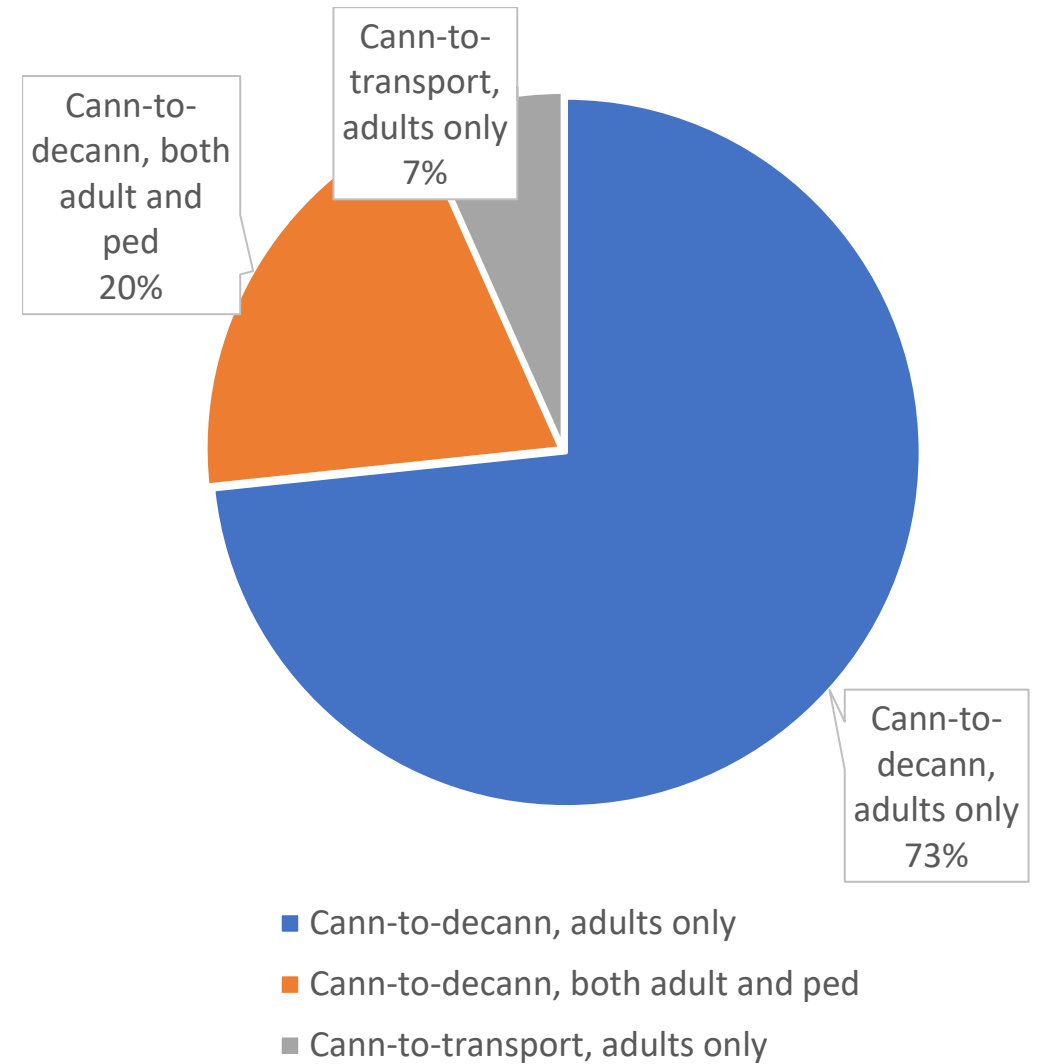
VCU Medical Center
Winchester Medical Center
Inova Fairfax Medical Center
UVA Health
Chesapeake Regional Medical Center
Sentara Heart Hospital
Froedtert & Medical College of Wisconsin
Henrico Doctors Hospital
Carilion Clinic
Billings Clinic
Centra Lynchburg General Hospital
Sentara Norfolk Hospital
SHH

ECMO Specialist x 3
Perfusionist x 3
ECMO team lead x 4
Clinical Director x 4
Medical Director x 1
MCS Clinical Coordinator x 1
Emergency Dept. Nurse Manager x 1
Multi-Clinical Program Manager x 1
ECMO Coordinator x 1
Surgeon x 1
RN, ECMO Coordinator x 1
Shock ECMO Coordinator x 1
Nurse Practitioner x 1

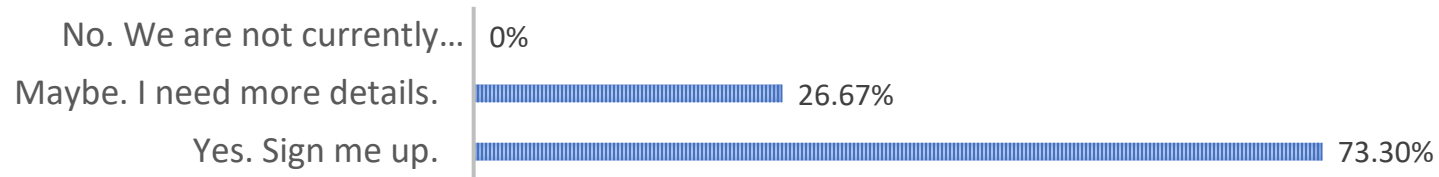
What type of hospital/system do you represent?



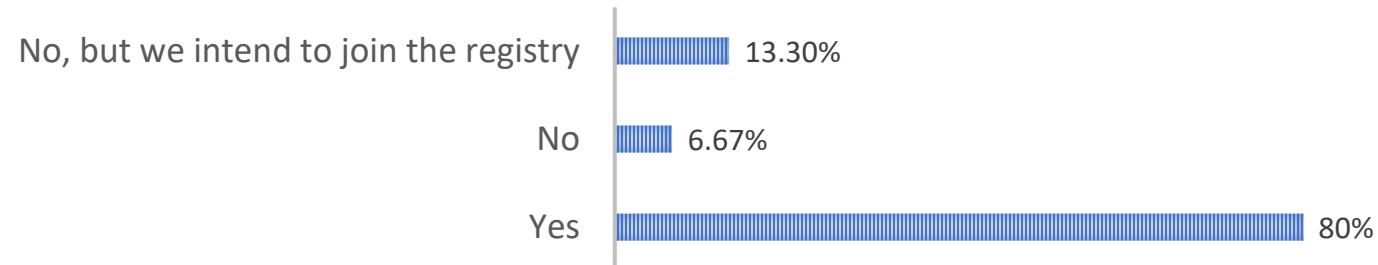
What level of ECMO care at your hospital?



VCSQI is considering a regional workgroup that would bring ECMO principals together to discuss standardization of practices, development of guidelines, and data collection and analysis. Are you interested in sharing experiences and working with other ECMO principals to advance patient care across the region?



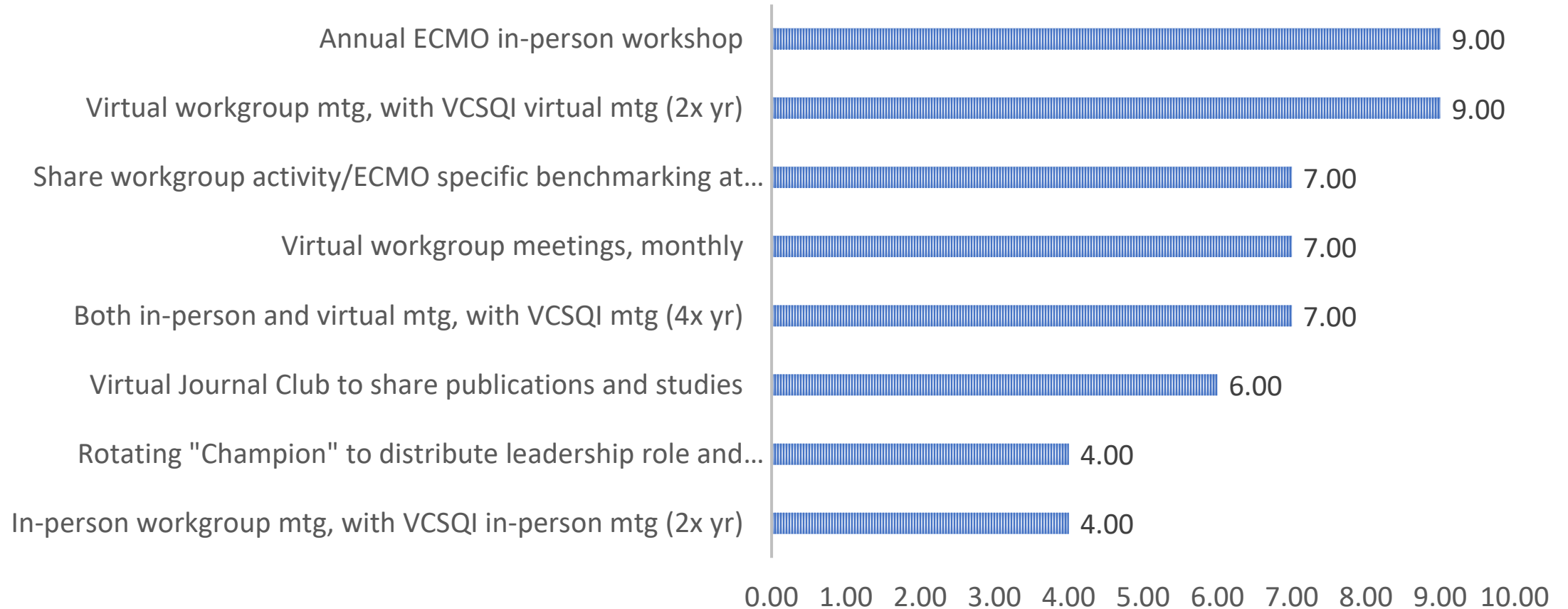
Does your hospital participate in the ELSO registry?

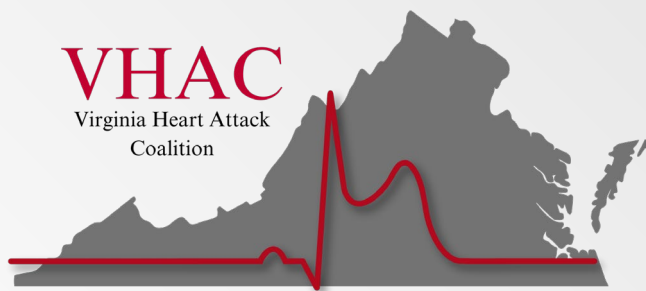


If the ECMO workgroup decides to create an ELSO Peer Group for the purpose of sharing and reporting data, what ECMO-related quality metrics would be most valuable to track collectively?

- Anticoagulation protocols & complications
- Cannula-related complications
- Hemolysis rates
- MCS interactions
- ECMO patient selection criteria
- Circuit change-outs
- Component failures
- QALY, lab work intervals standardizations

Please let us know what types of workgroup activities would be useful to your practice.





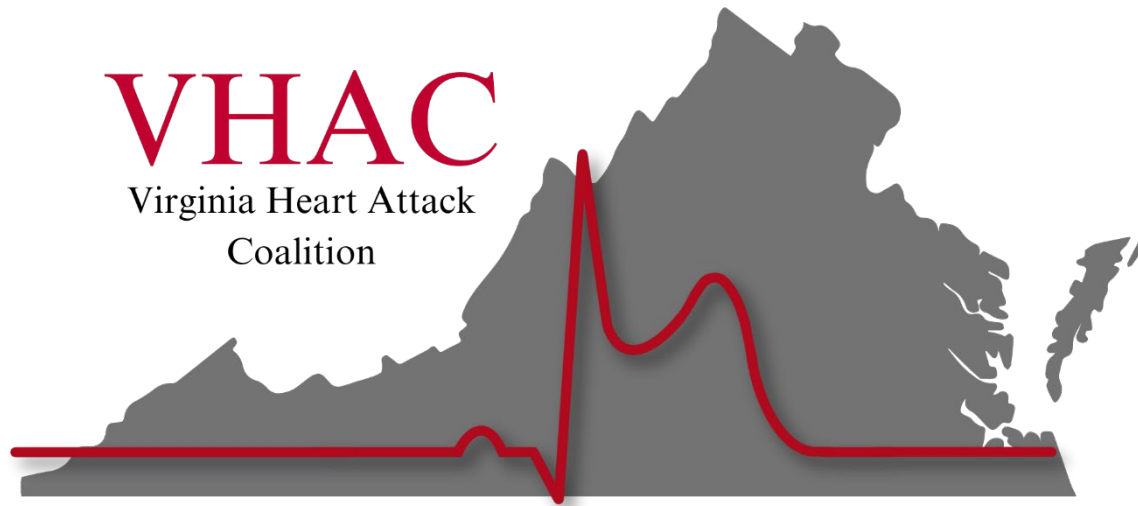
*2025

VHAC Accelerates...*But Have We Crossed the Finish Line?*

OCTOBER 9, 2025

Proud partner of





It Is All About
the Patients
...Our Mission
and Vision!

Our Mission: To continuously improve cardiovascular systems of care in Virginia through education and data-driven collaboration with healthcare professionals and organizations, community partners, and patients.

Our Vision: All Virginians should have access to high-quality, patient-centered, equitable cardiovascular care.

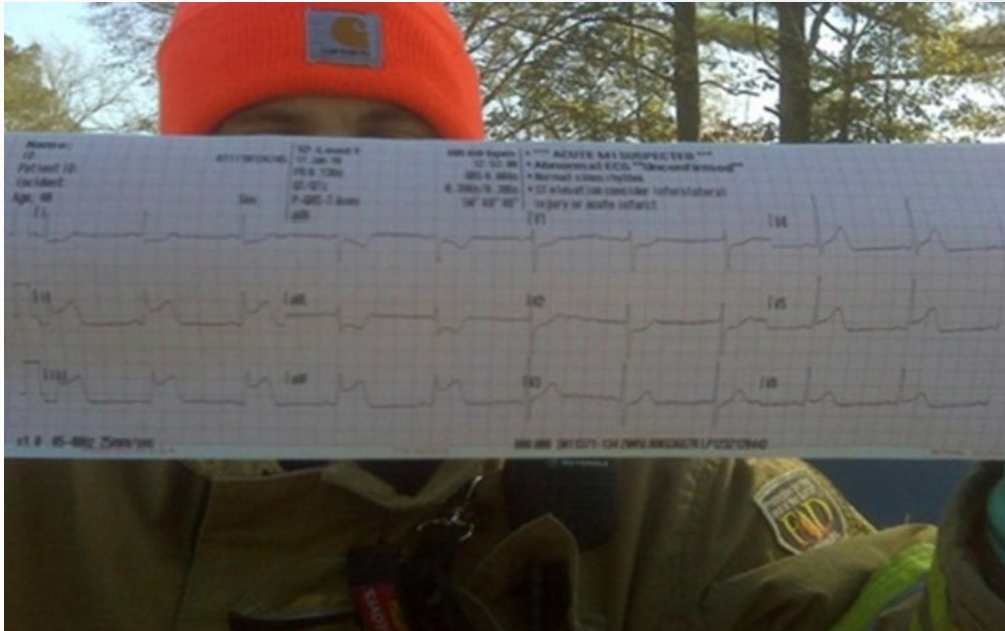
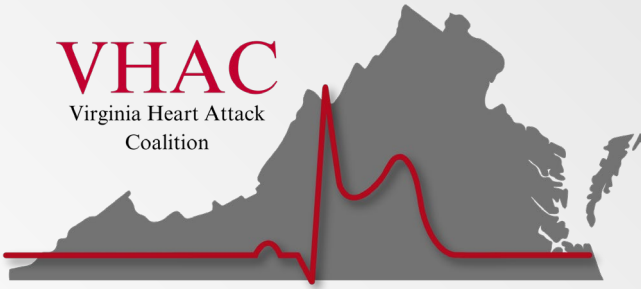
Guideline Driven



All communities should create and maintain a regional system of STEMI care that includes assessment and continuous quality improvement of EMS and hospital-based activities. Performance can be facilitated by participating in programs such as Mission: Lifeline and the D2B Alliance.

VHAC

Virginia Heart Attack
Coalition



Proud partner of



VHAC Strategic Plan...The Strategic Priority “Pillars”



2025...*VHAC Accelerates*

Inauguration of the VHAC Board

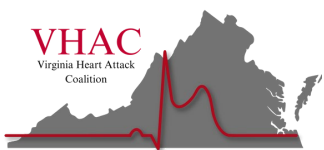
Completion of Bylaws

Clinical Workgroups Continue

Regional Development (New Leaders!)

Continued Growth of the STEMI Registry





BOARD OF DIRECTORS



Peter O'Brien, MD
Centra Lynchburg General Hospital
Co-founder, and Chair, Virginia Heart Attack
Coalition (VHAC)



Michael Kontos, MD -Co-Chair
Virginia Commonwealth University
Co-founder, and Chair, Virginia Heart Attack
Coalition (VHAC)



Yasmin Ahmady, NRP, AAS
Prince William Department of Fire and Rescue



Cindi Cole, BSN, RN
Centra Lynchburg General Hospital



Melanie B. Johnson, MSN, RN-BC
Carilion Clinic



Kayla Long, DO
Centra Lynchburg General Hospital



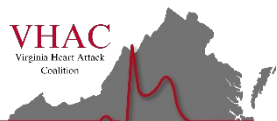
Bob Page, M.Ed., NRP
Edutainment Consulting and Seminars, LLC



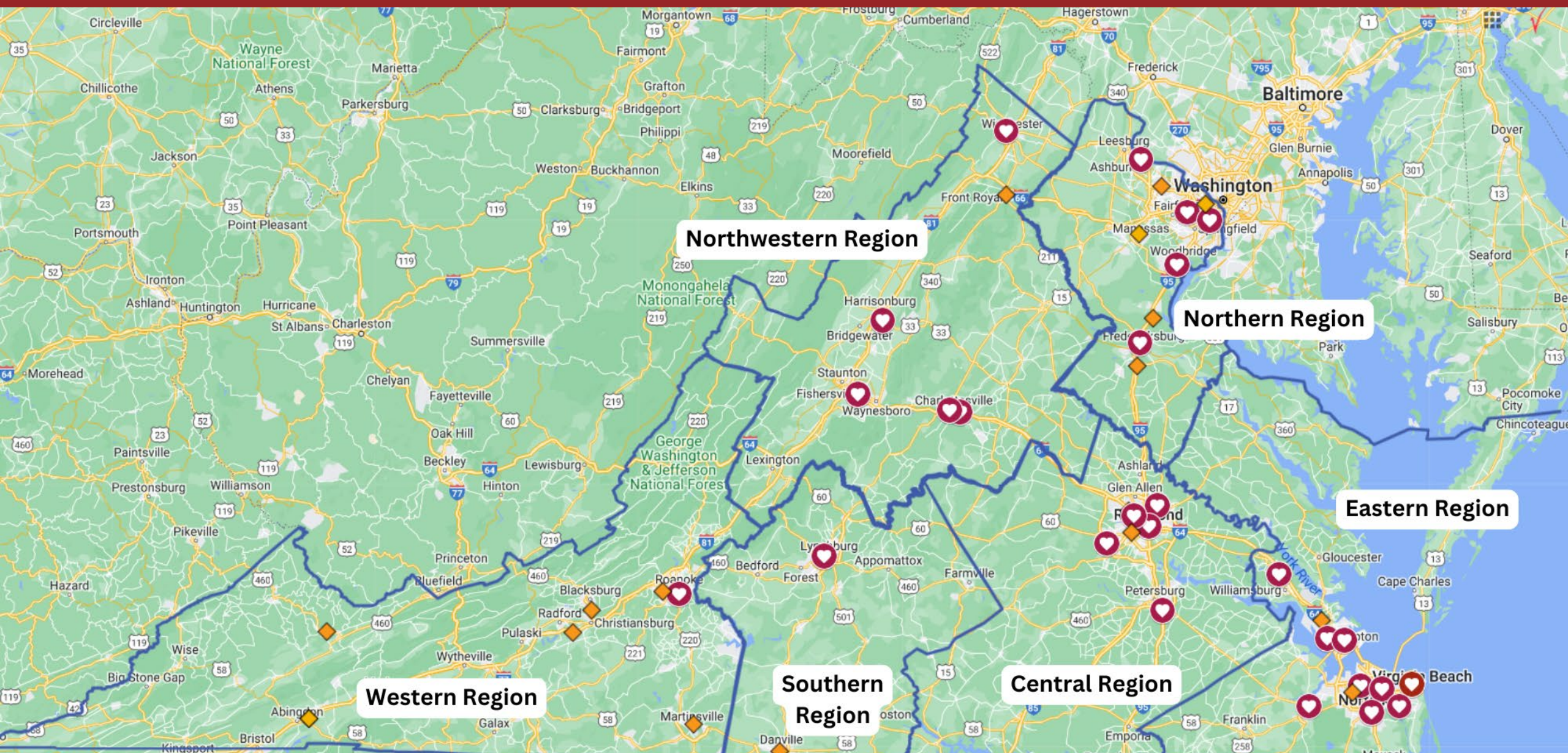
Rajan Patel, MD
UVA Health Heart and Vascular Center



Megan Vaughan, MSN, RN
Bon Secours Heart & Vascular Institute



VHAC Regions



Clinical Workgroups

Cardiogenic Shock

ED Bypass

EMS Education

Pulmonary Embolus Response Teams

Thrombolytics

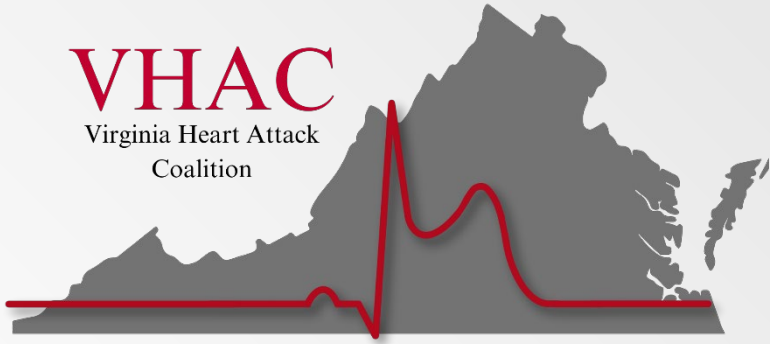
...STEMI Stakeholders working to address clinical needs...

VHAC as Collaborator and Home for Protocols, Publications and other Resources!!!



VHAC

Virginia Heart Attack
Coalition



VCSQI Angiogram Film Review Initiative

INDEPENDENT, OBJECTIVE PEER
REVIEW OF ANGIOGRAMS —
OFFERED TO VCSQI MEMBERS

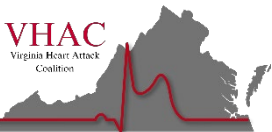
Proud partner of

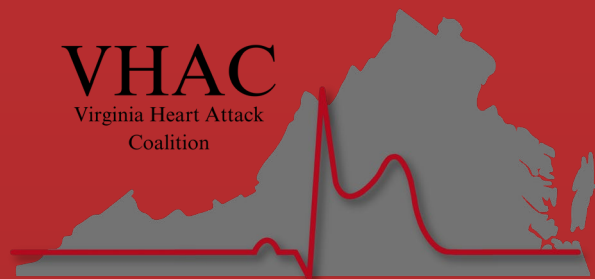


MACPAQ Angiogram Review Initiative

- Maryland Academic Consortium for Percutaneous Coronary Intervention Appropriateness and Quality (MACPAQ) has partnered with VCSQI to offer free PCI/angiogram reviews
- Participating cath labs upload cath films to a “core lab” with highly experienced, trusted operators.
- They review the films and reports, and provide objective, independent feedback on clinical appropriateness, angiogram quality, PCI results, reporting accuracy and outcomes.
- Member systems have found this to be a reliable, unbiased method of PCI case review and QI...avoiding the potential bias, inefficiencies, and “hard feelings” inherent in some internal reviews.

... And it is free to VCSQI members!





