SCA NEWS
SOCIETY OF CARDIOVASCULAR ANESTHESIOLOGISTS
Knowledge • Care • Investigation
Volume 47, Number 30
April 2025

SOCIETY OF CARDIOVASCULAR ANETHESIOLOGISTS

**Kathryn E. Glas**
**MD, MBA, FASE**
*President*
*Society of Cardiovascular Anesthesiologists*

# PRESIDENT'S MESSAGE

Colleagues, it is bittersweet to write this final newsletter as President, SCA. The past two years have been a rewarding experience due to the amazing engagement of our volunteer members and our dedicated staff. Dr. Fox and I have been meeting regularly to handoff leadership as of the business meeting in Montreal this year.

One of my first tasks as President was to create the Task Force for Education Strategy led with excellence by Dr. Annemarie Thompson and our Director of Education, Nicole Cranston. The group reviewed all our educational offerings and finalized their recommendations at our winter board meeting in January 2025. Thanks to all the hard-working task force members and all of you who responded to survey requests. The most notable external change will be with next year's annual meeting in Nashville that is moving to a Thursday through Sunday format. The Scientific Program Committee is working to ensure a similar amount of excellent content can be provided with overlapping sessions and online content.

The Online Education Sub-Committee has generated large amounts of content, CME and webinars, and we are working to increase the size of the sub-committee to further this important aspect of our member

benefits. The SCA Echo Meeting continues to provide stellar content focused on the desire of members for case based learning and advanced content. The most recent meeting had over 400 in person and online attendees, and I was impressed by the sessions I was able to attend. We are working to ensure the Thoracic Anesthesia Symposium for next year will be positioned to maximize participation of attendees with desired SCA Annual Meeting content in the next meeting framework. Join me in thanking the team for their efforts to ensure future educational excellence for our members.

A Financial Task Force has been working to review current and future financial viability in a changing healthcare environment. Dr. Doug Shook and numerous Board members have participated in this project. They are looking critically at operations, revenue generation, research and member support as well as fiduciary oversight and strategic investment. Their work has led to creation of the Industry Relations Council. Under the leadership of Dr. Bel Russell, the Endowment Council has markedly increased

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# PRESIDENT'S MESSAGE *continued*

member donations, including creation of a legacy circle fund to honor Dr. Mike Cahalan posthumously. Working with our Gala Committee, you will see the results of all these groups when you join us at the Gala - see this newsletter for details.

The History Task Force that created the timeline you have seen at the Annual Meeting is now the History Council, led by Dr. Rob Sladen. All past Presidents of SCA are invited to participate and share their perspectives on the history of the Society. I look forward to joining them on the Council as I transition to the role of past president myself. Thank you to Drs. Glen Gravlee and Jamie Ramsay for starting the task force and remaining active in the Council.

Over the past two years, we have finalized our agreement with the newly formed IACA to create an International Society of Cardiac Anesthesiology. The final ICCVA meeting in Sydney this November will also be the inaugural IACA meeting in concert with ANZCA. The SCA International Council, and Drs. Alex Mittnacht and Andy Shaw, are to be commended for their efforts in ensuring long standing engagement with our international colleagues and we thank Dr. Stan Shernan for continuing this work into the future.

One of my goals as President has been to enhance the participation of our non-academic members in the society. We have heard from many of you that work schedules create challenges in engagement and meeting attendance. The Thursday through Sunday meeting dates were generated by through listening to numerous members who requested meetings occur within the same calendar week. A council is under development to actively engage non-academic members, and I will be leading this as I move into my new role as Immediate Past President. The name of this council is to be determined based on the recommendation of the members. Reach out to staff if you wish to join the group.