VCSQI/VHAC STEMI Registry State Data

Original Investigation

Institutional Variability in Processes of Care and Outcomes Among Patients With STEMI in the US

Yasser M. Sammour, MD, MSc¹; Safi U. Khan, MD, MS¹; [et al](#)
Haoyun Hong, BA² ; [al](#)

» [Author Affiliations](#) | [Article Information](#)



JAMA Cardiol

Published Online: June 11, 2025

2025;10;(8):787-796.

doi:10.1001/jamacardio.2025.1411

FMC2B...*We are still not there!!!*



- Significant variability exists among centers in reaching target FMC2B times. High performing centers (HPC) consistently outperformed low performing centers (LPC).
- LPC's were characterized by prolonged emergency department stays and delays in reaching the cardiac Cath Lab
- This impacted outcome with higher risks of in-hospital mortality and longer length of stay
- Urban versus rural did not significantly impact this, nor did hospital volume.
- Disparities persist--with older, female, Black patient's less likely to receive rapid reperfusion.

Challenges for 2026 and Beyond!

- Maintaining the Gains Achieved and a Steady Focus
- Broadening the Coalition thru Recruitment, Retention, and Engagement—across all regions and healthcare systems
- Strengthening Stakeholder and Systems Support and Partnership during a Time of Financial and Operational Strain
- Redefining our Role in a Changing Organizational and Scientific Landscape

Opportunities for 2026

- Finalize the Organizational Structure
- Cardiac Arrest, Transfer STEMI's, etc.?
- Clinical Workgroups to create? Clinical Workgroups to sunset?
- Partner organizations? Stroke?
- OMI's and Artificial Intelligence
- STEMI Registry Participation.



Celebrate the Progress, but Commit to the Future

- 17 Years and going strong
- Increased the number of Ambulances in the Commonwealth with 12 leads from 60% to 99%, and educated and trained hospitals and EMS in guideline driven care.
- Lowered the First Medical Contact to Balloon time from 95 to <70 minutes statewide
- Created our own STEMI Registry and recruited 28 PCI centers
- Enlisted experts from UVA, Sentara, Inova, Carilion, VCU, Bon Secours, and other members of VHAC to join us and create clinical workgroups on Shock, PE, EMS education, Thrombolytics, and ED Bypass
- Meet monthly and share best practices/data with hospitals and EMS agencies from across Virginia

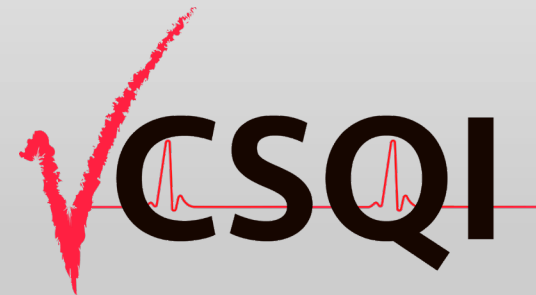
VHAC won't stop until every patient in Virginia has access to optimal MI care...



Cost and Quality Data Review

Eddie Fonner
VCSQI Executive Director

Transforming Cardiovascular Care to Improve Patient Experience and Value



VCSQI Database Summary

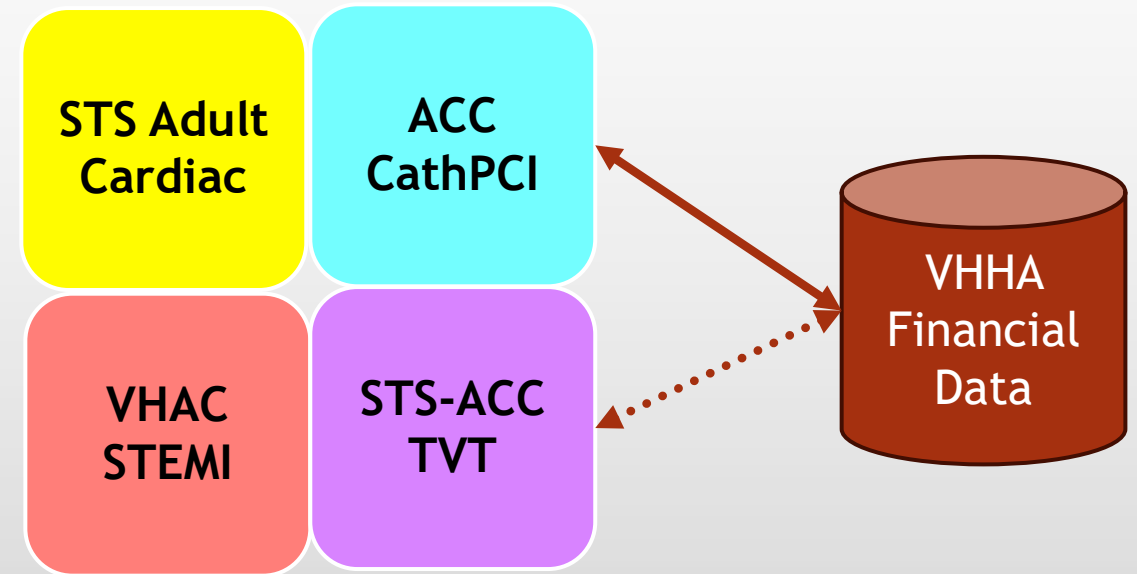
➤ Extensive Database

- 153,000+ STS Adult patients from 2001-2025
- 171,000+ ACC CathPCI patients (89,000+ PCI procedures)
- 48,000+ ACC CP-MI episodes
- 9,400+ TVT operations

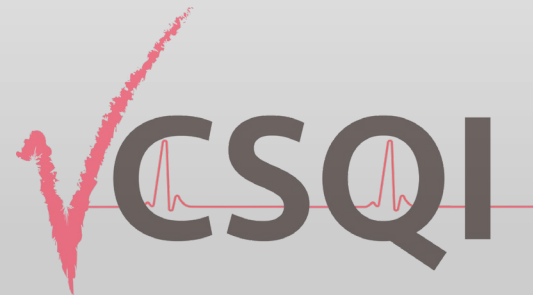
➤ Quarterly and Ad Hoc Reports

➤ Scientific Publishing

- 90+ manuscripts & presentations



VHAC STEMI



STEMI Reports by Region: Q3 2024 – Q2 2025

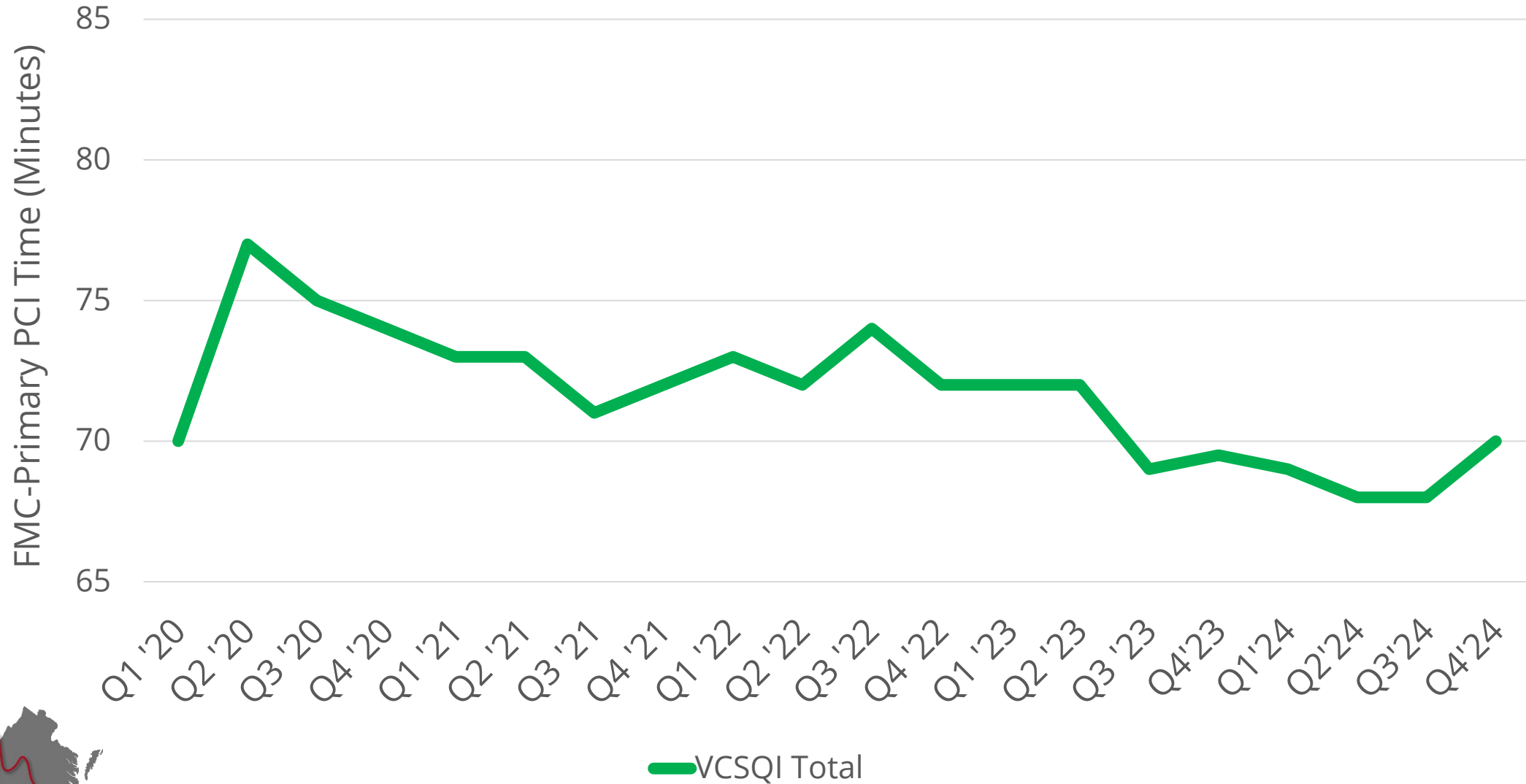
Population: All STEMI Patients, Q3 2024 – Q2 2025 (N=1,994)	VCSQI	Central	East	North	Northwest	South	West
Median Door In - Door Out (Minutes): Transfer Patients	63.0	61.5	68.0	51.0	69.0	78.5	50.0
Median Transfer Time between Hospitals	30.0	33.0	25.0	23.0	37.5	41.0	42.5
FMC to Primary PCI <= 90 Minutes: Non-Transfer Patients	88.3%	80.8%	86.6%	86.7%	93.0%	93.0%	87.7%
Median FMC to Primary PCI: Non-Transfer Patients (with exceptions)	71.0	76.0	73.0	75.0	65.0	64.0	72.0
Median FMC to Primary PCI: Non-Transfer Patients (without exceptions)	73.0	78.0	74.0	76.0	66.0	68.0	74.0

 = Exceeds VCSQI Average

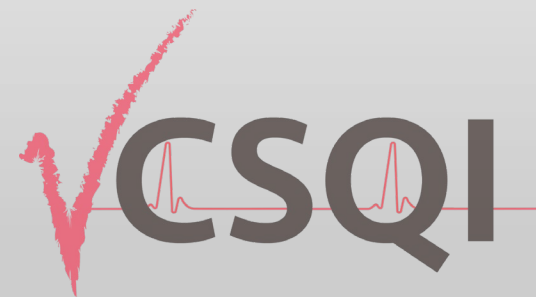
 = Equal to VCSQI Average

 = Lower than VCSQI Average

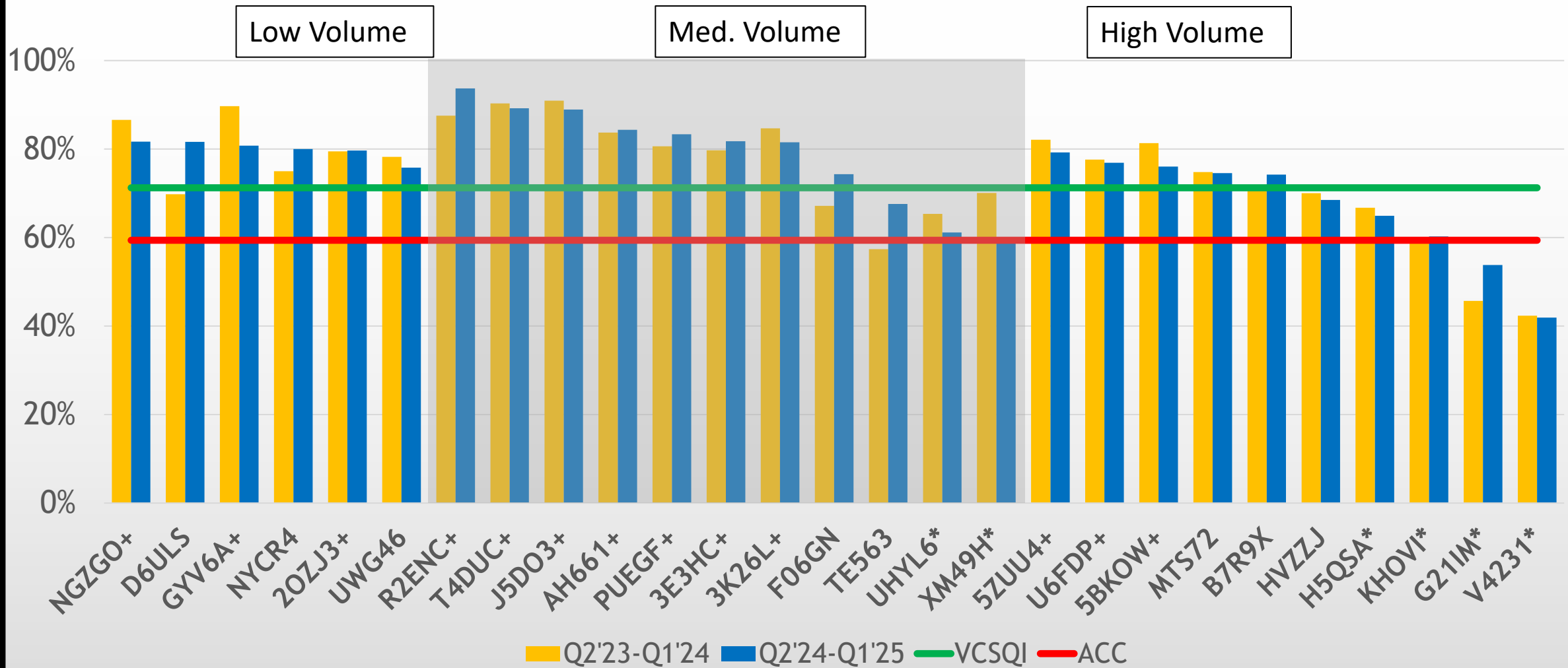
Median FMC-Primary PCI (Non-Transfer) by Quarter



ACC CathPCI



Radial Access Site by Hospital: All PCI Procedures, Q2 2023 - Q1 2025 (N=25,763)



VCSQI: Femoral – 28.3%

Radial – 71.3%

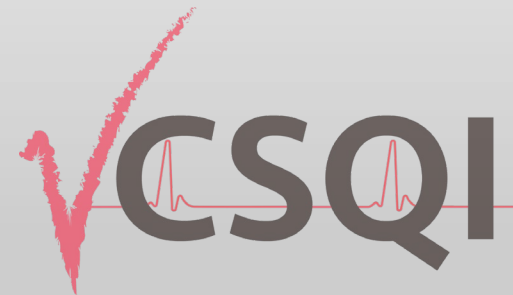
ACC: Femoral – 40.1%

Radial – 59.4%

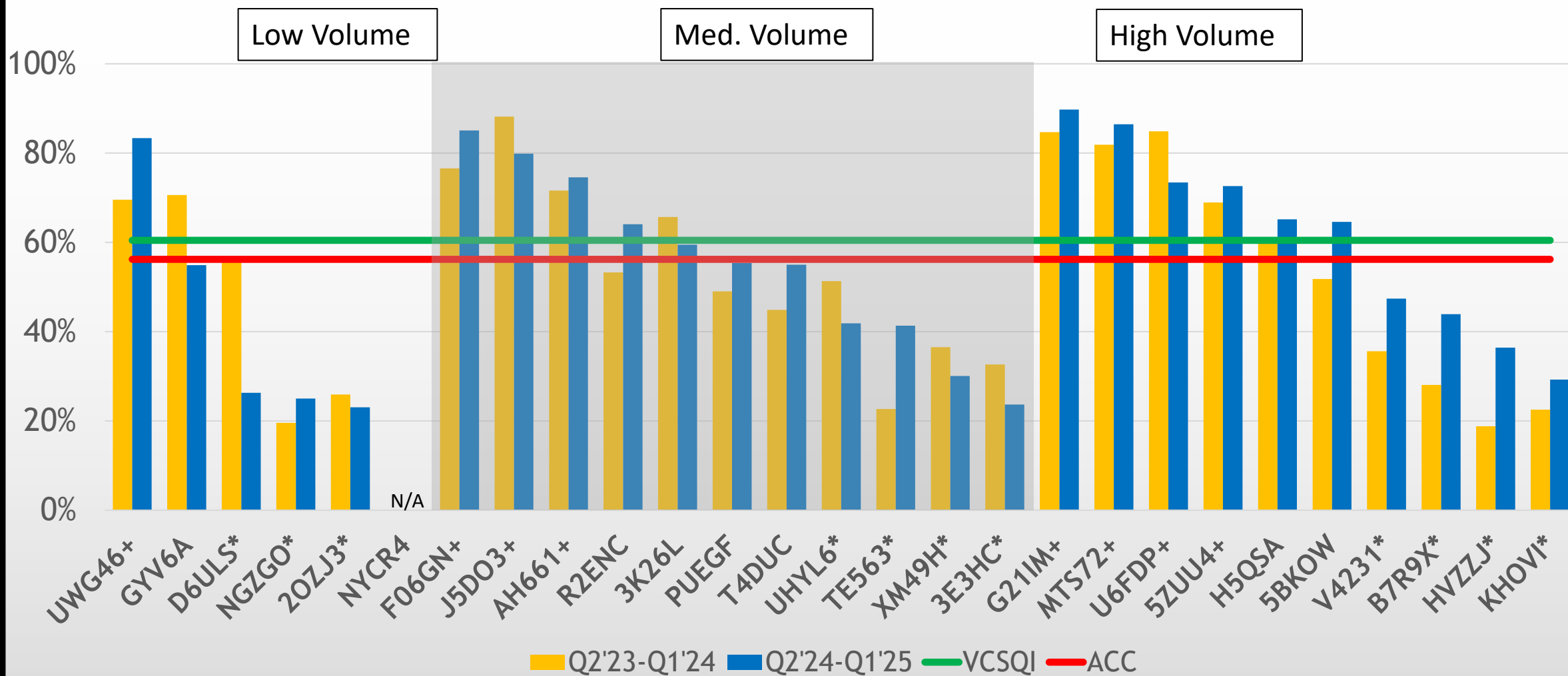
For the latest 4 quarter period:

A plus (+) following the hospital code indicates the hospital is statistically better than the rest of VCSQI

An asterisk (*) following the hospital code indicates the hospital is statistically poorer than the rest of VCSQI



Same Day Discharge by Hospital: Elective PCI Procedures*, Q2 2023 - Q1 2025 (N=9,141)



ACC: 56.2%

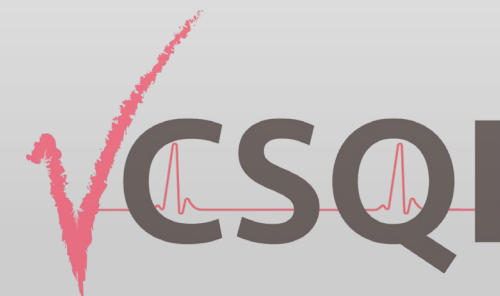
VCSQI: 60.5%

* Denominator Excludes Deceased, Transfer, and DC AMA

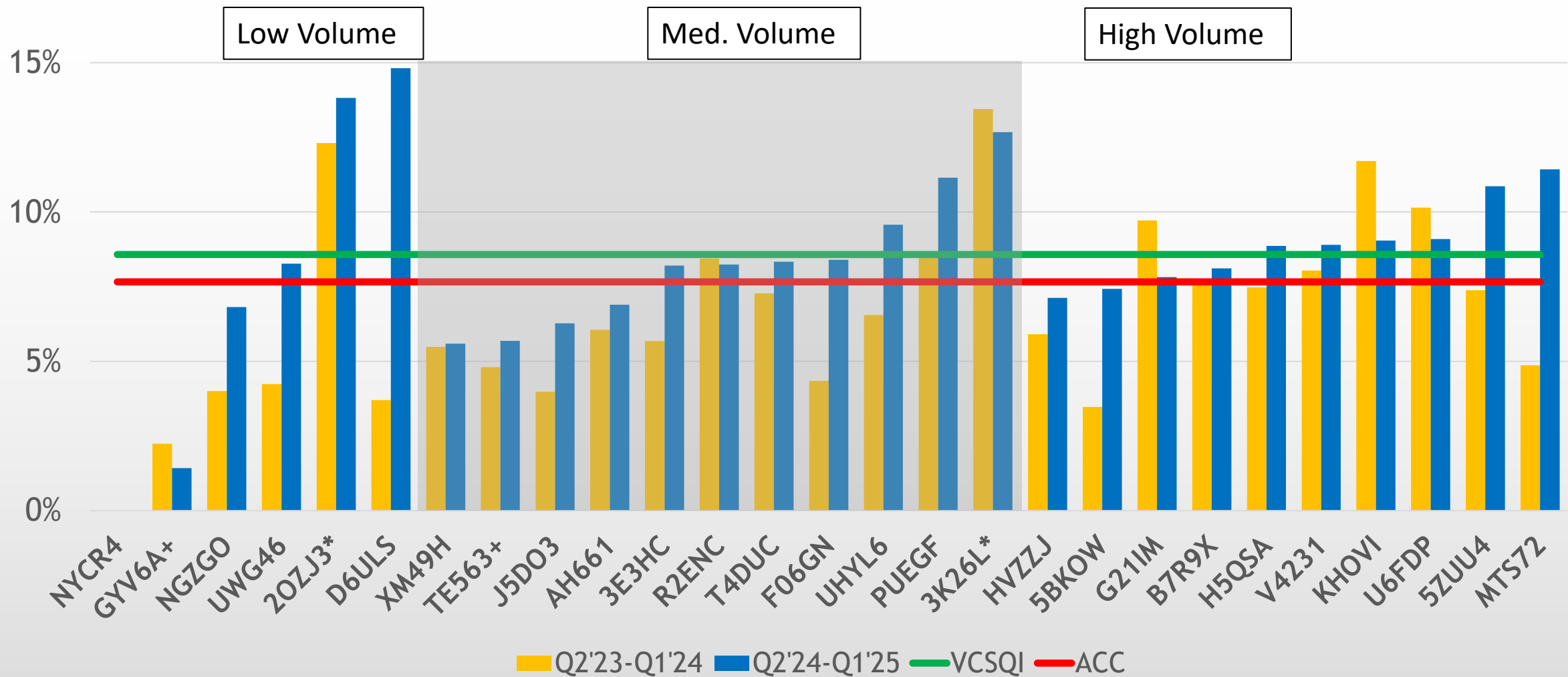
For the latest 4 quarter period:

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Observed AKI by Hospital: All PCI Procedures, Q2 2023 - Q1 2025 (N=15,444)