With gratitude,

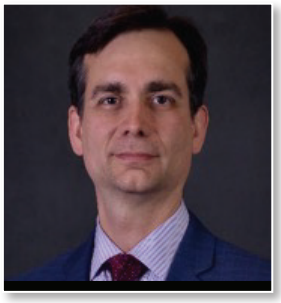
Kathryn E. Glas, MD, MBA, FASE
SCA President, 2023-2025

# SCA 2025 Election

# ELECTION RESULTS!

## YOUR VOTE COUNTS

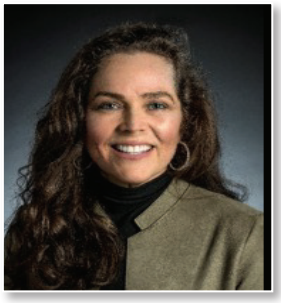
SCA is pleased to announce the following individuals who have been elected to the Society leadership positions:



### President-Elect

**Douglas Shook, MD, FASE**

*Brigham and Women's Hospital*



### Secretary/Treasurer

**Mary Beth Brady, MD, FASE**

*Johns Hopkins University School of Medicine*

ELECTION RESULTS!

# SCA 2025 Election
# ELECTION RESULTS!

## Director-at-Large

**Charles Nyman, MBBCh**

*Brigham & Women's Hospital*

## Director-at-Large

**Daryl Oakes, MD**

*Stanford University*

## Continuing Medical Education (CME) Committee Member

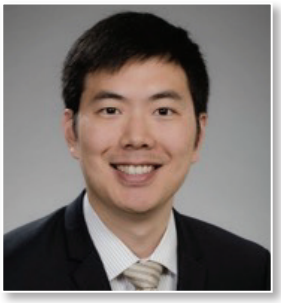
**Dalia Banks, MD, FASE**

*University of California San Diego*

## Nominating Committee

**Choy Lewis, MD**

*Northwestern University*



## Nominating Committee

**Richard D. Shue, MD, FASE**

*University of Washington School of Medicine*

# SCA BOARD OF DIRECTORS OUTGOING LEADERSHIP

*Thank You for Your Service*

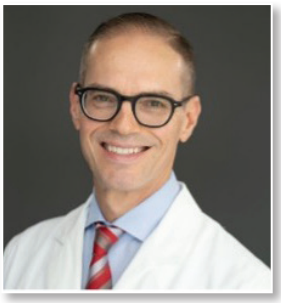
The SCA would like to recognize the elected leaders whose terms of office will conclude at this year's Annual Meeting. We greatly appreciate all their hard work towards improving our Society, and we thank them for their involvement.

## Immediate Past President 2023-2025

**Andrew D. Shaw, MB FCCM FFICM FRCA**

## Board Director 2023-2025

**Lisa Rong, MD**

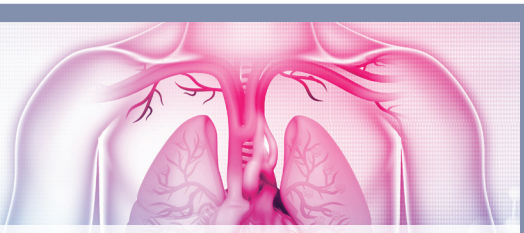


## Board Director 2023-2025

**Hilary Grocott, MD**

## Board Director 2022-2025

**Annemarie Thompson, MD**



# TAS2025

## THORACIC ANESTHESIA
### SYMPOSIUM & WORKSHOPS

**APRIL 25** | Montréal, Canada

## Please Plan to Join Us at the 13th Annual Thoracic Anesthesia Symposium and Workshops in *Belle* Montreal, Canada!

**We are excited to see you there for a robust exchange of ideas, techniques, and advances in the field of Thoracic Anesthesia.**

We recognize how valuable your time is and the wide array of choices available to you for continuing medical education. In addition to didactic sessions presented by international experts in Thoracic Anesthesia, the Thoracic Anesthesia Symposium Planning Committee is also excited to offer a selection of updated and new workshops featuring hands on experience with 3D printed models, precision ultrasound guidance, and augmented reality technology.

As always, we aim for the Symposium to provide you with critical updates on relevant topics in Thoracic Anesthesia, to enhance your learning of important techniques and skills, to promote discussion and debate of controversial topics in our field, and to facilitate networking. We are also pleased to offer novel research and challenging case presentations in both poster and oral presentation formats as well as several problem-based learning discussions. Each session is thoughtfully designed to present clear and timely information pertinent to our unique subspecialty.

During the next months leading up to our meeting in Montreal, please check out the SCA DocMatter Thoracic Channel (DLT Exchange) for lively discussions curated by our Planning Committee members along with teasers of our 2025 Symposium content.