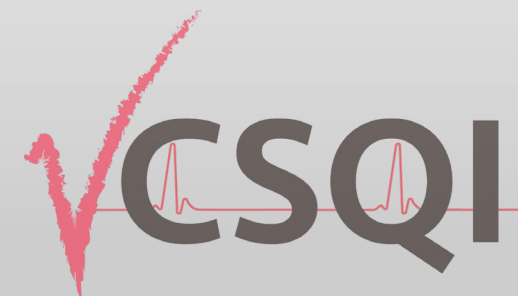
ACC: 7.7%

VCSQI: 8.6%

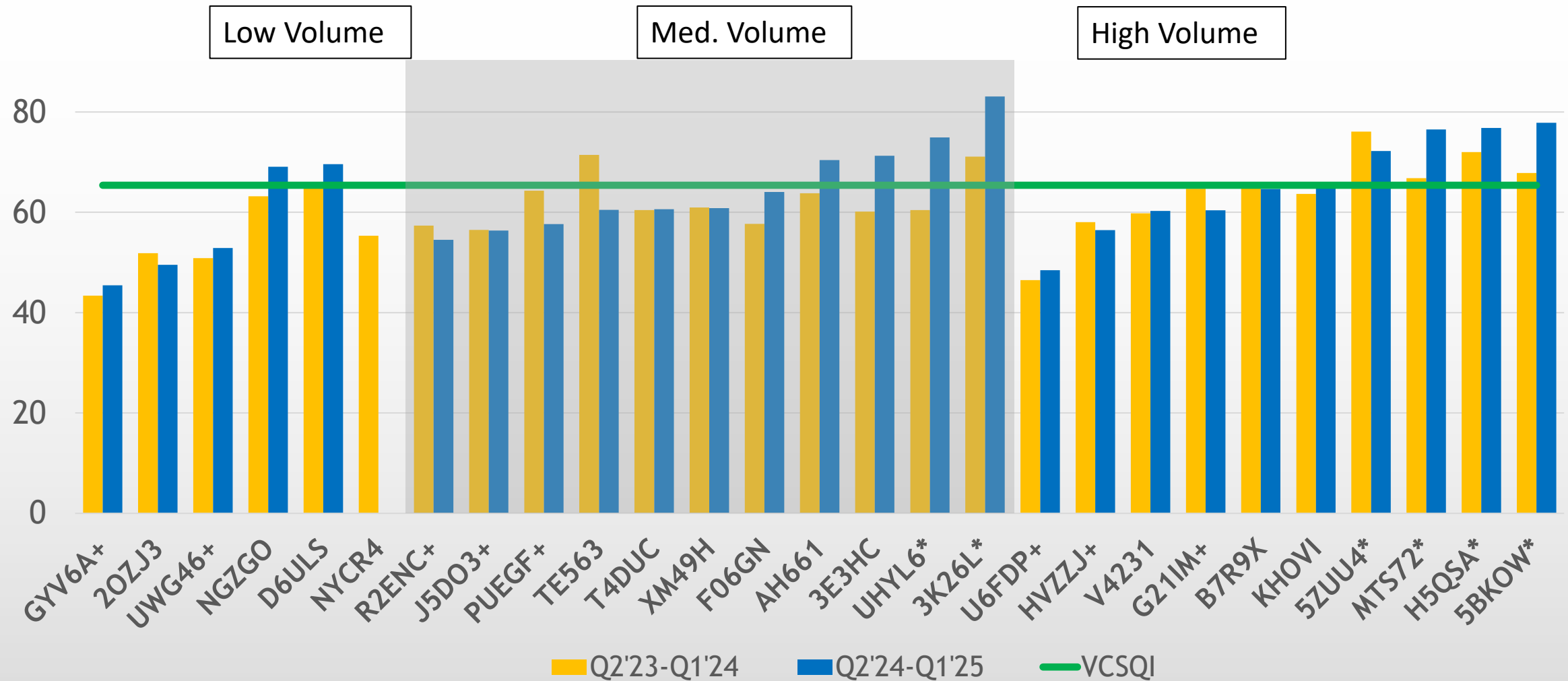
For the latest 4 quarter period:

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Average Procedure Time (Minutes): Low-Risk[†] PCI Procedures, Q2 2023 - Q1 2025 (N=5,687)



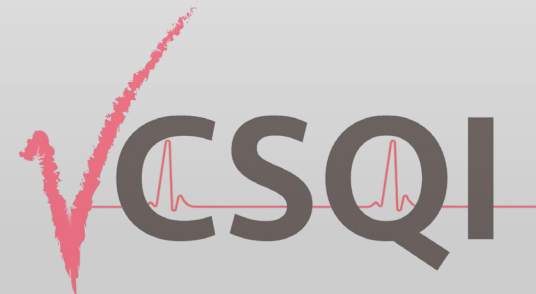
[†] Low Risk cases are predicted risk scores < 1.0%

VCSQI: 65 minutes

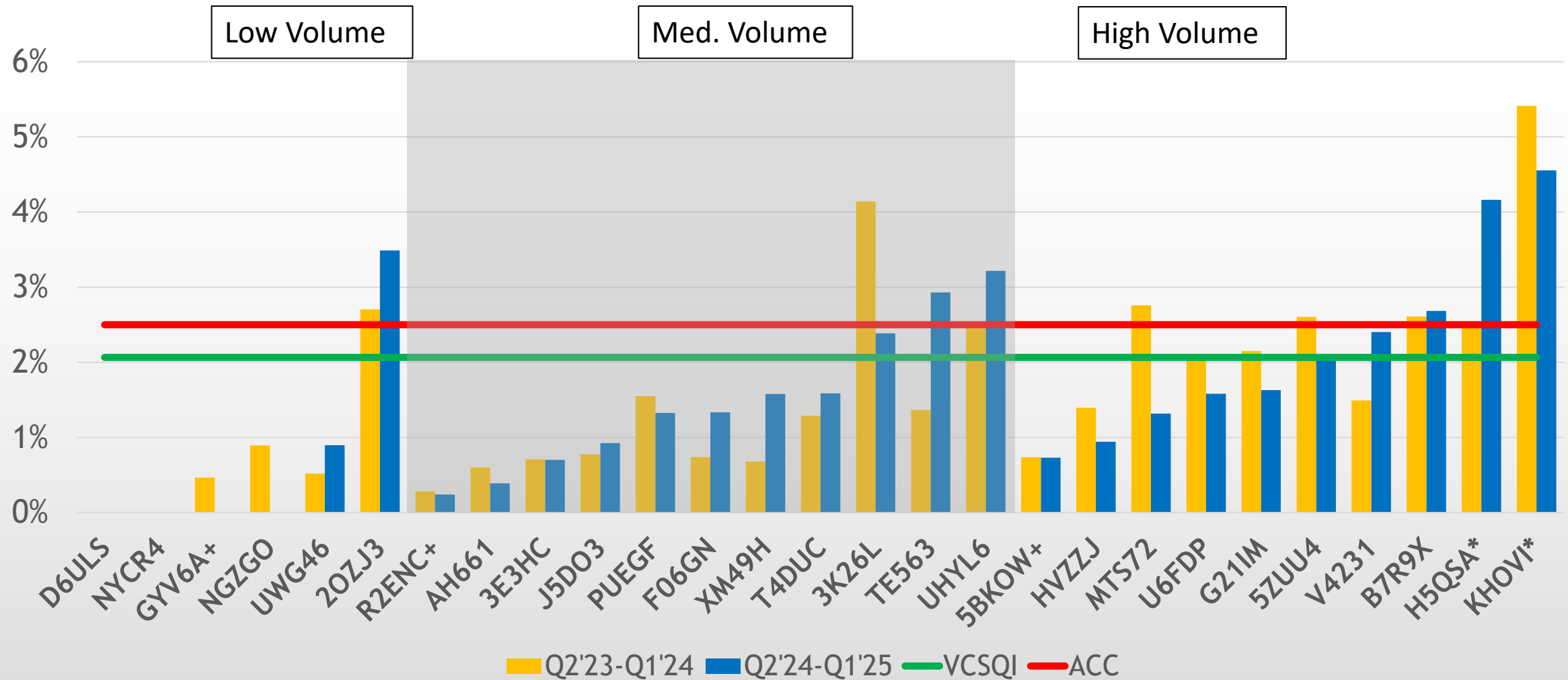
For the latest 4 quarter period:

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RBC/Whole Blood Transfusion by Hospital: All PCI Procedures, Q2 2023 - Q1 2025 (N=25,763)



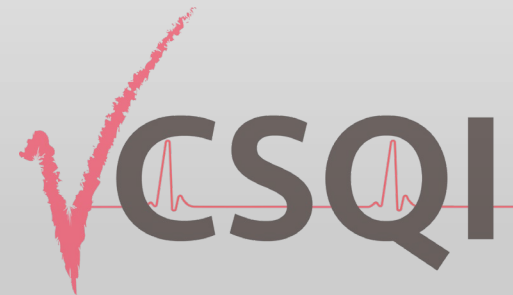
ACC: 2.5%

VCSQI: 2.1%

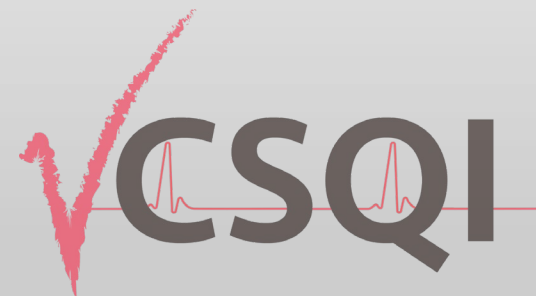
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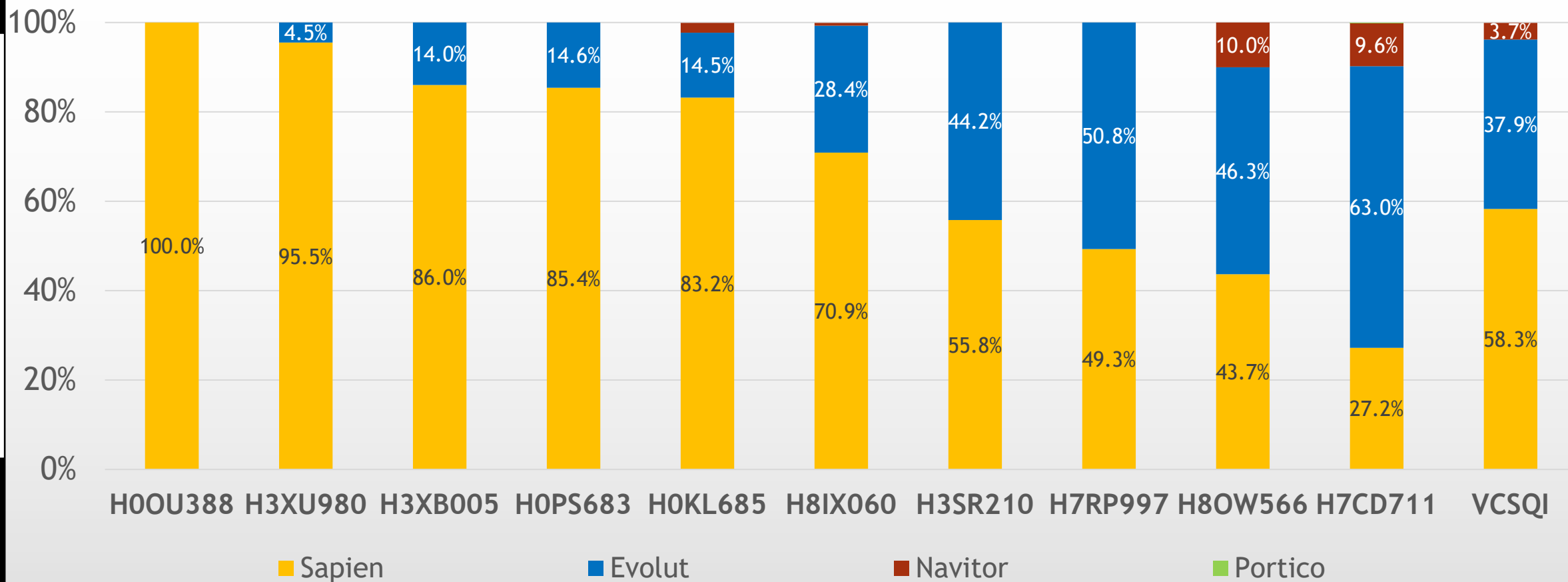


STS-ACC TVT



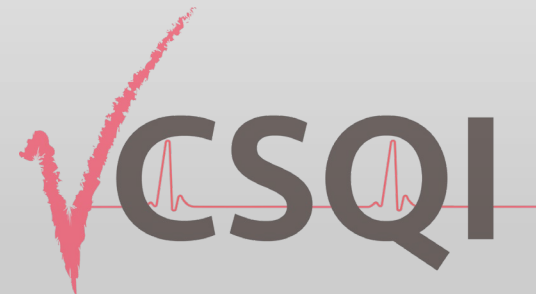
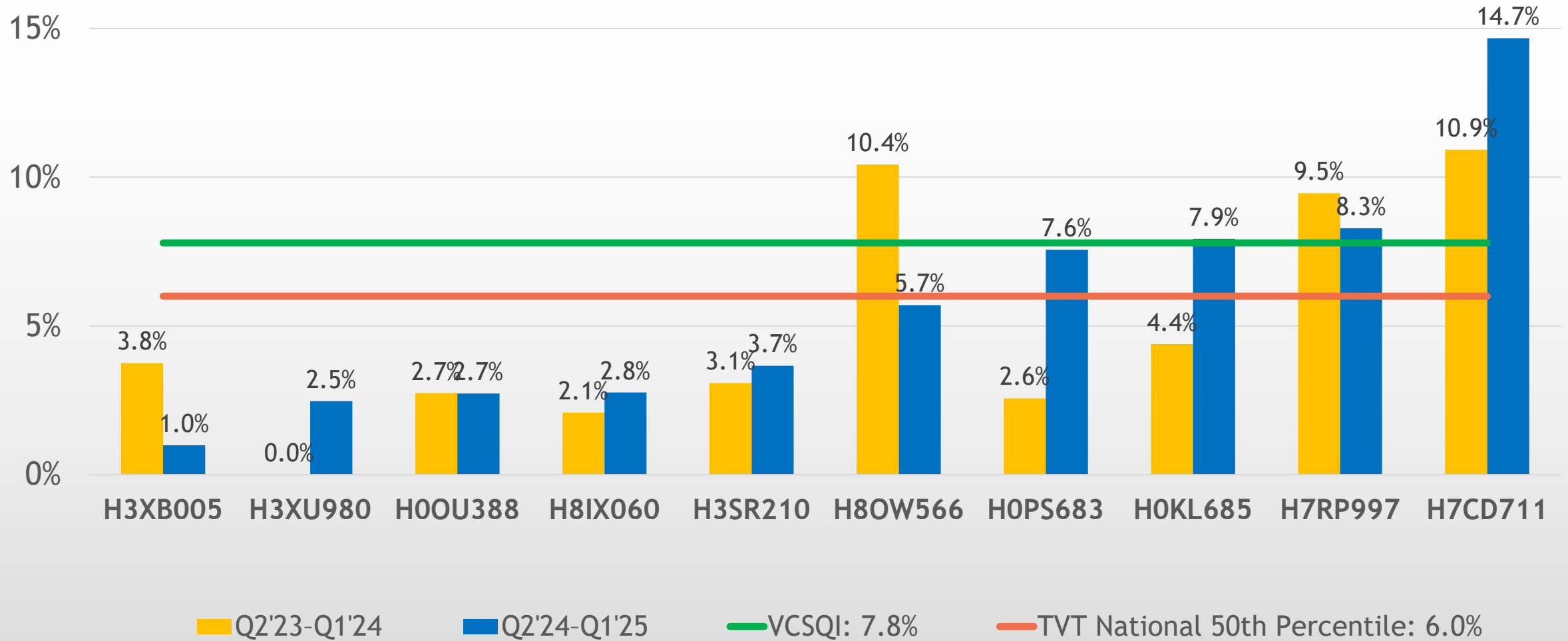
Device Type by Hospital: All TAVR Procedures, Q2 2023 - Q1 2025 (N=3,894)

% Non-Femoral Access Site



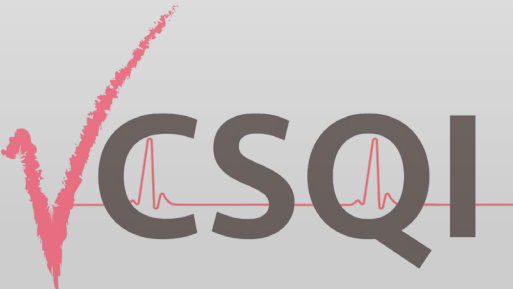
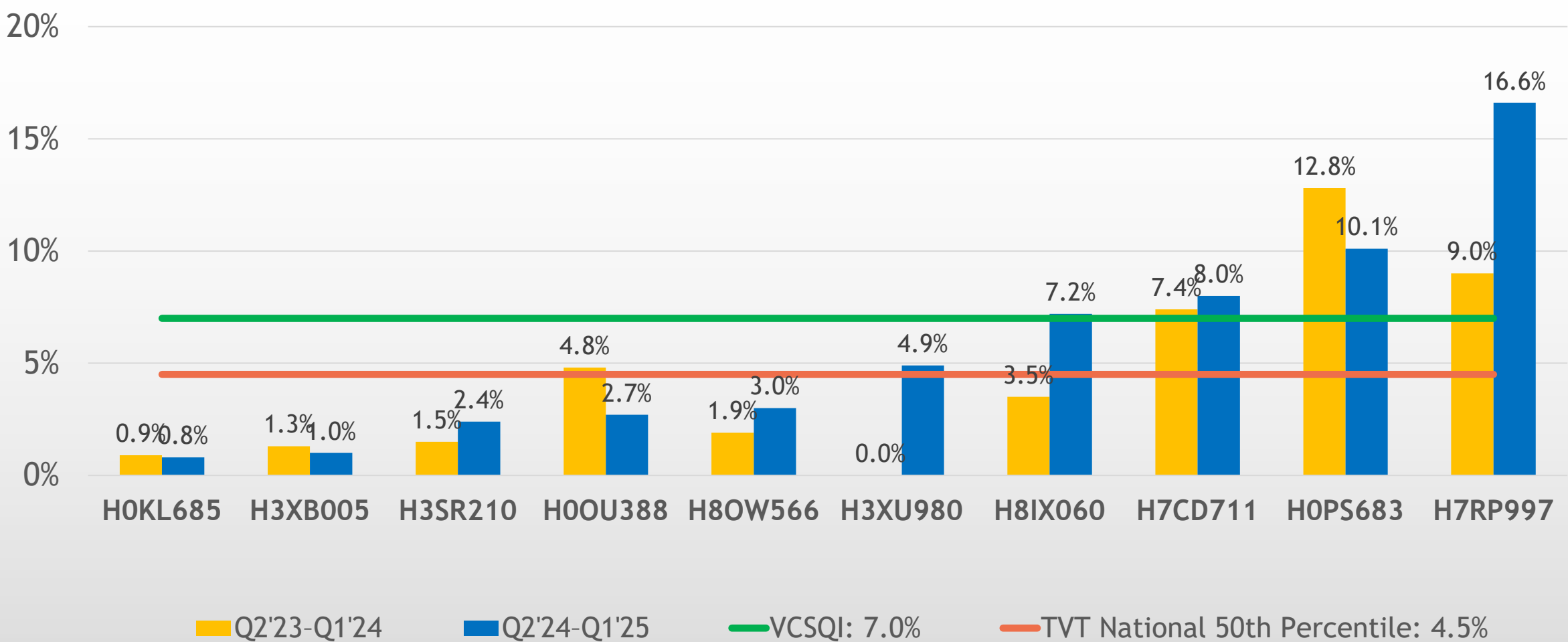
New Permanent Pacemaker by Hospital: All TAVR Procedures, Q2 2023 - Q1 2025 (N=3,926)

% Permanent Pacemaker



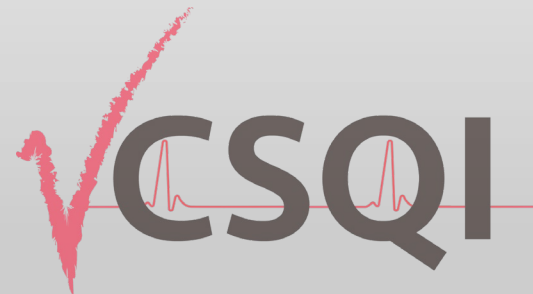
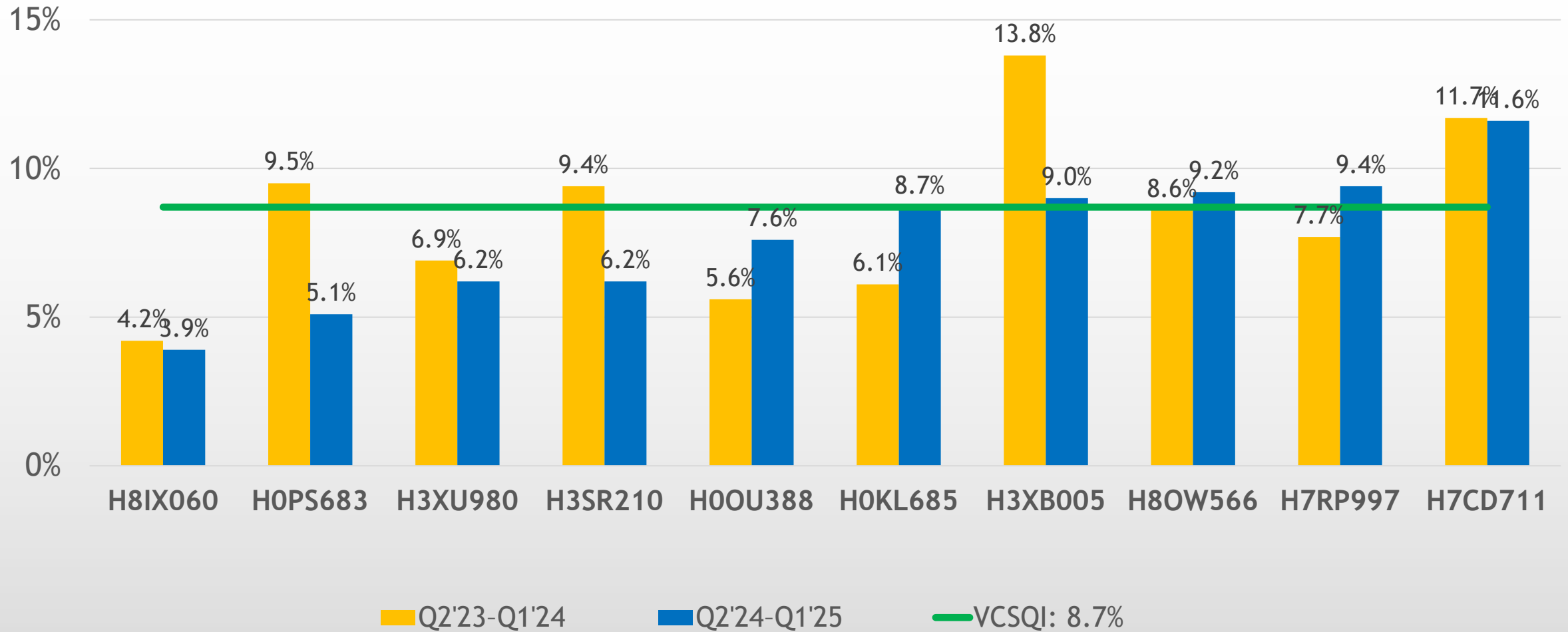
Major or Minor Vascular Complication by Hospital: All TAVR Procedures, Q2 2023 - Q1 2025 (N=3,926)

% Vascular Complications



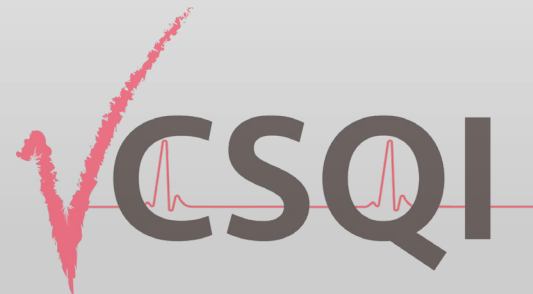
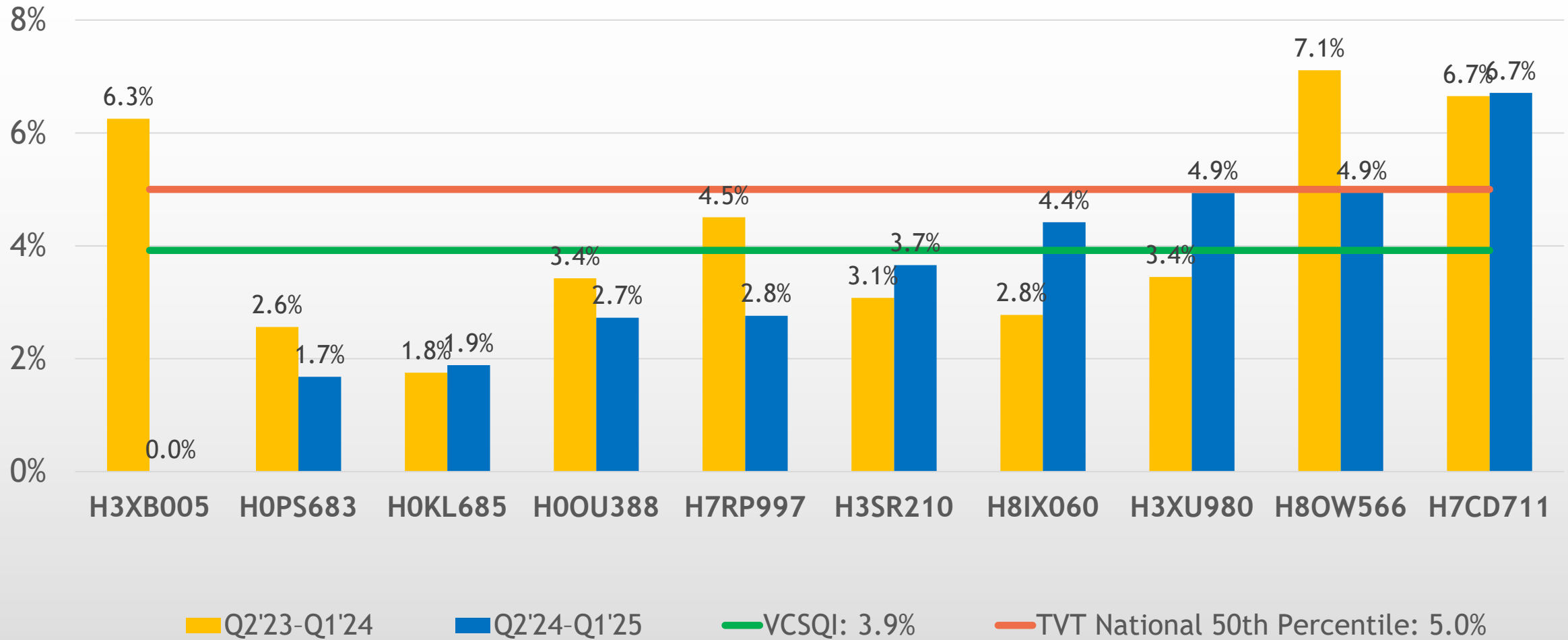
Stage 1 AKI by Hospital: All TAVR Procedures, Q2 2023 - Q1 2025 (N=3,876)

% Stage 1 AKI



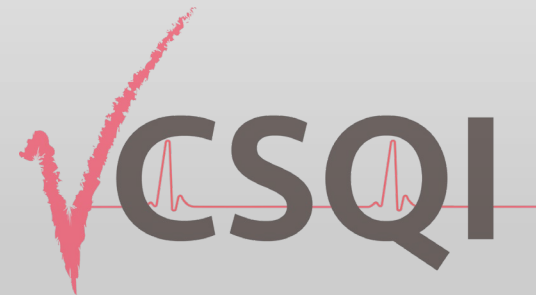
PRBC Transfusion* by Hospital: All TAVR Procedures, Q2 2023 - Q1 2025 (N=3,926)

% PRBC Transfusion

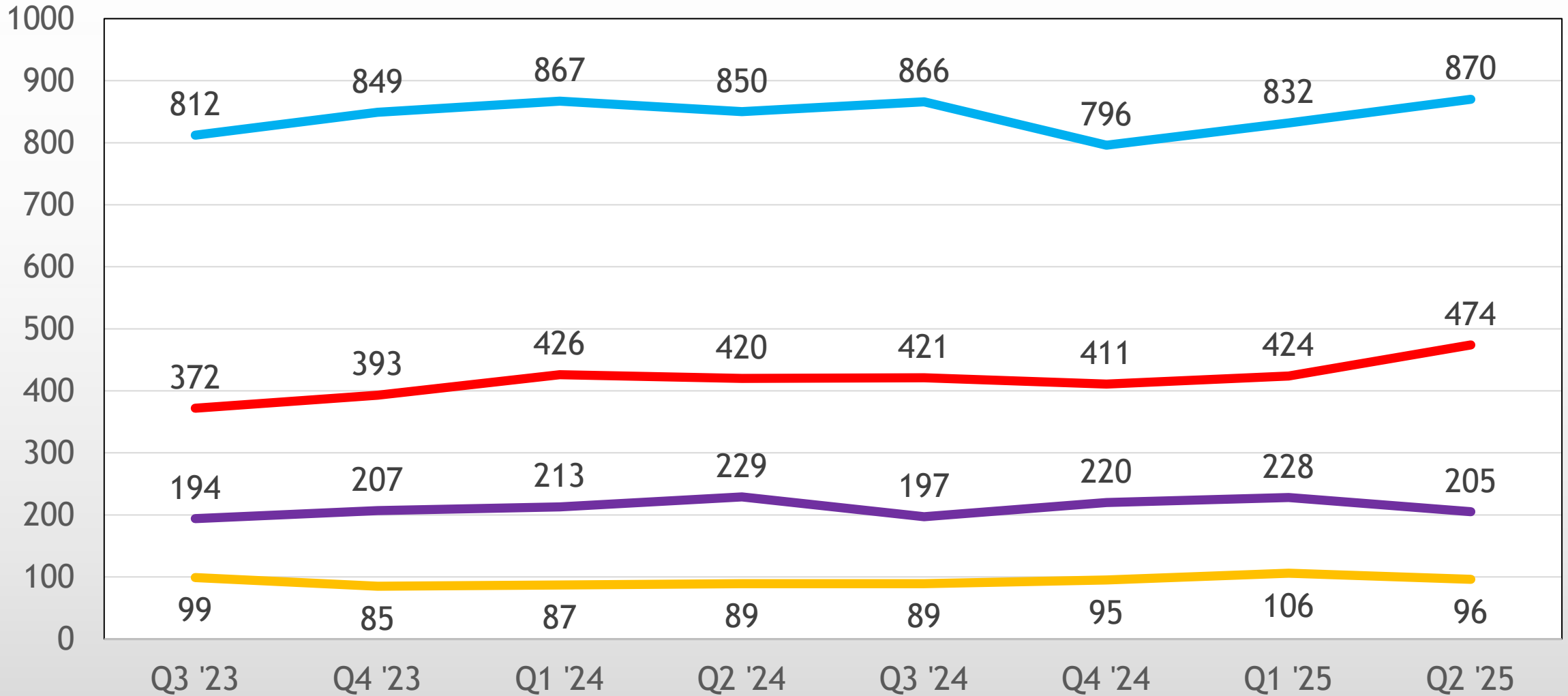


* Includes transfusions from the start of the procedure to patient discharge from hospital.

STS Adult Cardiac



VCSQI Total Cardiac Surgery Volume By Quarter: Q3 2023 - Q2 2025



Total Volume:	1,477	1,534	1,593	1,588	1,573	1,522	1,590	1,645
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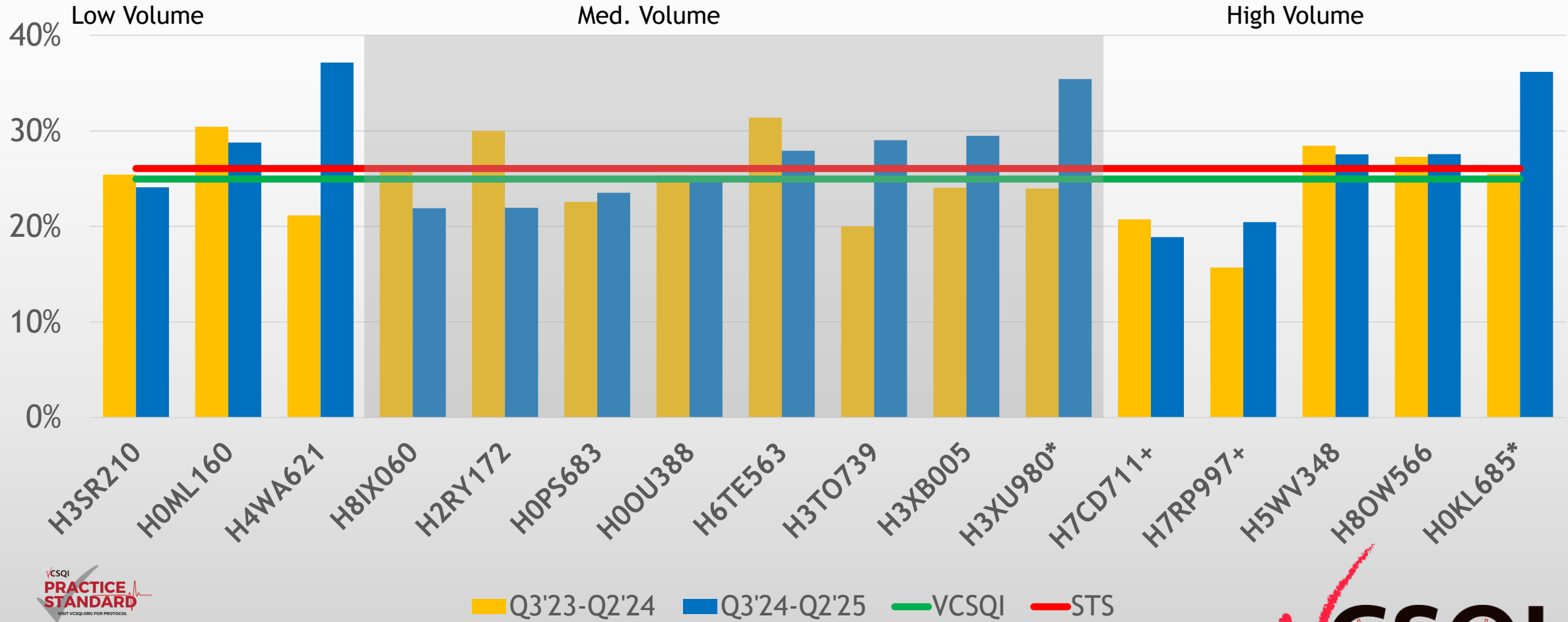
— CAB Only — Valve Only — Valve + CAB — Other

New Onset of A-Fib by Hospital: Isolated CAB, Q3 2023—Q2 2025

— VCSQI Q3'24-Q2'25: 25.0%

— STS 2024: 26.1%

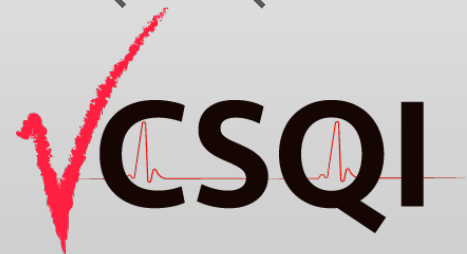
% New A-Fib



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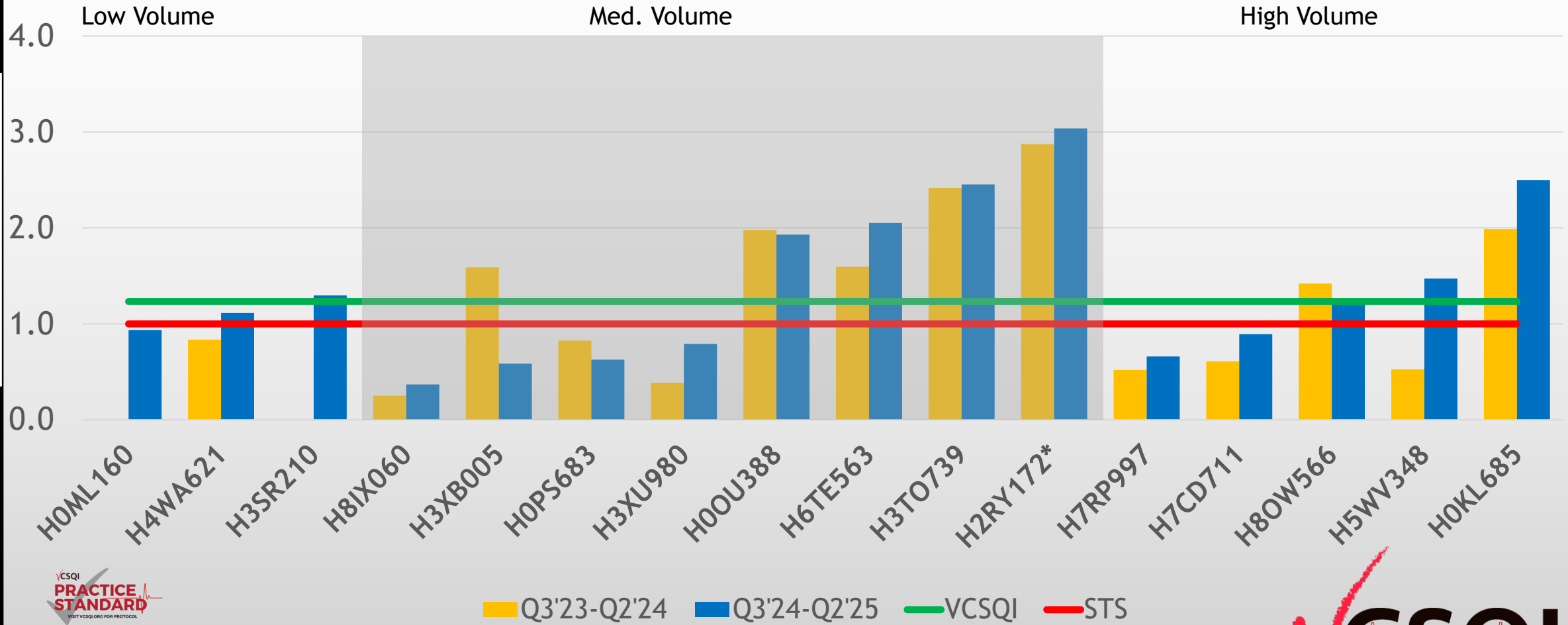


Renal Failure O/E (Recalibrated) by Hospital: Isolated CAB, Q3 2023—Q2 2025

Renal Failure O/E

VCSQI Q3'24-Q2'25: 1.23

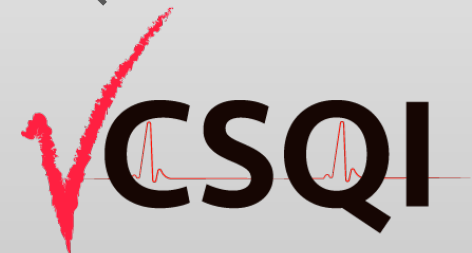
STS: 1.00



For the latest 4 quarter period:

A plus (+) following the hospital code indicates the hospital is statistically better than the rest of VCSQI

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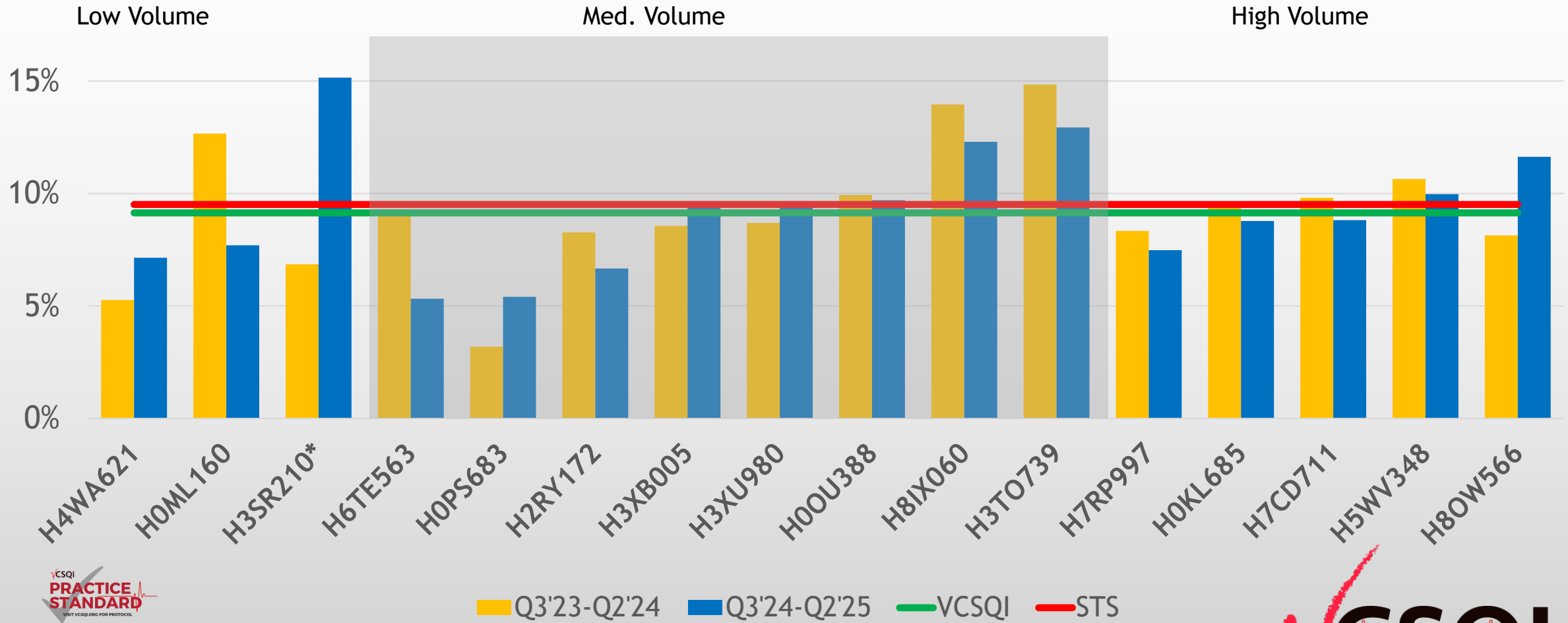


30-Day Readmission by Hospital: Isolated CAB, Q3 2023—Q2 2025

— VCSQI Q3'24-Q2'25: 9.1%

— STS 2024: 9.5%

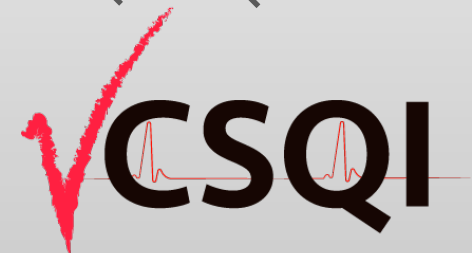
% Readmission



For the latest 4 quarter period:

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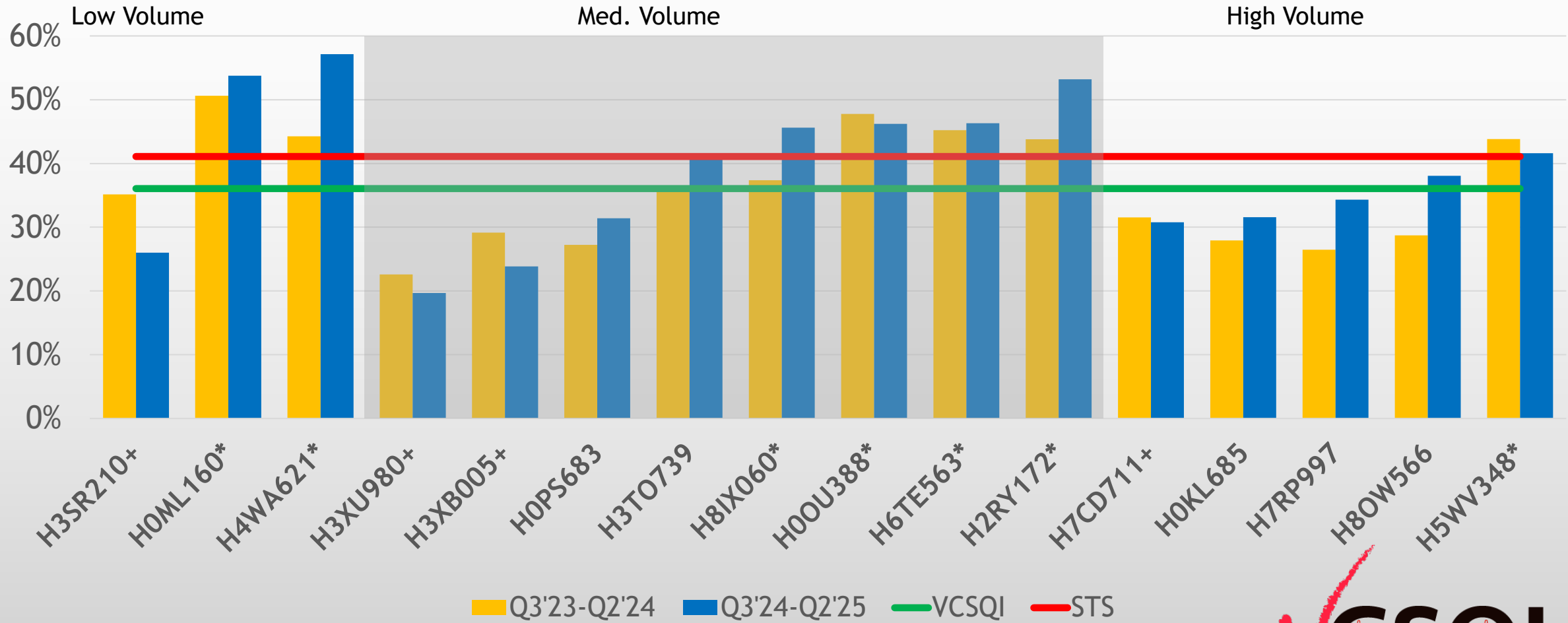


Any Intra- or Post-Op. Blood Use by Hospital: Isolated CAB, Q3 2023–Q2 2025

— VCSQI Q3'24-Q2'25: 36.1%

— STS 2024: 41.1%

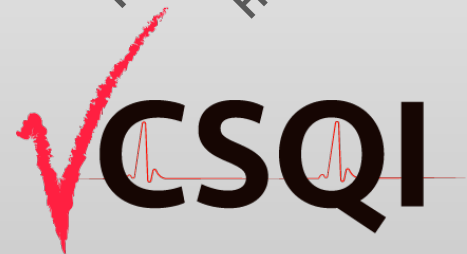
% Any Blood



For the latest 4 quarter period:

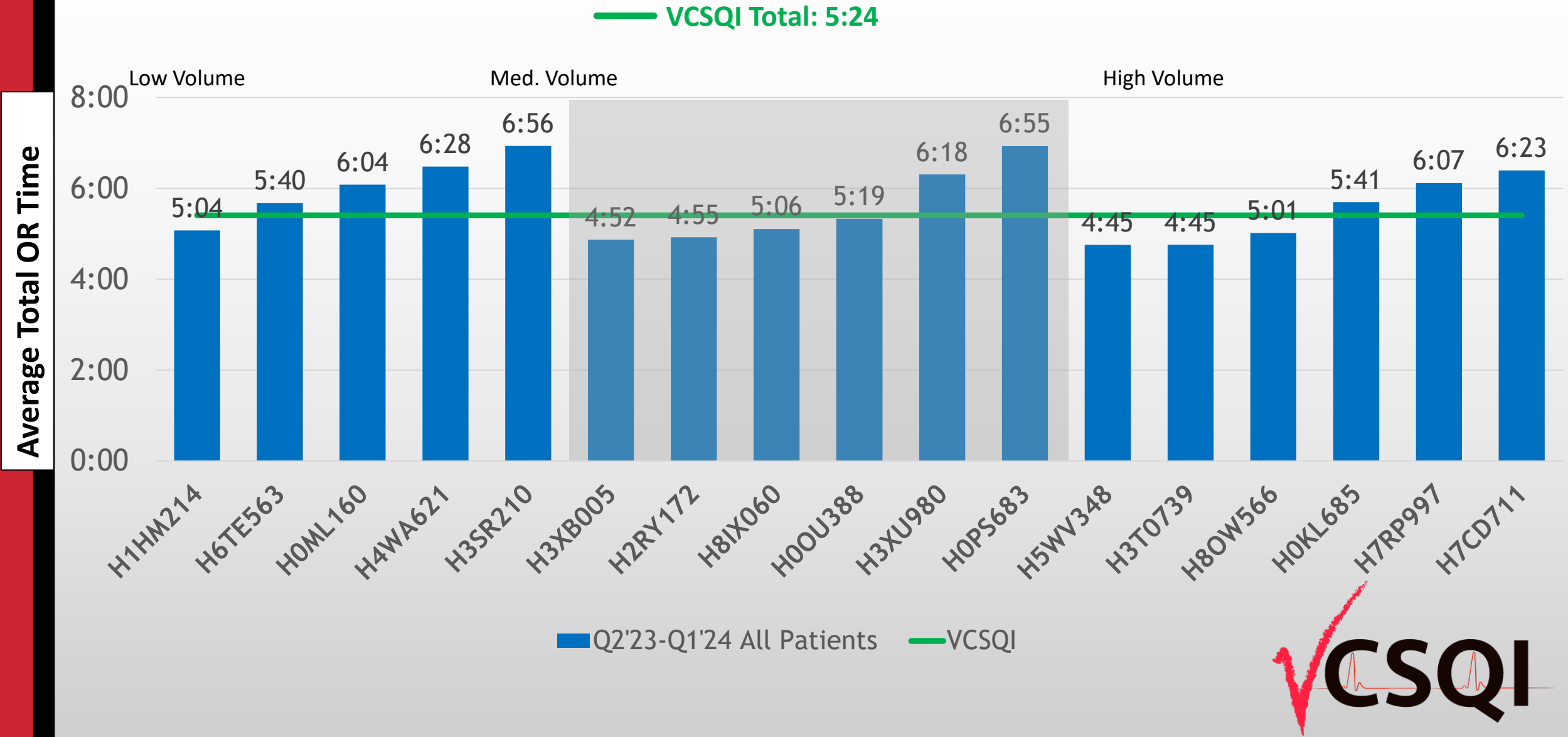
A plus (+) following the hospital code indicates the hospital is statistically better than the rest of VCSQI