We look forward to reconnecting familiar colleagues to meeting new ones!

On behalf of the SCA and the 13th Annual Thoracic Anesthesia Symposium and Workshops, we are so excited see you in Montreal!

**CLICK HERE** **For Registration Details and Program Agenda**

Sincerely,
Rebecca Klinger, MD MS
Chair, Thoracic Anesthesia Symposium and Workshops Program Committee


## Join Us April 26-29, 2025 for the Society of Cardiovascular Anesthesiologists 47th Annual Meeting and Workshops in Beautiful Montreal, Canada

**Don't miss a top-notch educational program and opportunities to congregate with friends and colleagues while surrounded by a unique mix of European and North American culture.**

Enjoy small group sessions, workshops, and presentations and panel discussions on all the hot topics and developments in our field. The program will address the latest research, as well as clinical controversies in our practice, with experts from the world of cardiology, cardiothoracic surgery, perfusion, critical care medicine, regional anesthesiology, law, and finance enriching our panel discussions. The workshops are hands-on opportunities to learn cutting edge technology from masters in the field in smaller, more interactive settings. Problem-based learning discussion sessions offer opportunities to learn by working through clinically challenging cases in a focused, small group setting led by experts.

Research focused sessions will have experts presenting and discussing latest trials and cutting-edge work, the work of our SCA members will be presented in the "Best of Meeting" sessions and in abstract presentations. A brand-new Cardiovascular Outcomes Research in Perioperative Medicine (COR-PM) Research track will be included in the Annual Meeting and offer high level content for the serious researchers among us. Echocardiography CME hours will be offered in general sessions and workshops, and the true echo-geeks among us won't want to miss the discussion at the SuperEcho session.

Finally, we have a specific program designed for trainees, with unique sessions geared toward the educational and professional development needs of our medical students, residents, and fellows.

Full Program details will be forthcoming but save the date and plan on joining us in Montreal as we come together to share our knowledge and experience in our chosen specialty.

CLICK HERE **For Registration Details and Program Agenda**

See you there!

Jonathan Ho, MD FASE, Chair, Scientific Program Committee 2025
Stephanie Ibekwe, MD, MBA, MPH, MS, Vice Chair, Scientific Program Committee 2025

GALA

# Join Us For A Night To Celebrate Cardiovascular Anesthesiology

Dear Colleagues,

We are excited to invite you to our upcoming 2025 SCA Gala, an extraordinary evening dedicated to advancing the critical mission of the Society of Cardiovascular Anesthesiologists (SCA) Endowment.

Our society has a proud legacy of driving innovation, fostering excellence in education, and cultivating leadership. Our annual Gala brings together nearly 400 thought leaders, influencers, and key stakeholders of the cardiovascular anesthesiology community to celebrate the impactful work being done by our members and to rally support for the research and education efforts that are transforming patient care and outcomes.

We look forward to seeing you and celebrating this special evening together.

Warm regards,

**Jessica Brodt, MD**
Chair, Gala Planning Committee

**Isobel Russell, MD**
Chair, Endowment Council


St. James Theatre • 265 Rue Saint-Jacques • Montreal, QC H2Y 1M6

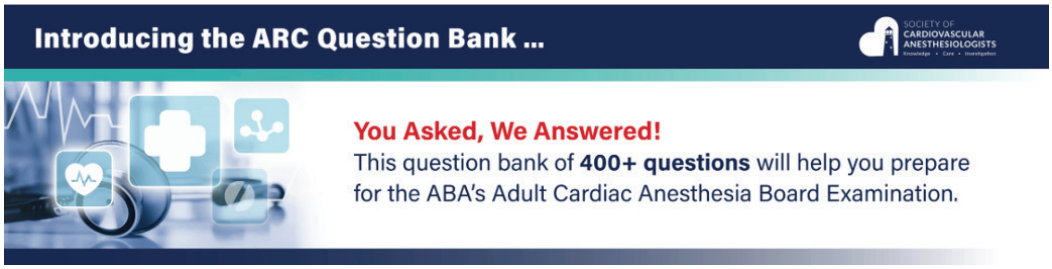
| | |
|---|---|
| 7:00 pm | Welcome Reception / Entertainment |
| 8:00 pm | Dinner / Cahalan Recognition & Fund Raiser |
| 9:00 pm | Dancing |

**GALA TICKET PRICES** All tickets must be purchased in advance, on or *before April 10th*

**$250** • Faculty/Attending – Individual **$150** • Fellow/Resident – Individual **$2,250** • Table of 10

**REGISTER NOW**

(Please only use this form if you have not already registered for the Gala through the Annual Meeting Registration).