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Average Operating Room Time (Hours) by Hospital: Isolated CAB, Q3 2022–Q2 2025

Population: ALL PATIENTS (N=10,163)



Improving Efficiency in Performing TAVR

Mohammed Quader MD

Virginia Commonwealth University

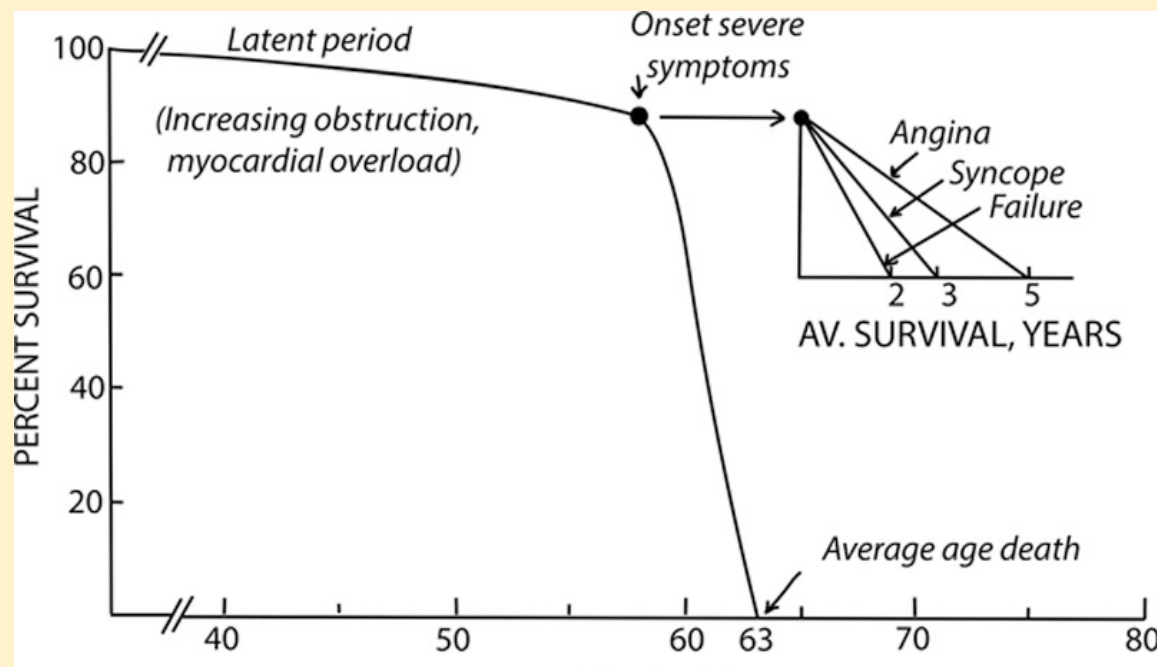
Oct 9, 2025



THE VCU HEART TEAM

Objective- Share our experience of doing TAVRs over 10 years, with a focus on improving patient outcomes with specific modifications to the procedure.

Natural History of Aortic Stenosis



Aortic Stenosis

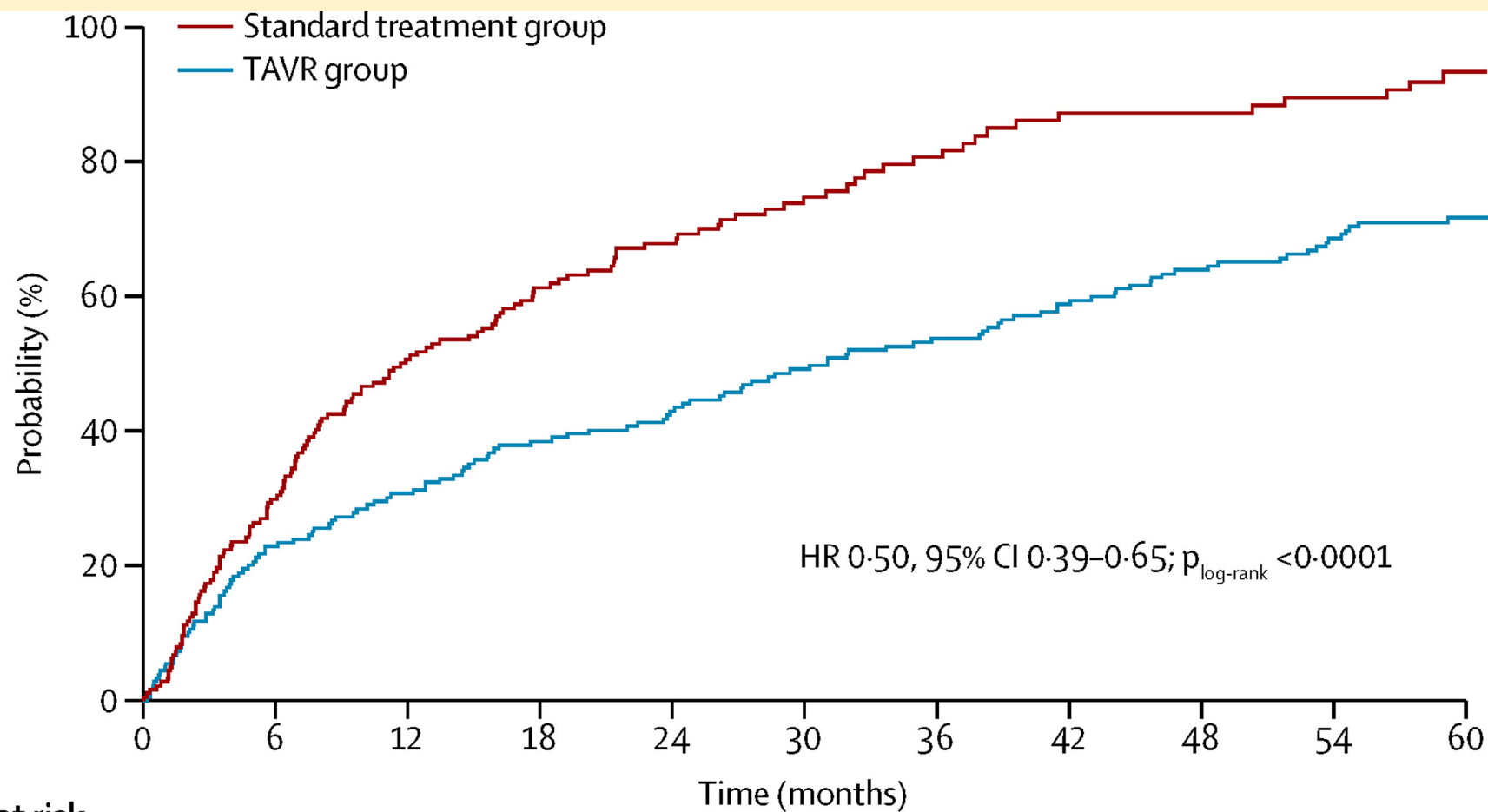
By JOHN ROSS, JR., M.D. AND EDGEM HRAUNWALD, M.D.

THE ADVENT of corrective operations for various forms of heart disease has placed increasing emphasis upon the need for accurate information concerning the natural history of patients with potentially correctible lesions. An understanding of the natural course assumes particular importance in the case of aortic stenosis because of the significant incidence of sudden death associated with this disease and the grave prognosis that appears to accompany the onset of certain symptoms.

patients with isolated valvular aortic stenosis of rheumatic etiology and patients without history of rheumatic fever who have isolated calcific aortic stenosis; many of the latter patients are now considered to have developed calcification and stenosis of a congenitally cuspid valve.¹ The review will focus primarily on the prognostic significance of three main symptoms—angina pectoris, syncope, and symptoms related to left ventricular failure.

From the Cardiology Branch, National Heart Institute, Bethesda, Maryland.

Published in *Circulation*, Vol. XXVIII, and *CHEST*, July, 1968.



Number at risk											
Standard treatment group	179	121	85	62	46	27	19	11	11	9	3
TAVR group	179	138	124	110	101	89	81	72	63	53	35

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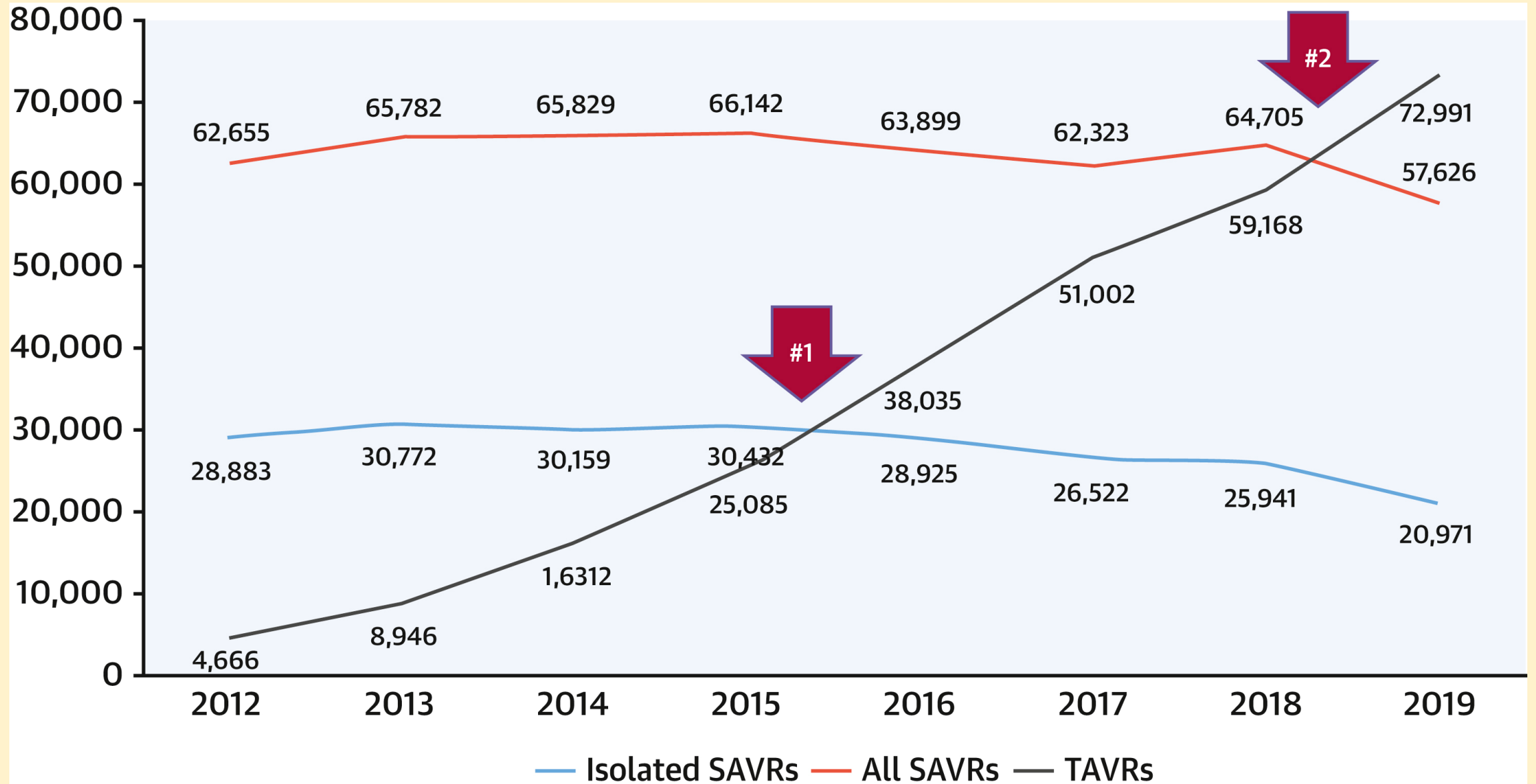
S TAVR vs SAVR

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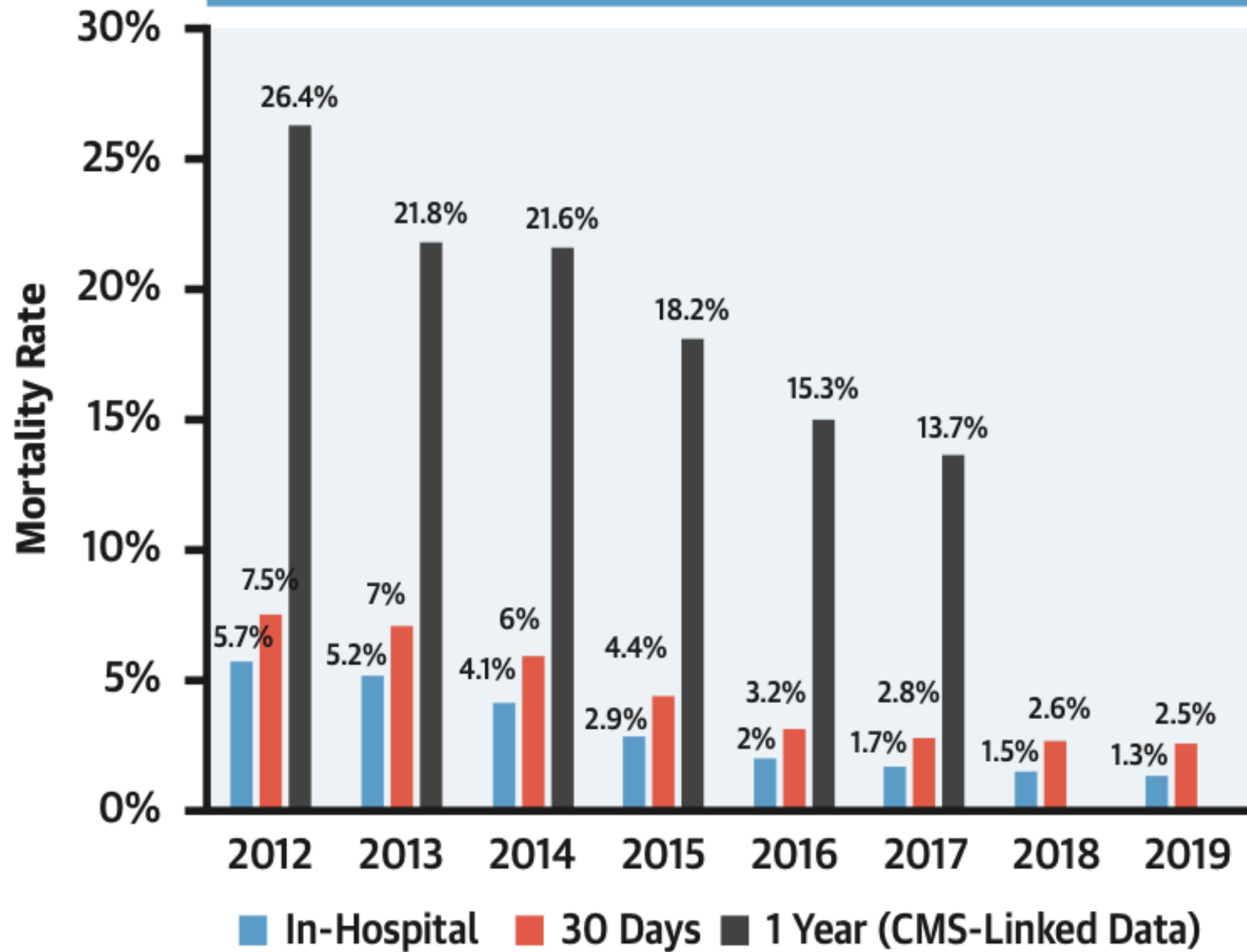
Patients

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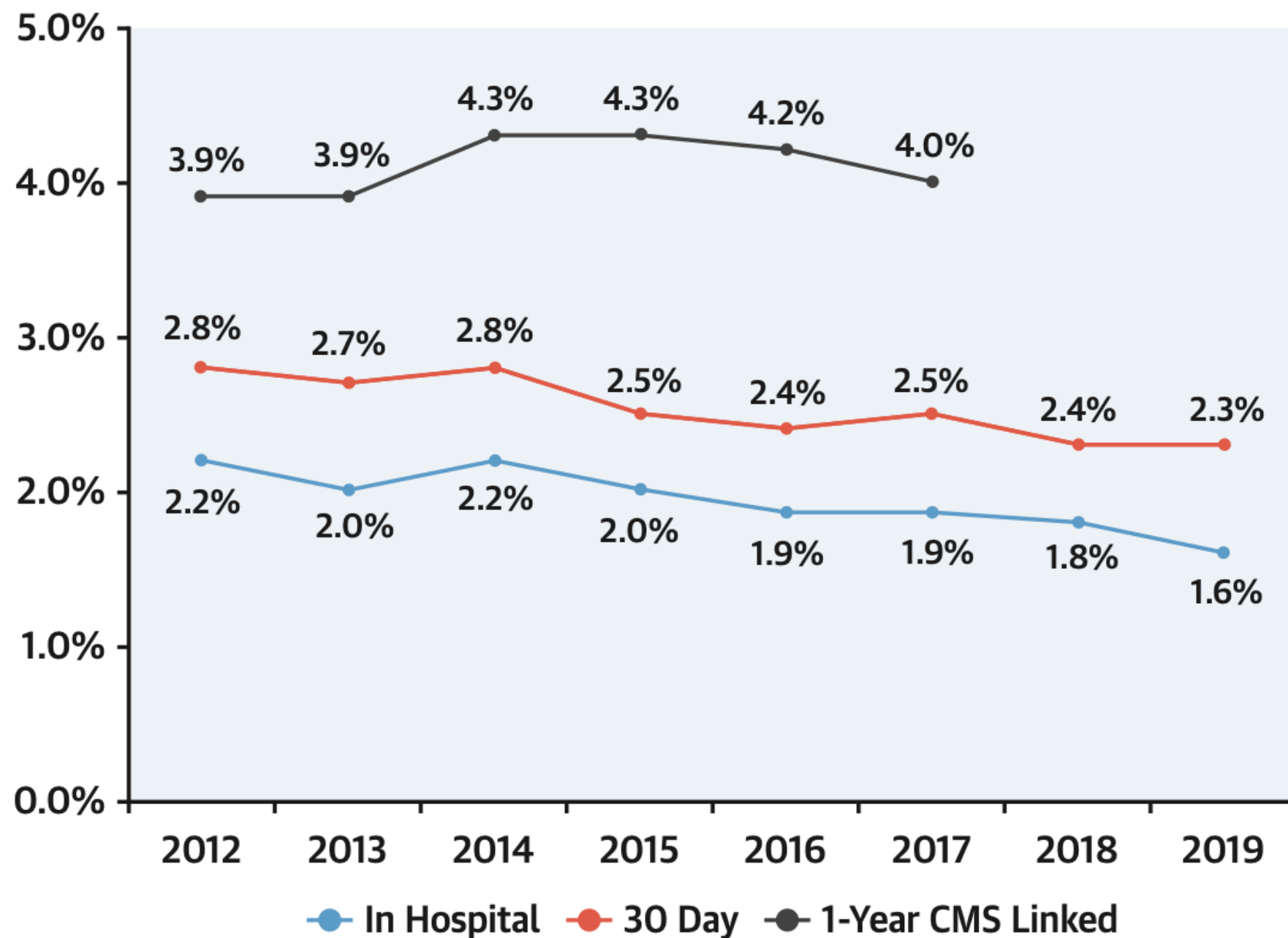
SAVR TAVR Volumes

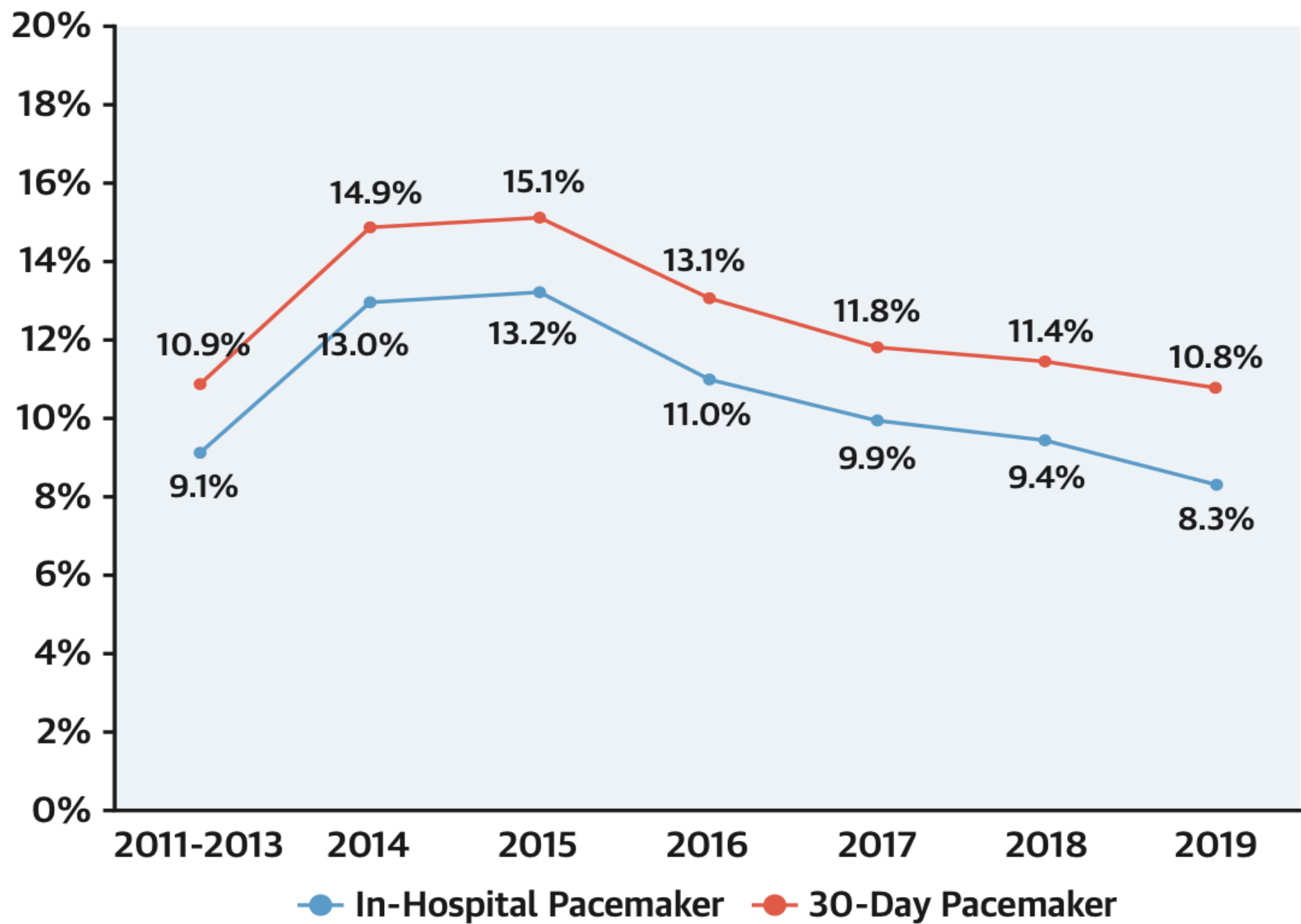


Outcomes

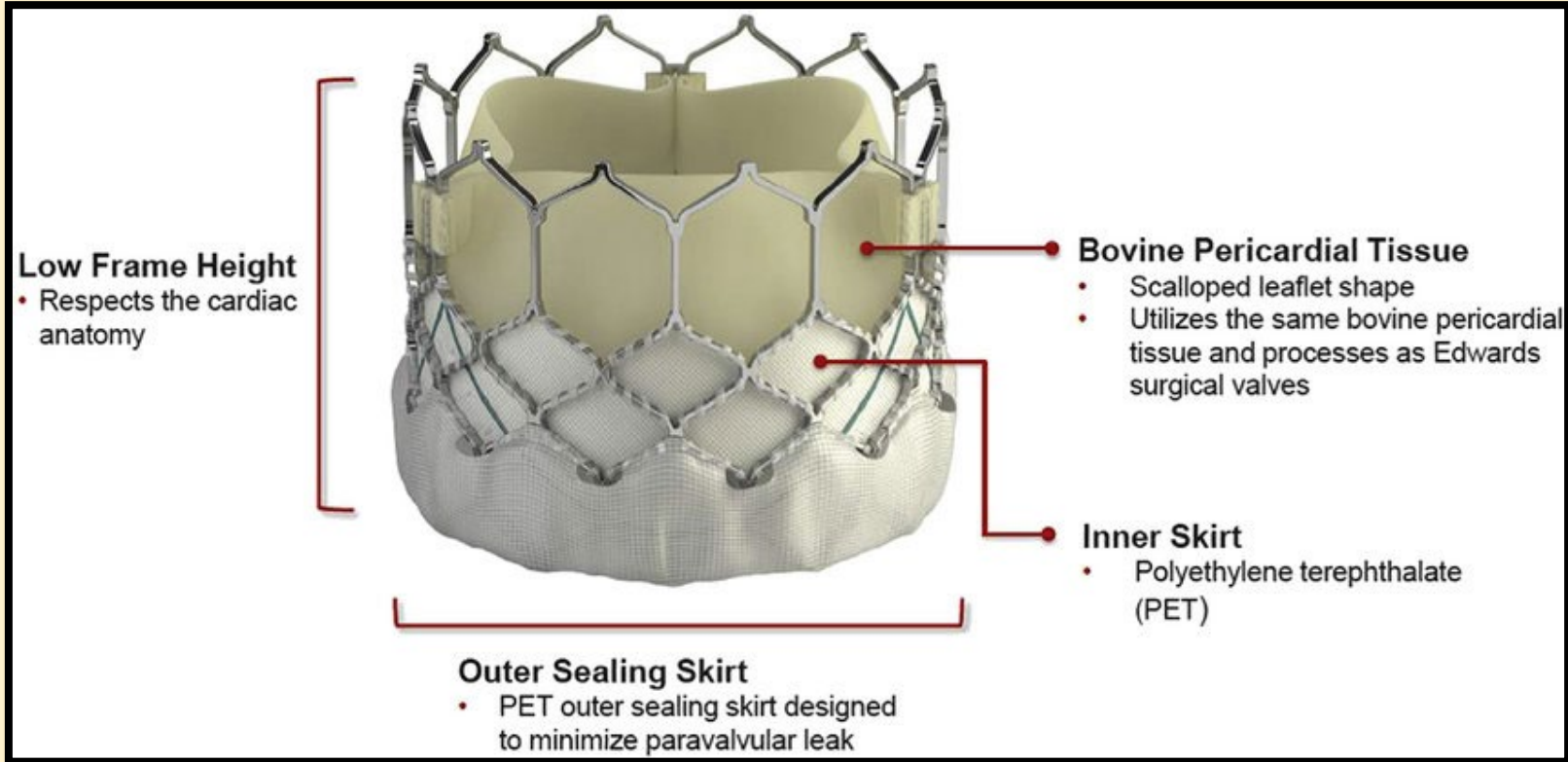


Stroke Rates After TAVR





Sapien and Evolute TAVR Valves



Nov 2012 to Sept 2023 1,095 TAVRs

- Majority 1,006 (91.8%) of cases were done via the femoral artery approach, of which 969 (**88.5%**) were done via percutaneous femoral access.
- Alternative access routes included-
 - transapical approach in 40 cases (3.7%), and
 - axillary artery approach in 27 cases (2.5%).
- A valve-in-valve procedures were performed in 50 patients (4.6%).

Percutaneous Femoral Artery Access- 969 (88.5%)

Age (mean) years		79±8
Gender, % male		60
STS risk	Low (%)	79 (8.15)
	Intermediate (%)	404 (41.69)
	High risk (%)	231 (23.84)
	Prohibitive (%)	251 (25.90)

Percutaneous Femoral Artery Access- 969 (88.5%)		
Morbidity	Hypertension (%)	544 (56.14)
	Diabetes (%)	331 (34.16)
	Atrial Fibrillation (%)	330 (34.06)
	Prior MI (%)	183 (18.89)
	Prior PCI (%)	176 (18.16)
	Prior CABG (%)	162 (16.74)
	Prior Aortic Valve (%)	31 (3.20)
	Conduction Defect (%)	287 (29.62)
	Pacemaker (%)	70 (7.22)
	Prior Stroke (%)	97 (10.01)
	Current Dialysis (%)	39 (4.03)
	Home O2 (%)	46 (4.75)

Outcomes- Percutaneous Femoral Artery Access TAVRs 969 (88.5%)		
Adverse Event Type	Vascular Access Complication (%)	32 (3.28)
	PPM Implantation (%)	27 (2.79)
	Stroke (%)	13 (1.34)
	Annular Dissection (%)	2 (0.21)
	Device Embolization, Aorta (%)	3 (0.31)
	New Onset Atrial Fibrillation (%)	5 (0.52)
	Unplanned Cardiac surgery	3 (0.30)
	Aortic Valve Re-intervention (%)	6 (0.62)
	Cardiac Arrest (%)	4 (0.41)
	Myocardial Infarction (%)	3 (0.31)
	New Requirement for Dialysis (%)	1 (0.10)
Discharge Status	Alive (%)	964 (99.48)
	Deceased (%)	5 (0.52)

Initial Practice

Per-procedure steps

1. Placement of radial arterial line in per-operative area.
2. General anesthesia/ Conscious sedation
3. Placement of central venous access by anesthesia team.
4. TEE probe for aortic valve assessment

Procedure Steps

5. Femoral venous access and pacing wire placement
6. Secondary Femoral arterial catheter, pig tail catheter placement
7. Pre procedural femoral angiography
8. 360° rotational aortic root angiogram for coplanar alignment
9. Primary Femoral arterial access and TAVR introducer sheath placement
10. Aortic valve crossing and balloon valvuloplasty
11. TAVR valve deployment and introducer sheath removal
12. Post procedure femoral angiogram.

Post-Procedure Care

13. Admission to cardiac surgery ICU. Home in 1-2 days

Initial Practice	Current Practice
1. Placement of radial arterial line in per-operative area.	Secondary arterial access is transduced to monitor BP
2. General anesthesia/ Conscious sedation	Conscious sedation protocol
3. Placement of central venous access by anesthesia team.	The side port of 8F femoral venous sheath placed for the purpose of placing pacing cable is accessed by anesthesia for central venous access.
4. TEE probe for aortic valve assessment	Trans-thoracic ECHO cardiogram assessment only
5. Femoral venous access and pacing wire placement	Femoral venous access and pacing wire placement
6. Secondary Femoral arterial, pig tail catheter placement	Secondary Femoral arterial, pig tail catheter placement
7. Pre procedural femoral angiography	Detailed ultrasound exam
8. 360° rotational aortic root angiogram	CTA 3D reconstructed images on Mensio for co-planar angles
9. Primary Femoral arterial access and TAVR introducer sheath placement	Primary Femoral arterial access and TAVR introducer sheath placement
10. Aortic valve crossing and balloon valvuloplasty	Aortic valve crossing and Selective balloon valvuloplasty
11. TAVR valve deployment and introducer sheath removal	TAVR valve deployment and introducer sheath removal
12. Post procedure femoral angiogram.	Ultrasound evaluation of access vessel.
13. Admission to cardiac surgery ICU. Home in 1-2 days	Observe in recovery room then to telemetry floor overnight. Home next day morning.

Three Major Procedural Modifications

Traditional protocol (November 2012–December 2016): Standard TAVR approach with all procedural steps included.

1. Elimination of rotational angiogram- January 2017
2. Elimination of routine balloon valvuloplasty- July 2020
3. Elimination of routine femoral angiogram- July 2022

To minimize contrast load, a 50% contrast and 50% saline dilution was used for all TAVRs.

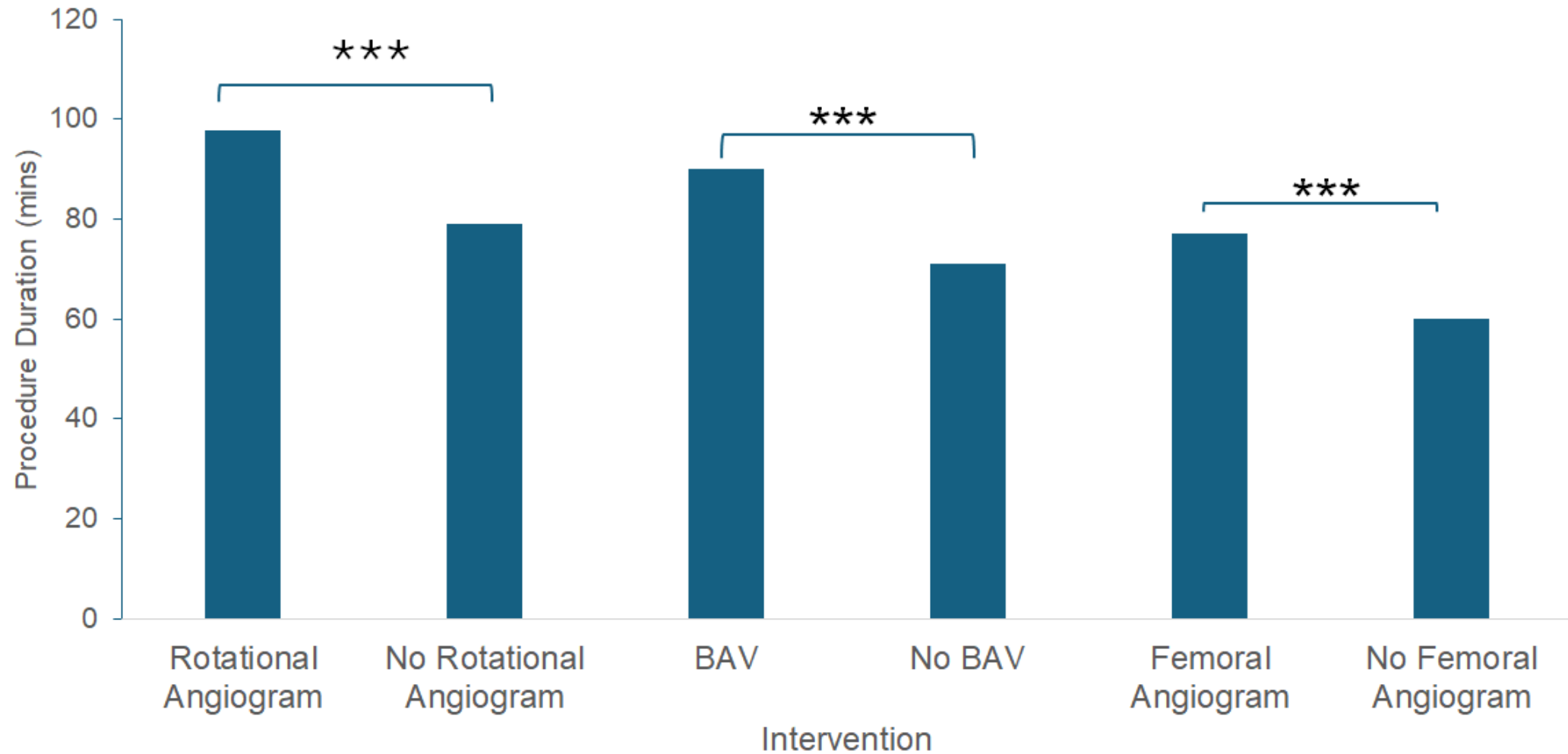
Impact of TAVR Procedural Modifications

		Total	Removal of Intervention					
			Rotational Aortic Root Angiogram		Balloon Valvuloplasty		Femoral Angiogram	
			Before	After	Before	After	Before	After
Number of patients		969	164	805	342	463	298	165
Age in years		78.9±8.6	81.5±7.8	78.4±8.7	78.1±9.7	78.7±7.9	78.6±8.0	78.8±7.8
Gender Female (%)		39.9	43.9	39.1	42.1	39.7	40.8	35.7
Procedure Duration (min)		82.2±30	97.8±33	79.0±28	89.9±32	71.0±22	77.1±23	59.9±15
Contrast volume (mL)		69.8±34	92.9±38	64.7±31	75.9±28	55.4±31	64.0±30	40.0±26
Fluro Time (min)		13.5±7	18.5±8	12.4±7	14.6±7	10.8±6	12.3±5	8.5±7
Adverse Event-%	No	88.0	74.4	90.8	82.4	94.1	86.7	94.5
	Yes	12.0	25.6	9.2	17.6	5.9	13.3	5.5
Discharge Status%	Alive	99.48	99.39	99.50	99.42	99.57	99.33	100.0
	Deceased (%)	5 (0.52)	1 (0.61)	4 (0.50)	2 (0.58)	2 (0.43)	2 (0.67)	0 (0.00)

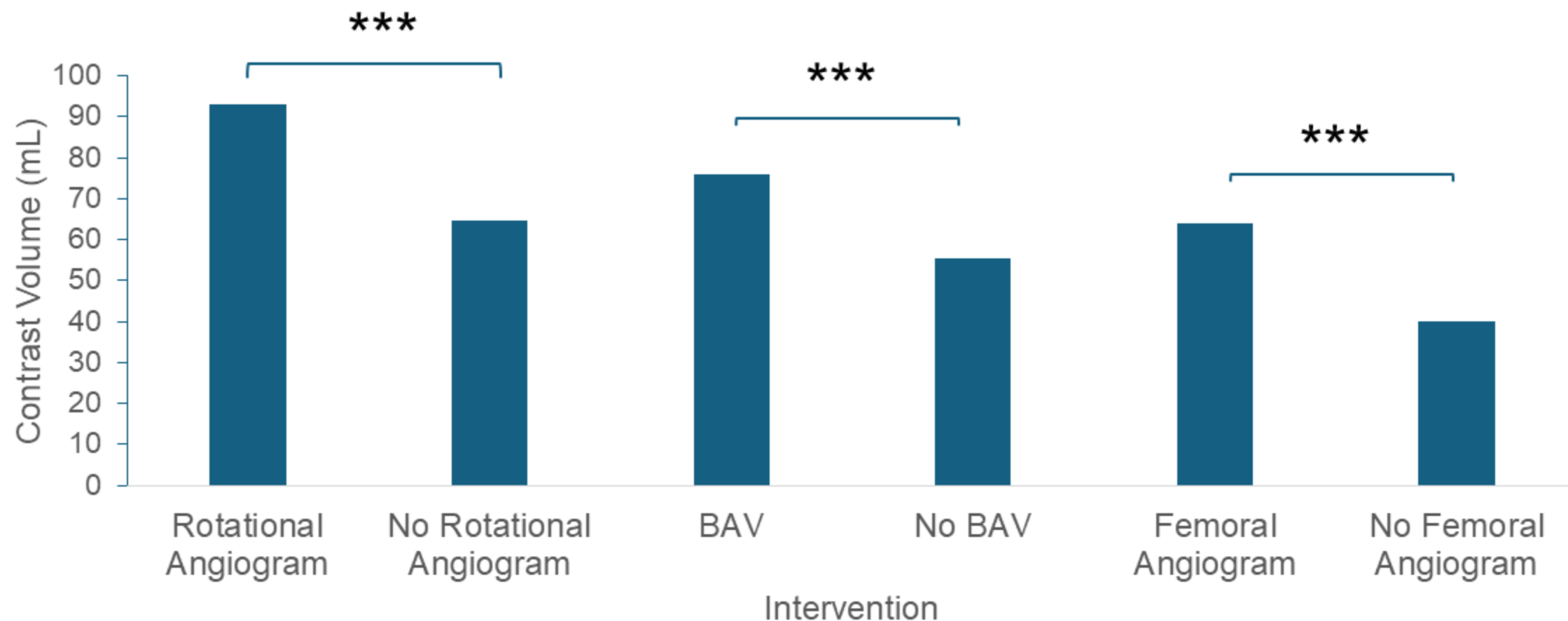
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Gender Female (%)		39.9	43.9	39.1	42.1	39.7	40.8	35.7
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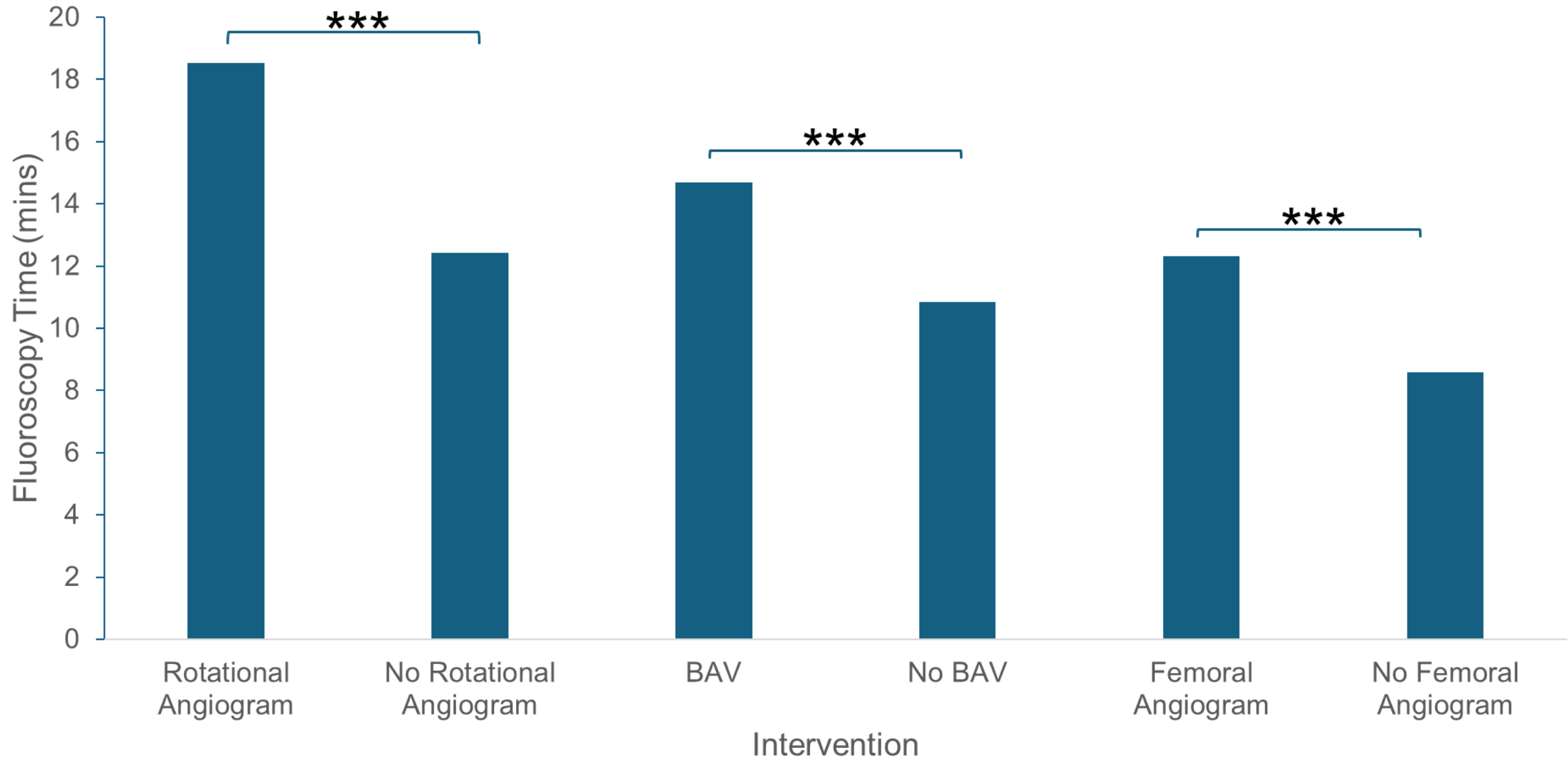
Procedure Duration in Minutes



Contrast Volume (mL)



Fluoroscopy Time (minutes)

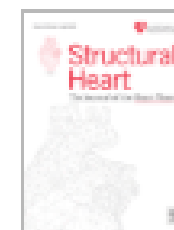


Impact of TAVR Procedural Modifications

		Initial Cohort	Current Cohort
Number of Patients		164	165
Age in years		81.5±7.8	78.8±7.8
Gender Female (%)		43.9	35.7
Procedure Duration (min)		97.8±33	59.9±15
Contrast volume (mL)		92.9±38	40.0±26
Fluoro Time (min)		18.5±8	8.5±7
Adverse Event-%	No	74.4	94.5
	Yes	25.6	5.5
Discharge Status%	Alive	99.39	100.0
	Deceased (%)	1 (0.61)	0 (0.00)

Key Message

- Keep on thinking of improving efficiency in performing any procedure including TAVR
- Efficiency in performing the TAVR procedure goes beyond “minimalist” approach
- Efficiency can be improved while maintaining and improving patient safety



Original Research

Improving efficiency in performing transcatheter aortic valve replacement procedure: Experience with 1000 TAVR procedures

Mohammed Quader MD^{1 2}  , Neha Shah MPH¹, Rebecca Deitch BS¹, Barbara Lawson MD^{2 3},
Delia Endicott NP^{2 3}, Zachary Gertz MD^{2 3}

Implementation of a patient blood management program: Challenges abound!

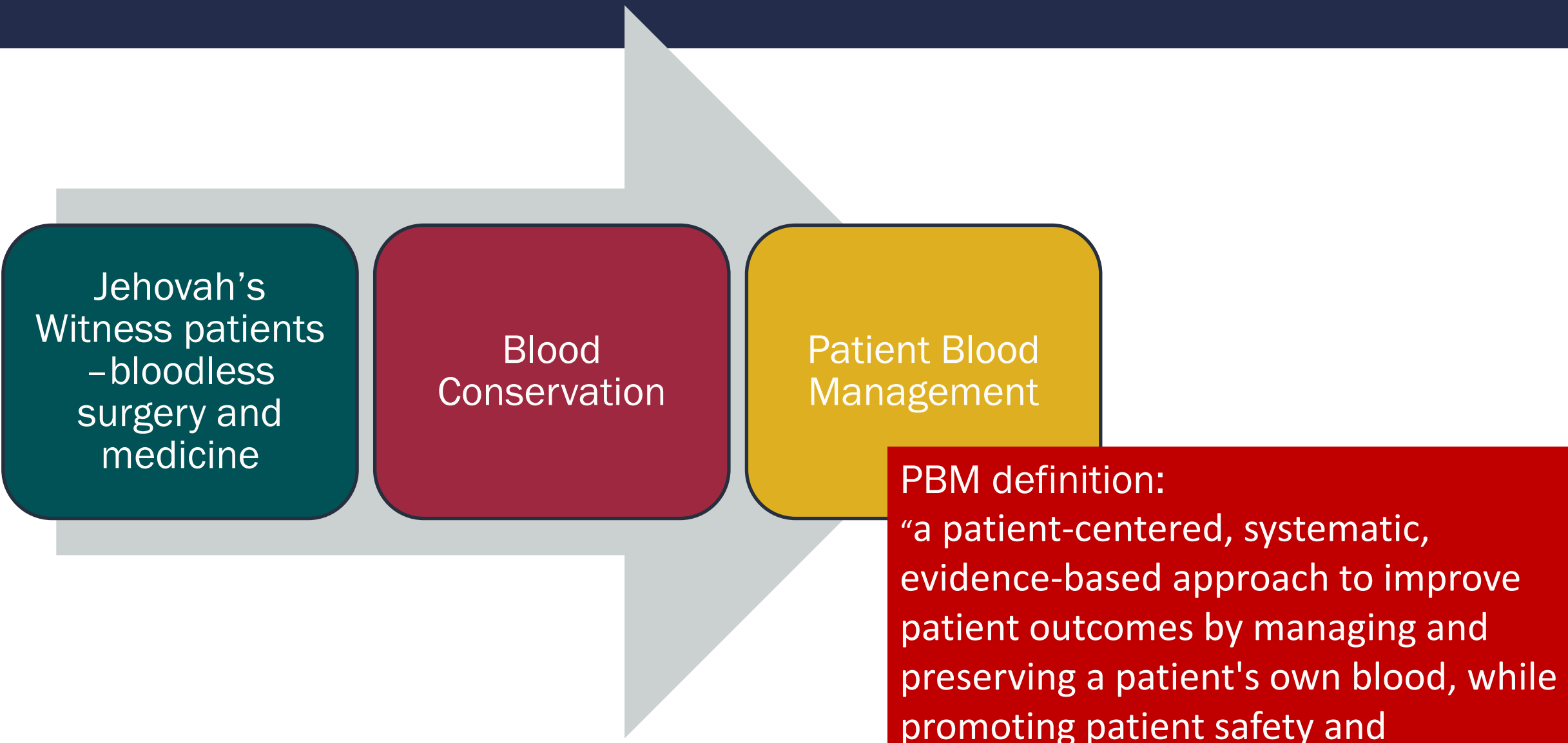
Karen Singh, MD FASE
Associate Professor, Anesthesiology

October 9th, 2025

No disclosures

Objectives:

- Review some of the main PBM guideline recommendations for cardiac surgery
- Share our experience in establishing a multidisciplinary PBM program
- Focus on practical challenges in implementation at UVA



Jehovah's
Witness patients
–bloodless
surgery and
medicine

Blood
Conservation

Patient Blood
Management

PBM definition:
“a patient-centered, systematic,
evidence-based approach to improve
patient outcomes by managing and
preserving a patient's own blood, while
promoting patient safety and
empowerment.”