# The Society of Cardiovascular Anesthesiologists ARC Question Bank!

ARC Question Bank: You asked, we answered! This question bank of 400+ questions will help you prepare for the ABA's Adult Cardiac Anesthesia Board Examination. All questions were written by cardiac anesthesiologists. SCA Member Price is $200.

**PURCHASE**

# ARC: A Review Course for the ABA's Adult Cardiac Anesthesia Board Examination

SCA's ARC: A Review Course focuses on the Adult Cardiac Anesthesia Board Examination that will be administered by the American Board of Anesthesiology in December 2024.

Our review course embraces the intersection of technology and education and hosts a series of 48 interactive modules that will walk you through the content outline of the ACA exam. These modules contain images, videos, tables, and text from a variety of sources, but have been arranged for members in easy-to-navigate modules. Work through our modules that are rigorously cited and peer reviewed.

This course is for FREE to all SCA members within the SCA University account! If you have not created an account, you will need to do so before you can access. If log in assistance is required, please contact info@scahq.org.

**ACCESS COURSE**

**Refund Policy**: Purchase of the Society of Cardiovascular Anesthesiologists ARC Question Bank entitles a single user to access material for personal, non-commercial use only. Log-in information cannot be shared. Refunds will not be given after content has been accessed. All sales are final. Subscriptions are for 1 year from date of purchase.

## Journal of Anesthesia & Analgesia — How to View Free Access Articles

Below are links to the three SCA sections of the A&A Journal. Each month, these links automatically update with new publications. "Free Access" articles will have a "Free" tag just below the article details. After one year, all A&A articles become complimentary.

[Cardiovascular and Thoracic Anesthesiology]

[Cardiovascular Pathophysiology and Outcomes]

[Hemostasis and Thrombosis]

## 3SCTS 2025 — Tri-Society Cardiac and Thoracic Symposium & IACA


**For symposium details, please visit https://3scts2025.com**

DEI CORNER

# H.E.A.R.: A New Podcast for Hearing, Learning, and Sharing


## Trevor S. Sutton, MD, MBA, CPE


The Society of Cardiovascular Anesthesiologists **(SCA) Health Equity Awareness and Reflection (H.E.A.R.) Podcast** will be available to SCA members through SCA University in April 2025. This podcast is an audio library of conversations with experts in education, research, patient care, and health policy. Discussions focus on quality, safety, access to care, and outcomes in the context of peri-procedural care for patients with cardiovascular disorders.

The H.E.A.R. Podcast is a unique source for asynchronous learning regarding health equity in peri-operative cardiovascular medicine. Efforts to develop this podcast began in early 2024. This article provides an overview of the conceptualization and production of the SCA H.E.A.R. Podcast. We conclude by sharing ideas for future development of podcast libraries as educational resources for SCA members.

Podcasts are digital audio or video files that are accessed from a website, platform, or server. In 2025, there are approximately 114.7 million podcast listeners in the United States.[1] A 2024 survey of podcast consumption revealed that 47 percent of adults in the United States listened to a podcast within the last month.[2] In medicine, podcasting is an important tool for medical education for training and practicing physicians,[3-5] and it may also be a valuable tool for community building and connecting trainees with professional medical societies.[6]

A 2022 review of English-language, audio-only medical education podcasts for physicians described descriptive outcomes and educational outcomes that are summarized in **(Table 1)**.[3] The authors describe that medical education podcasts are increasingly utilized both in the United States and globally. Podcasts are acceptable to learners due to flexibility, efficiency, and ability to support individualized learning. Podcasts support knowledge retention in a manner that is non-inferior to traditional teaching methods, and podcasting can change learner behaviors. The authors concluded that medical education podcasts may be essential tools for disseminating and implementing the most current, evidence-based practices.[3]