PATIENT BLOOD MANAGEMENT GUIDELINES

STS/SCA/AmSECT/SABM Update to the Clinical Practice Guidelines on Patient Blood Management



Pierre Tibi, MD, R. Scott McClure, MD, FRCSC, Jiapeng Huang, MD, Robert A. Baker, PhD, CCP, David Fitzgerald, DHA, CCP, C. David Mazer, MD, Marc Stone, MD, Danny Chu, MD, Alfred H. Stammers, MSA, CCP Emeritus, Tim Dickinson, CCP, Linda Shore-Lesserson, MD, Victor Ferraris, MD, Scott Firestone, MS, Kalie Kissoon, and Susan Moffatt-Bruce, MD, FRCSC

2021: Recommendations we were following:

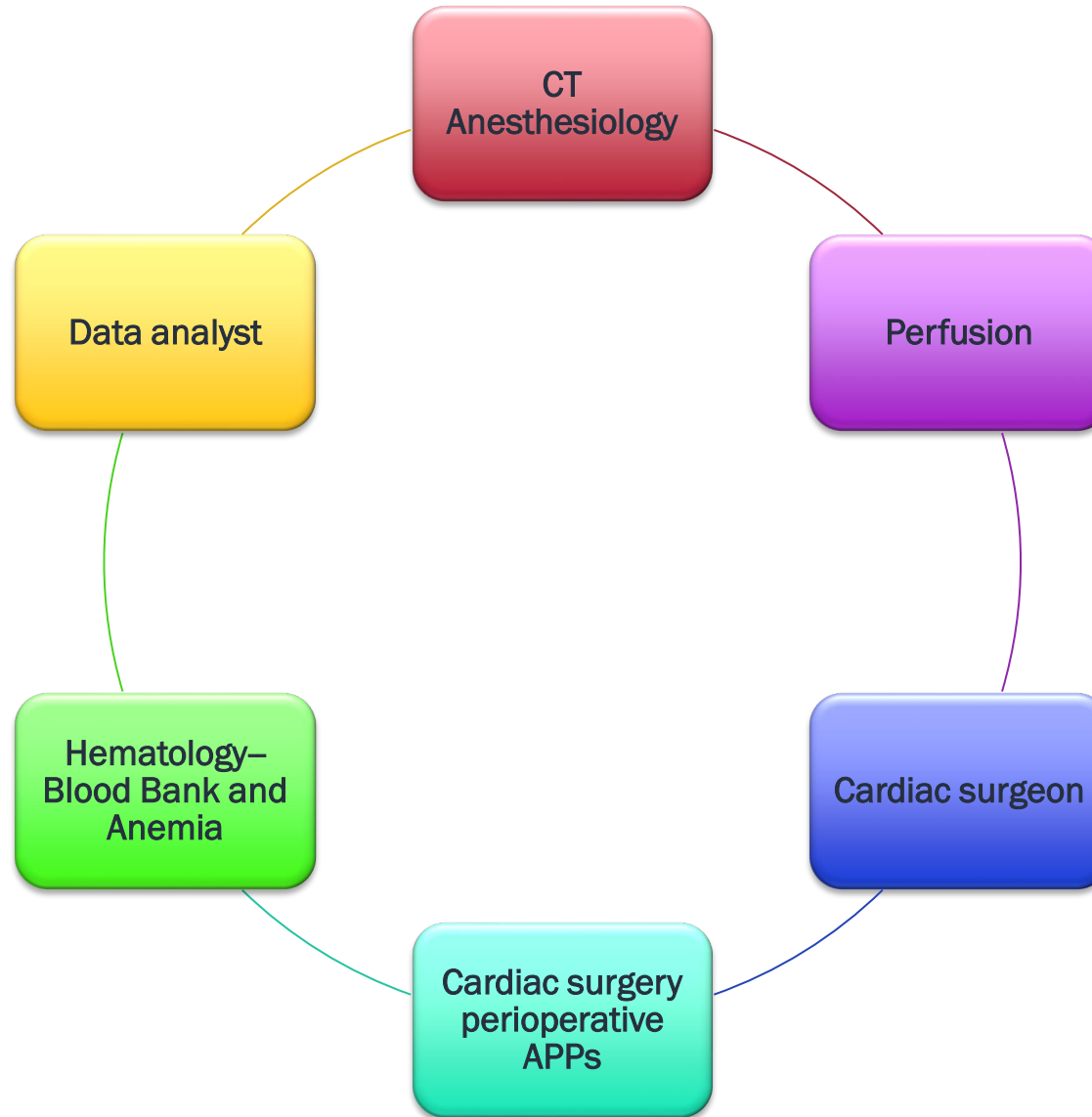
- Cell saver
- Utilizing ATIII in cases of heparin resistance
- Standardized transfusion protocol with **restrictive (Hgb 7-8)** RBC transfusion
- Appropriate management of preoperative antiplatelets and anticoagulants, platelet function assays for P2Y inhibitors
- Antifibrinolytic agents (TXA)
- 4-factor PCC in cases of extreme bleeding/factor deficiency
- Utilizing targeted transfusion based on POC coagulation testing in the OR



2021: Recommendations we were not following:

- Use retrograde autologous priming whenever possible (Class I)
- Use POC viscoelastic testing perioperatively to reduce bleeding and transfusion (Class I) **NOT using in ICU**
- ANH (reasonable method to reduce bleeding and transfusion (Class IIa)
- Assessment of anemia, determination of etiology, IV iron if indicated (Class II)
- Have a multimodality PBM program led by multidisciplinary team (Class I)

Step #1: Form a multidisciplinary team to build our PBM program



Our goals for cardiac surgery patients:

- Increase % of patients undergoing RAP
- Identify and treat preoperative anemia
- Increase POC coagulation testing in ICU
- Start an ANH program?



RAP = retrograde autologous priming (of CPB circuit)
ANH = acute normovolemic hemodilution

Why RAP?

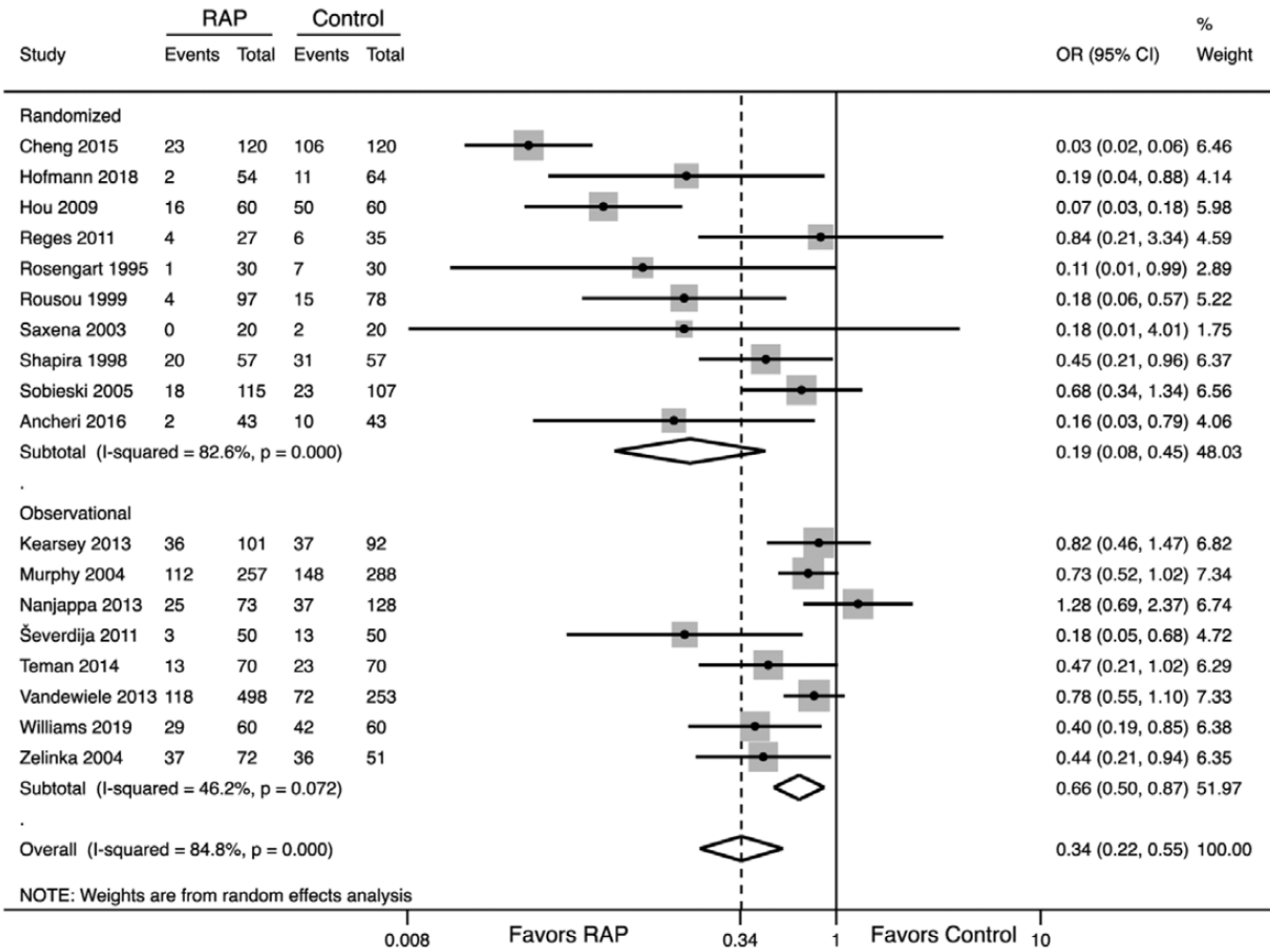
- Drain patient's blood (about 300-400 ml) into the bypass circuit just prior to initiation of bypass, limiting crystalloid priming volume and hemodilution
 - Class I recommendation
 - Safe and effective
 - Decrease risk of blood transfusion



Retrograde Autologous Priming in Cardiac Surgery: Results From a Systematic Review and Meta-analysis

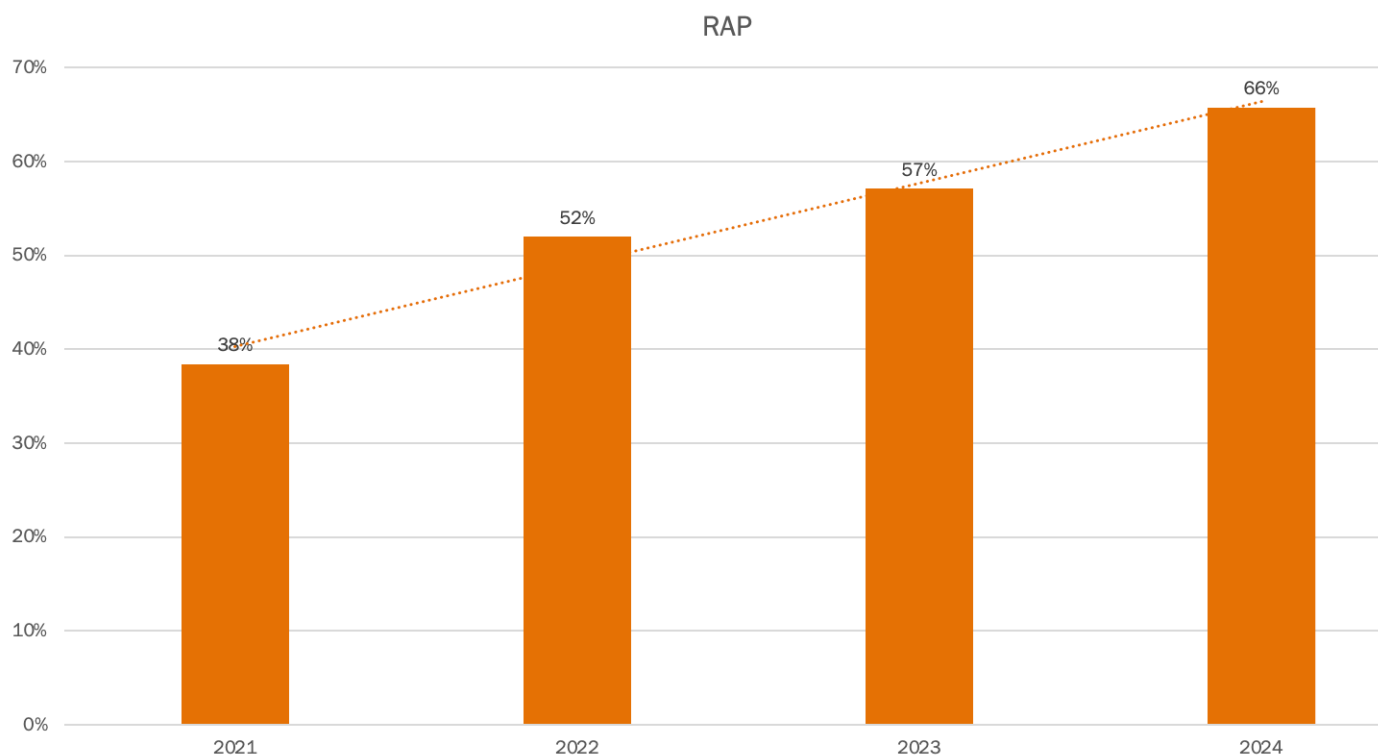
Nadia B. Hensley, MD,* Richard Gyi, MD,† Andres Zorrilla-Vaca, BS,‡ Chun W. Choi, MD,§
Jennifer S. Lawton, MD,§ Charles H. Brown IV, MD,† Steve M. Frank, MD,*
Michael C. Grant, MD,* and Brian C. Cho, MD†

- RAP associated with significantly decreased intraoperative and hospital RBC transfusion
- No increased risk of AKI or stroke identified



- Emails with latest recommendations sent to surgeons
- Increased communication during Time-Out for surgery

RAP: January 2021 to December 2024



Time Out:

○ Starting Hct

○ Discuss RAP

Acute Normovolemic Hemodilution

- Removing 1-2 units of patient's blood in the OR, prior to heparinization
- Replacing volume, if needed, with crystalloid
- Return blood to patient after cardiopulmonary bypass/heparin reversal
- Class IIa recommendation: reasonable method to reduce bleeding and transfusion
- Earlier studies, larger volume of ANH seem to show most benefit



Why NOT perform ANH?

- Program set-up and education
- Requires significant time and resources
- Risk of hemodynamic instability
- Risk of blood clotting in bag
- Anemia on CPB, hemodilution of clotting factors



“Oh, me? I make e-mails.”

Cartoon by Tommy Siegel and Dan Kirkwood

Acute Normovolemic Hemodilution

• Materials

- Blood scale
- Blood collection bag with citrate
- Peds connector, one way stopcock
- Patient/Blood label

• Exclusion Criteria

- Emergency surgery
- Significant hemodynamic instability
- Starting Hgb < 11 g/dl
- Severe aortic stenosis or mitral stenosis
- HCM/LVOT obstruction
- Severe left main disease or equivalent
- Ejection fraction < 30%
- CKD
- Endocarditis/concern for sepsis
- BMI < 18 kg/m²

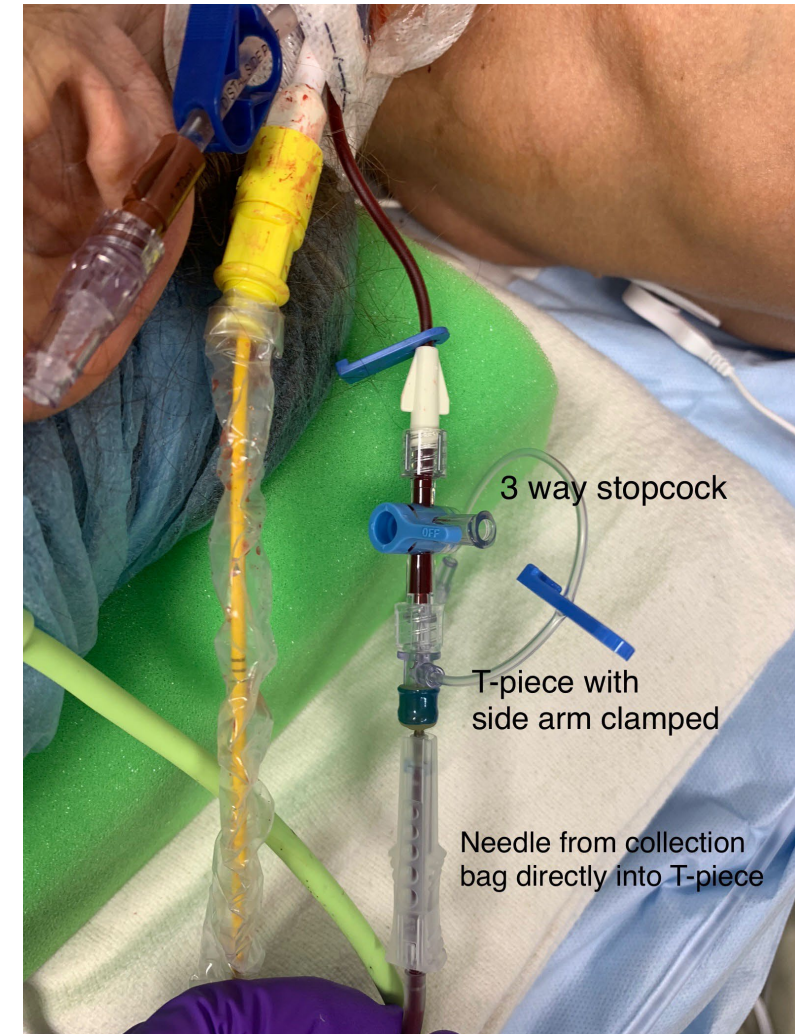
• Methods

- Obtain ABG with Hgb prior to ANH collection
- Standard ANH collection is 400-500 mL (grams) per blood pack (unit).
- Collect 1 unit or 2 units prior to sternotomy via CVL.
- Replace collected blood volume with crystalloid (1:1.5 ratio) or albumin (1:1 ratio), as needed to maintain euvoemia, using a separate line for fluid replacement or avoiding simultaneous replacement through CVL.
- Agitate blood after collection to mix blood and anticoagulant.
- Each unit of ANH blood should be immediately labeled with a patient label that includes:
 - the date and time of collection
 - date and time of expiration (eight hours)
 - sequential unit number (if two units are collected).
- Blood units collected by ANH are to be stored in the OR at RT (~22°C [72°F]).
 - Storage duration of up to eight hours is acceptable.
 - If storage exceeds eight hours, the ANH unit must be discarded.
- Reinfusion of the ANH unit(s) must take place in the OR, prior to the patient's leaving the OR.
 - ANH units should be reinfused **after** protamine administration in opposite order of collection, in the case of multiple units
 - Give ANH blood **prior to** cell saver blood and/or allogeneic (Blood Bank) RBC administration
 - If the ANH unit(s) is/ are not reinfused in the OR, it/ they must be discarded.



ANH at UVA

- Started performing ANH in November 2022
- Slow blood collection seemed to be associated with increased risk of ANH clotting in bag –collect 1 bag in less than 10 minutes
- Site for international randomized controlled trial of ANH in cardiac surgery –closed enrollment in Jan 2025



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

A Randomized Trial of Acute Normovolemic Hemodilution in Cardiac Surgery

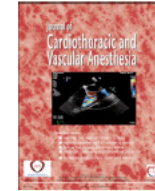
- Multinational RCT of 2010 patients undergoing cardiac surgery: randomized to no ANH or ANH with withdrawal of at least 650 ml blood
- Primary outcome: transfusion of at least 1 u PRBC during hospital stay
- Results:
 - About 7% rate of transfusion ANH blood on bypass
 - 2 patients did not have blood reinfused (clotting, bag rupture)
 - No difference in rate of transfusion of at least 1 PRBC (ANH 27%, usual 29%)
 - Median number of units PRBC transfused same b/t groups (2 units)
 - No difference in reop for bleeding, CT output, AKI, other complications
- Conclusion: ANH does not reduce the risk of allogeneic RBC transfusion



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Journal of Cardiothoracic and Vascular Anesthesia

journal homepage: www.jcvaonline.com



Editorial

Acute Normovolemic Hemodilution in Cardiac Surgery: Evidence-Based Exit or a Chance for Refinement?

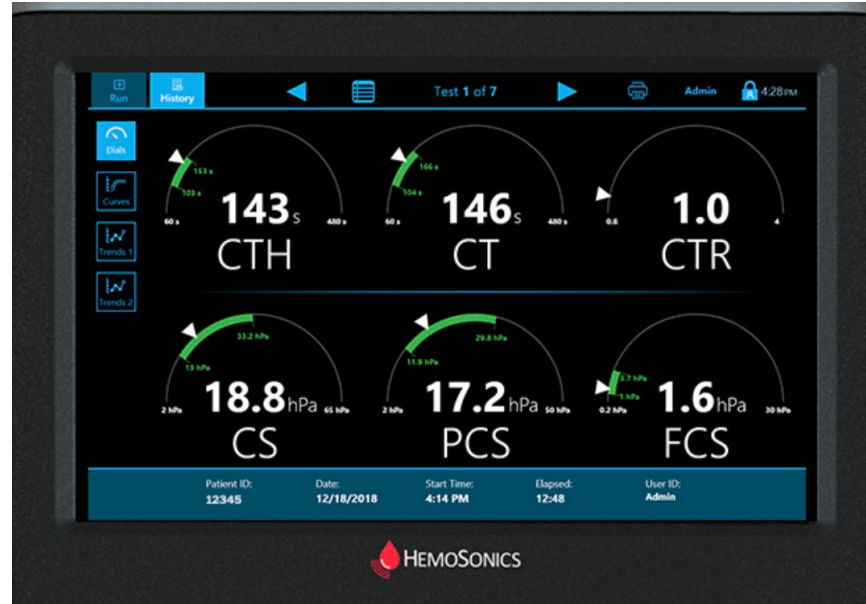
Editorial / Journal of Cardiothoracic and Vascular Anesthesia 00 (2025) 1–3

“ANH has held a prominent place in the history of transfusion medicine and cardiac surgery for over five decades. However, the results of the largest and most rigorous randomized controlled trial to date suggest that its routine use in cardiac surgery is not justified.”

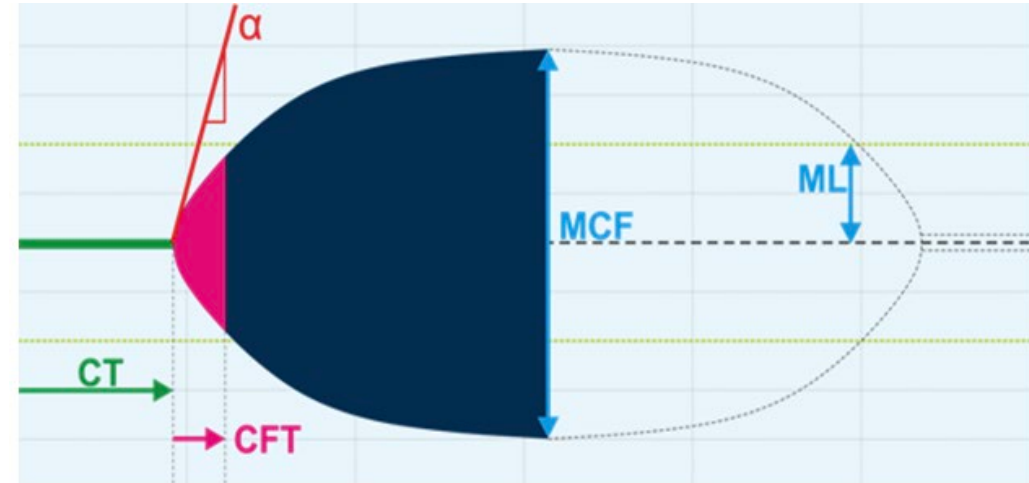


POC coagulation testing for OR and TCV ICU

Quantra –uses ultrasound to measure clot stiffness –Sonic Estimation of Elasticity versus Resonance (SEER) Sonorheometry

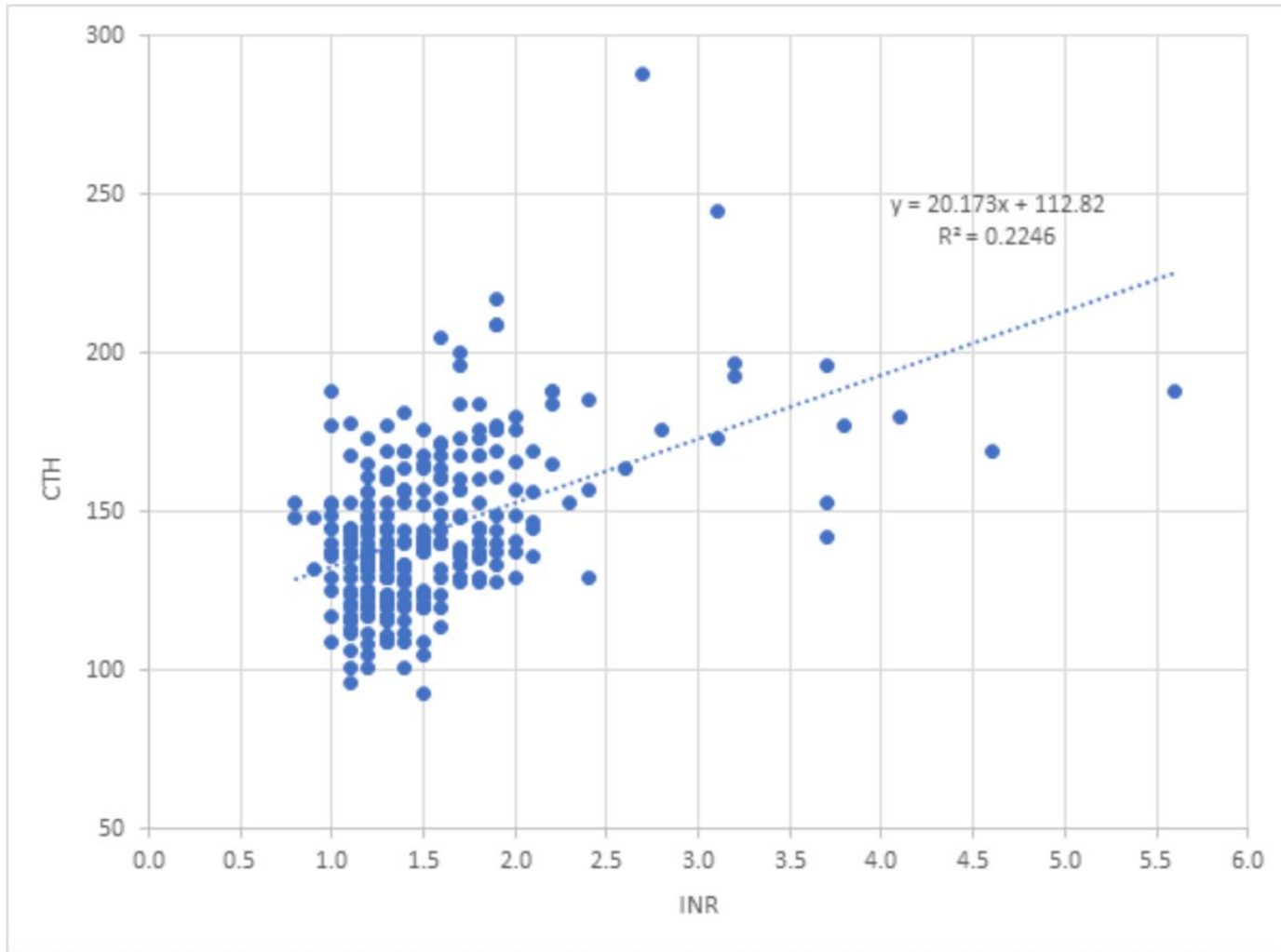


ROTEM—uses a rotating pin in a cup with blood to assess the viscoelastic properties of clot formation and dissolution—creating a temogram



UVA Cardiac Surgery Quantra QPlus Guideline

TCV ICU data –CTH not correlating well with INR!



- How do we treat factor deficiency based on CTH data only?
- Do we need a POC INR result for each patient?
- FFP transfusion rates unchanged since Quantra adoption

EXPERT CONSENSUS DOCUMENT

Cardiac Surgical Bleeding, Transfusion Quality Metrics: Joint Consensus Document by the Enhanced Recovery After Cardiac Society and Society for Advancement of Patient Blood Management

Rawan Salenger, MD,¹ Rakesh C. Arora, MD, PhD,² A. Daniel T. Engelman, MD,⁵ Caroline Evans, MD,⁶ Michael Serdar Gunaydin, MD, PhD,⁸ Vicki Morton, DNP,⁹ S. Prakash A. Patel, MD,¹² Jacob Raphael, MD,¹³ Todd A. Linda Shore-Lesserson, MD,¹⁵ Pierre Tibi, MD,¹⁶ and

8. Treatments for Cardiac Surgical Bleeding

- *Prophylactic antifibrinolytic therapy reduces blood loss and transfusions in cardiac surgery and should be administered to cardiac surgical patients undergoing CPB unless contraindicated.*
- *Owing to its thrombotic risk, recombinant factor VIIa (rFVIIa) should be used cautiously, and its use should be restricted to extreme circumstances of intractable bleeding.*
- *PCCs are effective at reducing transfusions in patients with documented coagulopathies as part of a comprehensive PBM program.*
- *Where possible, a 4-factor PCC should be used rather than rFVIIa alone.*
- *Fibrinogen supplementation can effectively decrease blood loss and blood component utilization in patients with acquired hypofibrinogenemia.*

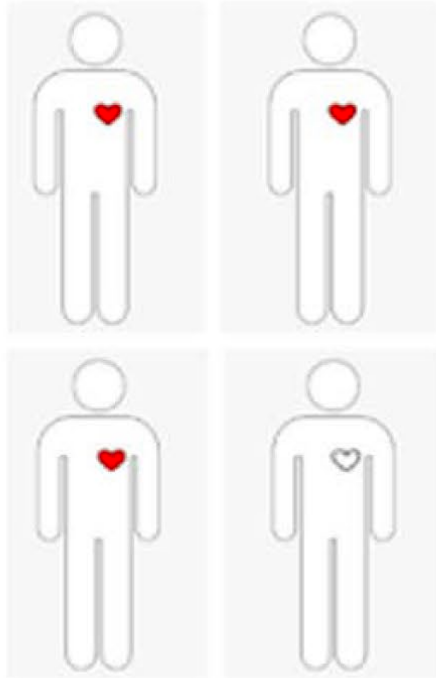
Perioperative Quality Initiative and Enhanced Recovery After Surgery-Cardiac Society Consensus Statement on the Management of Preoperative Anemia and Iron Deficiency in Adult Cardiac Surgery Patients

September 2022 • Volume 135 • Number 3

Nicole R. Guinn, MD,* Jonathon Schwartz, MD,† Rakesh C. Arora, MD, PhD,‡
Vicki Morton-Bailey, DNP, MSN, AGNP-BC,§ Solomon Aronson, MD, MBA, FASA, FACC, FCCP, FAHA, FASE,||
Charles Scott Brudney, MC, ChB,¶ and Elliott Bennett-Guerrero, MD,† on behalf of the Perioperative
Quality Initiative (POQI-8) and the Enhanced Recovery After Surgery-Cardiac Society (ERAS-C) Investigators

Table 1. POQI 8 Consensus Statements and Recommendations

		Strength ^a	LOE ^b
Statement 1.1	We recommend screening all patients for anemia and iron deficiency as soon as surgery is contemplated.	Strong	B
Statement 1.2	We recommend measurement of hemoglobin concentration as a screening tool for anemia.	Strong	A
Statement 1.3	We recommend measurement of ferritin and transferrin saturation as a screening tool for iron deficiency.	Strong	B
Statement 1.4	We recommend further work-up for patients identified as being anemic to determine etiology and appropriate treatment (laboratory work-up including CBC, if anemia identified by POC testing, creatinine, vitamin B12, folate, reticulocyte count, H&P).	Strong	B
Statement 2.1	We recommend preoperative treatment for anemia.	Strong	B
Statement 2.2	We recommend preoperative treatment of iron deficiency with or without anemia.	Strong	C
Statement 2.3	We recommend treatment of iron-deficiency anemia with intravenous iron preferred over oral iron when there is limited time before surgery.	Strong	B



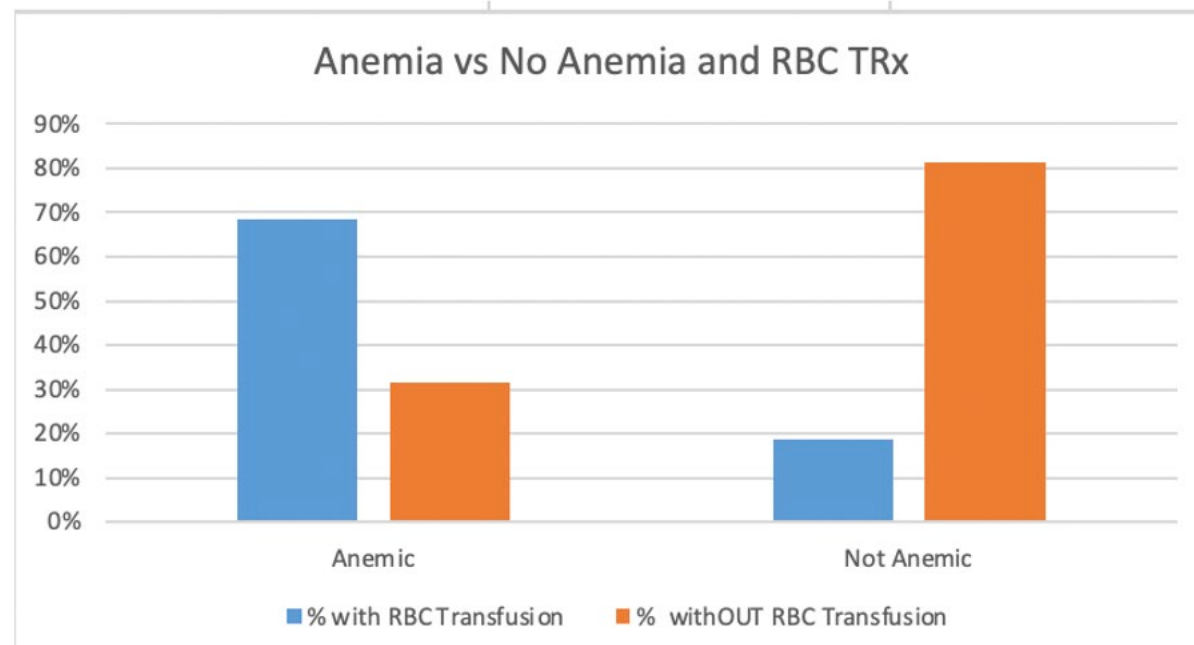
1 in 4 patients
presenting for cardiac
surgery are anemic

Anemic patients are
4X more likely to be
transfused

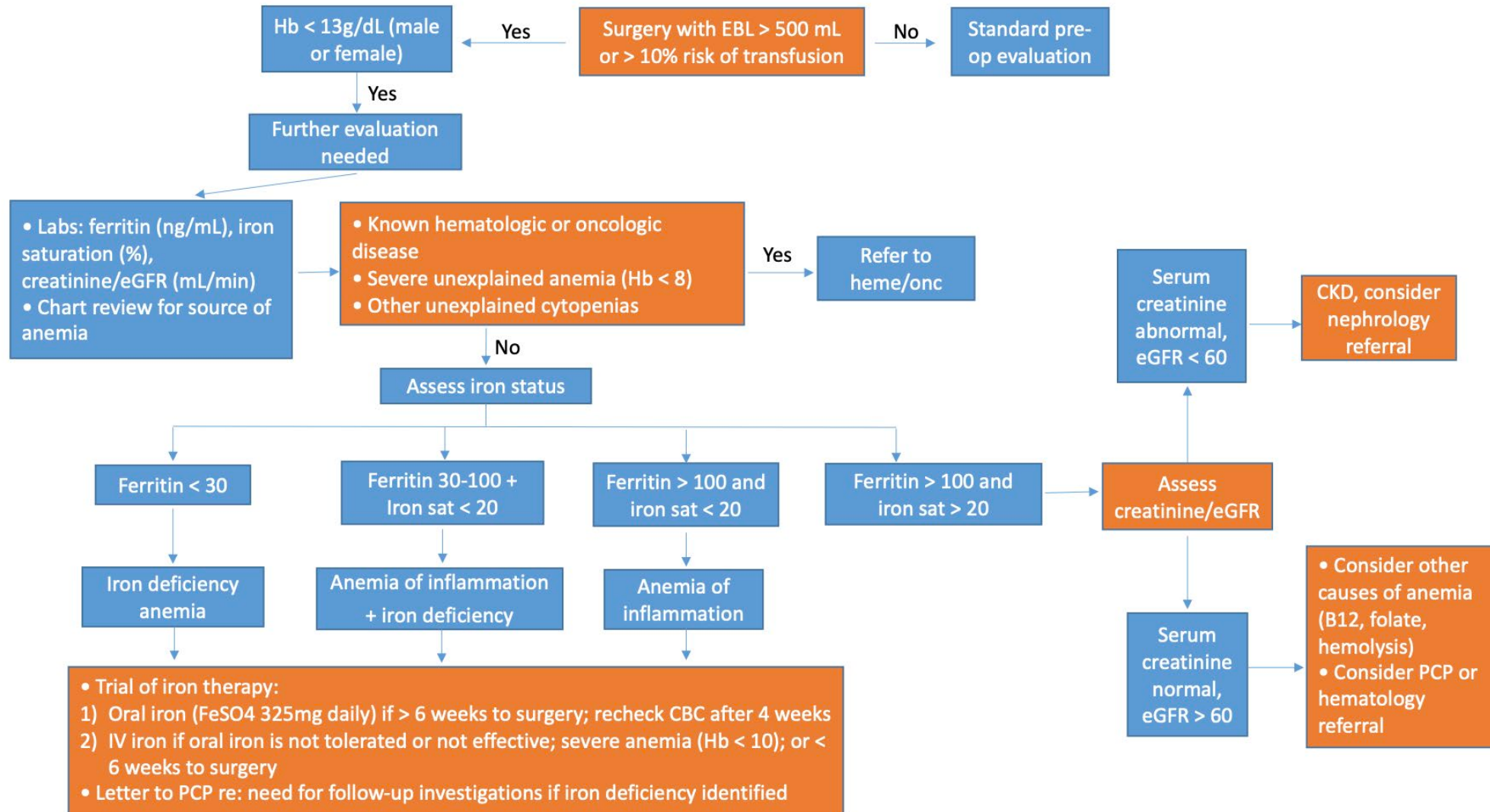


Treating anemia before
surgery reduces the risk
of transfusion

- Review of 612 UVA patients in CY 21 from STS database
- Overall, 33% of cardiac surgery patients anemic (Hgb < 13)
- Anemic patients over 3x as likely to have RBC transfusion



Anemia treatment algorithm for UVA cardiac surgery patients



Outpatient assessment and treatment begun Nov 2022

Pre-clinic visit chart review

- If Hgb < 13 on recent labs:
 - ☐ Order “ferritin” and “iron and tbc” - *linked to future encounter*
 - ☐ Enter patient’s data into Anemia Optimization Database
- If no CBC is available, order CBC with reflex iron studies- *linked to future encounter*

Review iron studies – Iron deficiency anemia present

- ☐ Follow iron repletion protocol- ordered through Beacon
- ☐ Letter to PCP
- ☐ Update patient database
- ☐ Enter FYI flag- “TCV anemia protocol”

Review iron studies – no iron deficiency anemia present

- Consider other causes
- Consider referral to PCP or hematology

Elective anemic patients over time

	2022-Pre- Intervention Elective Patients	2023-Elective	2024-Elective
# of patients with Preop HGB <13	64	67	63
# of patients with iron studies for HGB<13	7	38	45
% of Elective Anemic Patients with Iron Studies	11%	57%	71%

CHALLENGES:

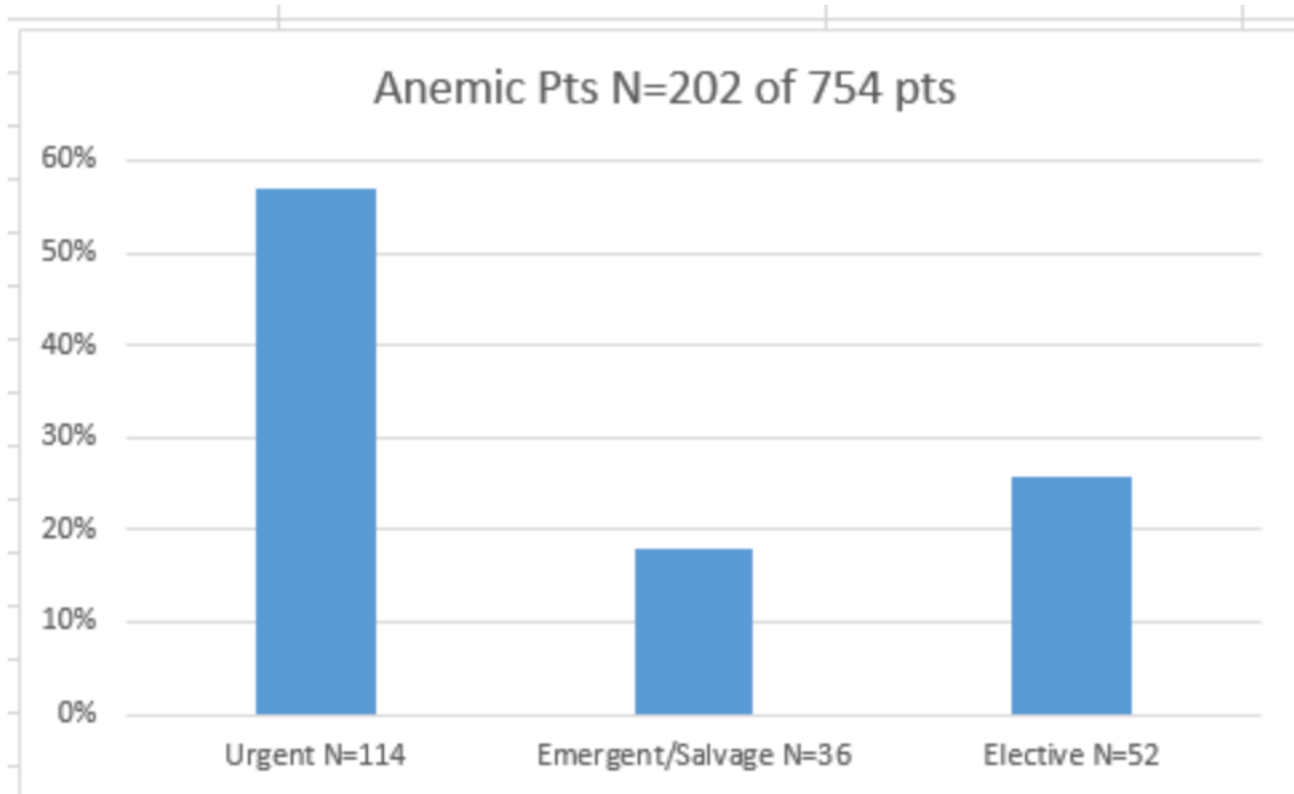
- Staffing shortages
- Time constraints
- Checking labs/follow-up
- Scheduling iron infusion preoperatively

BUT IMPROVING:

In 2025, 79% of elective anemic patients had iron studies, and about 60% of those recieved IV iron

Inpatients with preoperative anemia

Jan 2021-March 2022—Urgent patients about 2x as likely as elective pts to have anemia



- Mean preop LOS 2.75 days



Patients with **iron deficiency anemia** may benefit from **IV iron infusion** in the preoperative setting. Treating iron deficiency anemia may lead to improved patient outcomes by reducing rates of blood transfusions, AKI, and operative mortality and may reduce length of stay and cost. Optimal timing is 2-4 weeks prior to surgery, but IV iron can be beneficial even in the **hours and days leading up to surgery**. At UVA we have implemented an initiative to give IV iron to **ALL patients with iron deficiency anemia** planned for cardiac surgery.

For **male and female patients** with **Hemoglobin < 13**, please order

- Ferritin
- Iron and Transferrin

For **Hemoglobin < 8 without explanation** OR significant **concurrent leukopenia or thrombocytopenia**, consult classical hematology (PIC 1641).

If **Ferritin is < 30 and/or Iron Saturation is < 20%**, please order the **“IV Iron Focused”** order set

- Use the **“Preferred Iron Panel”** option to place an order for **both the Iron Dextran (INFED) 25 mg test dose AND the 975 mg treatment dose** if available
- Provide patient education, including explanation of risk of self-limiting urticaria, palpitations, dizziness, and neck and back spasm as well as more significant anaphylactic-type reaction. Generally, these occur in < 1% of individuals.

Order Sets & Panels 			 (Alt+Shift+1)
Name	User Version Name	Type	
  IV Iron Focused		Order Set	

- Involved cardiac surgery APPs in creating smartphrase for cardiac surgery H&P
- Relies on cardiology team to follow consult recommendations! Only 50% of inpatients getting iron studies, and 50% of those with studies receiving iron.
- Recently expanded to request iron studies on **all inpatients having cardiac surgery** and treating regardless of anemia status

Treatment of iron deficiency:

- IV iron more practical than oral for cardiac surgery
- 2+ weeks prior to surgery probably ideal, but. . . .
- Recent studies show decreased blood transfusion even when treatment 1-3 days prior to surgery
- Current recommendations: identify all patients with iron-deficiency and treat, regardless of anemia status
 - About 20% of elective non-anemic patients are iron deficient
- ESAs shown to be safe in cardiac surgery, but still controversial

“The best is the enemy of the good”
–Voltaire



- The challenges are real:
 - Staffing and bandwidth
 - Lack of anemia coordinator/anemia clinic
 - Variable transfusion and reop for bleeding rates regardless of efforts
 - Strong opinions or lack of engagement
- But progress comes with persistence:
 - Institutional protocols and clear definitions
 - Defining needs to obtain resources
 - Open channels of communication
 - Continuous QI data inform decisions

Team effort is
KEY!





Huge Thanks to:

Judy Smith, RN

Mike Gelvin, perfusionist

Kelly Davidson, MD

Jenna Khan, MD

Catherine Hite, RN

And many others!

QUESTIONS?

Thank You!



Survey Portal:
www.vcsqi.org/surveys