**TABLE 1: Podcast in Medical Education**

Kelly JM, Perseghin A, Dow AW, Trivedi SP, Rodman A, Berk J. Learning Throught Listening: A Scoping Review of Podcast Use in Medical Education. Acad Med. 2022 Jul 1;97(7):1079-1085.

| Descriptive Outcomes | Educational Outcomes |
|---|---|
| ✓ Medical podcast use is increasing in all medical specialties | ✓ Kirkpatrick Level 1 (Learner Reactions and Attitudes)<br>• Learners value podcast portability, efficiency, and combined educational and entertainment value |
| ✓ Medical education podcasts are accessed in more than 100 countries worldwide | ✓ Kirkpatrick Level 2 (Learner Knowledge Retention)<br>• Podcasts are non-inferior to traditional teaching methods |
| ✓ Podcasts are a top resource for resident education in the United States | ✓ Kirkpatrick Level 3 (Learner Behavior Change)<br>• Improved documentation skills in medical students<br>• Self-reported practice change in residents and practicing physicians |
| ✓ Podcasts are increasingly incorporated into formal medical curricula in the United States | ❑ Kirkpatrick Level 4 (System Change or Patient Outcomes)<br>• Not yet described |

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We conducted a google search with the terms "podcast," "medical society," and "cardiovascular." This yielded podcasts from multiple sources, but only one from a cardiovascular medical society (European Cardiology Society Podcast, ESC TV Today). We conducted a separate google search with the terms "podcast," "health equity," and "cardiovascular." This yielded single podcasts on topics related to health equity, but no podcast series dedicated to health equity except "The Health Disparities Podcast," a program of Movement is Life that is not a cardiovascular medical society. We subsequently conducted a google search specifically for podcasts produced by the Society of Thoracic Surgeons, the Society of Vascular Surgery, and the American College of Cardiology. Our findings are summarized in **(Table 2)**.

**TABLE 2: Podcasts in Partnership with Cadiovascular Medical Societies in the United States**

| Podcast Name(s) | Medical Society | Target Audience | Content | Site |
|---|---|---|---|---|
| Surgical Hot Topics | Society of Thoracic Surgeons | Cardiothoracic surgeons, researchers, and allied health professionals. | Features leaders in cardiothoracic surgery discussing important issues in the field. | https://www.sts.org/podcasts |
| Audible Bleeding | Society of Vascular Surgery | Trainees and practicing vascular surgeons, especially those early in their careers. | Interviews with leaders in vascular surgery, education for exam preparation and best clinical practices, introduction to high impact innovations in vascular surgery | https://www.audiblebleeding.com/ |
| Accel Lite; ACC Cardia Cast; Eagle's Eye View; Practice Made Perfect; JACC Specialty Journals Podcast | American College of Cardiology | Cardiologists and clinicians interested in innovation in cardiovascular medicine. | Clinical education, current research, non-clinical competencies, skills, well-being, best practice for the heart care team, and key takeaways from the JACC family of specialty journals. | https://www.acc.org/Latest-in-Cardiology/Features/podcasts |
| Health Equity Awareness and Reflection (H.E.A.R.) | Society of Cardiovascular Anesthesiologists | Health care professionals, educators, investigators, and policy makers. | Conversations with experts in cardiovascular and thoracic anesthesiology and related specialties with a focus on innovation in education, research, clinical care, and health policy that addresses quality improvement through the lens of equity in treatment and outcomes of patients that require cardiovascular procedural care. | https://scauniversity.pathlms.com/ |

Our search disclosed numerous podcast series produced in cardiothoracic surgery, vascular surgery, and cardiology. These educational programs target physicians in training and physicians in practice, they include interviews with experts, or they share the opinions of experts. We did not identify a podcast series sponsored by a medical society in the United States or internationally that is specifically focused on health equity in cardiovascular medicine.

Mutable health disparities are widely recognized in cardiovascular medicine in the United States and globally.[7-14] These challenges may be addressed by awareness and reflection on ways to enhance access to care, identify and reduce bias in healthcare administration, comply with evidence-based practice, and increase trust through considering of the experiences and needs of both patients and health care providers. Because we could not identify a podcast series focused on physician education and health equity in perioperative cardiovascular medicine we believe that this presents an opportunity for a novel podcast with potential to create value not only for cardiovascular anesthesiologists, but also for physicians, healthcare providers, policy makers, and administrators who are interested in quality improvement for patients who undergo cardiovascular procedural care in the United States and globally.

The initial work to produce the H.E.A.R. Podcast focused on clarifying objectives. Our committee decided to address education through awareness and reflection on health disparities in cardiovascular medicine from a domestic and international perspective. Additionally, our aim was to create a community for collaboration and scholarship. We intentionally sought to make the conversations relevant to physicians and non-physicians interested in understanding and addressing health disparities in peri-operative cardiovascular medicine.

Based on these goals, we outlined a series of topics that we hoped would create an interconnected and impactful continuum of conversations related to health equity. We began with an international perspective on health equity in cardiovascular medicine, then transitioned to understanding and reflecting on health disparities in the United States. We then discuss leadership in health equity in cardiovascular medicine, connecting with topics such as innovation in graduate medical education and opportunities to address health disparities through multi-specialty collaboration between organized medical societies. We then propose to discuss strategies for physician and health system-level community engagement. We plan to discuss clinical practice strategies and technological innovations for addressing health care disparities. Finally, at the end of the first year of the podcast series, we plan to highlight hot topics from the medical literature that address health equity in peri-operative cardiovascular medicine **(Table 3)**.

**TABLE 3: H.E.A.R. Podcast: Program Schedule**

| Theme | Objective(s) |
|---|---|
| Global Health | Understand the magnitude and etiologies of global health challenges in cardiovascular medicine in terms of global differences in pathology, differences data systems for quality management, and differences in workforce development. |
| | Share approaches for building capacity to address global health challenges through infrastructure development and simulation training, particularly in international low resource settings. |
| Health Disparities in the United States | Provide an overview of healthcare disparities in the United States, identify drivers of disparities, and discuss the impact of healthcare disparities, particularly in cardiovascular medicine. |
| | Discuss health equity initiatives in the American College of Cardiology and opportunities to collaborate with community partners, industry partners, an other medical societies focused on health equity in cardiovascular medicine. |
| Preparing Health Equity Leaders in Perioperative Cardiovascular Medicine | Discuss opportunities to prepare leaders to engage health equity through innovation in undergraduate and graduate medical education. |
| | Discuss opportunities to prepare leaders to engage health equity through intentional efforts in organized medical societies. |
| Building a Platform for Health Equity Practice | Understand trust as a barrier to health care equity; Discuss strategies to amplify trust between patient communities, health care institutions, medical scientists, and health care providers, particularly |
| | Discuss the role of societal mission for hospitals and universities in creating strategies focused on quality, safety, and community engagement; Discuss opportunities for alignment and incentives incentives focused on |
| Innovations in Health Equity | Discuss implementation science, clinical care coordination, and evidence-based guidelines; How can we do better, particularly in cardiovascular medicine? |
| | Discuss data, partnerships, and the potential pitfalls and promising applications of artificial intelligence to advance health equity in cardiovascular medicine. |
| Hot Off the Press | Author interview discussing impactful health equity publications in cardiovascular medicine from the preceding year. Focus on population health through the lens of health policy, ethics, or education. community engagement, or periprocedural care in cardiovascular medicine. |
| | Author interviews discussing impactful health equity publications in cardiovascular medicine from the preceding year. Focus on population health through the lens of community engagement and/ or periprocedural care in cardiovascular medicine. |

All podcasts are produced in collaboration with SCA University. The experts include national and international leaders in cardiovascular and thoracic anesthesiology as well as leaders in healthcare and other cardiovascular medicine specialties. Podcasts will be disseminated monthly through SCA University.

Finally, we selected a title for the podcast that highlights the importance of individual awareness and reflection in advancing health equity. This name also addresses "hearing" in the context of an important leadership and communication skill: listening with attention to gain knowledge.

Long term goals of this podcast will include identifying and developing a small group of "hosts" for the H.E.A.R. Podcast. Variations in the voice, character, humor, and style of the host will, undoubtedly, add to the education and entertainment value of the podcast series. We will continue to profile cardiovascular anesthesiologists, but we will also look to identify leaders from other specialties who have expertise in health equity particularly in subject areas germane to health disparities in perioperative cardiovascular medicine. Finally, we will seek to maintain international collaboration by interviewing leaders in health equity and perioperative cardiovascular medicine both within and outside of the United States.

There are technical features of podcasts that may increase usability for listeners: **1)** closed caption and audio transcripts may improve accessibility for hearing impaired viewers; **2)** podcast awareness is a recognized barrier to uptake and, in view of this challenge, we hope to collaborate with SCA and SCA University to broaden accessibility on publicly available platforms and link this to social media advertising and, potentially, podcast subscription capability.

Finally, we would like to create an infrastructure for member engagement and contribution of ideas to support the podcast. We would also like to collect data to assess the impact of the podcast (e.g., podcast views, downloads, likes and shares), and assess the effect of podcast listening on learning, potential for integration into broader medical curricula, and potential for impact on clinical outcomes.

The Society of Cardiovascular Anesthesiologists Health Equity Awareness and Reflection (H.E.A.R.) Podcast is an exciting and novel initiative in asynchronous medical education focused on health equity in perioperative cardiovascular medicine. This podcast reflects the contributions of numerous engaged members of the SCA. We hope that the H.E.A.R. Podcast will support community building and belonging within the SCA through engagement of trainees and practicing physicians in cardiothoracic and vascular anesthesiology, as well as healthcare professionals and leaders from other specialties and disciplines who seek to advance health equity in peri-operative cardiovascular medicine in the United States and globally.

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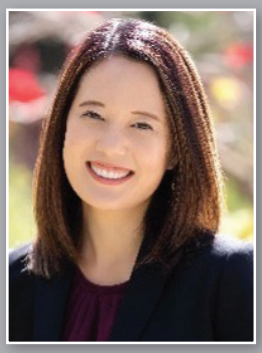

SPOTLIGHT

# Awesome Woman Interview

## Emily Methangkool, MD, MPH

*Olive View-UCLA Medical Center*
*Sylmar, CA*

I am a cardiothoracic anesthesiologist, Associate Professor of Clinical Anesthesiology at the University of California, Los Angeles, and Chair of the Olive View-UCLA Department of Anesthesiology. I have been involved with the SCA from the time I was a fellow, and honored to have held several roles in the Society.

**1. What led you to become a Cardiovascular/Thoracic Anesthesiologist?**

I have always enjoyed taking care of sicker patients and being involved with longer, more complex surgeries. In medical school, I had toyed with the idea of becoming a cardiologist, and had always been fascinated by cardiac anatomy and physiology. I did my cardiothoracic anesthesia rotation very early on in my CA-2 year during residency, and completely fell in love. It had everything I wanted in a subspecialty – plenty of procedures, close teamwork with surgeons, perfusionists, and nurses, and the opportunity to make a clear and tangible difference in the postoperative outcomes of patients.

**2. How did you hear about the SCA?**

I remember my very first annual meeting vividly – as my co-fellows and I walked into the Fontainebleau Hotel in Miami to attend educational sessions, the contrast between business-clad cardiothoracic anesthesiologists and Miami partygoers was quite striking. Nevertheless, the luminaries in anesthesia that I met at the annual meeting inspired me to continue on with my academic career and to seek further involvement with the Society.

**3. What roles have you held for the society?**

I have been honored to hold numerous roles for the SCA, including as a member of the Standards and Guidelines and Quality, Safety, and Value Committees. I have been a workshop instructor and member of the Annual Program Committee. More recently, I served as an Early Career Director of the SCA Board and am a former Vice Chair and current Chair-Elect of the Women in Cardiothoracic Anesthesia Special Interest Group.

**4. What is one of your greatest achievements as a cardiovascular/thoracic anesthesiologist?**

On a personal level, one of my greatest achievements has been bringing a complex congenital cardiac patient safely through a combined heart-lung transplantation over the course of a 23-hour surgery. On a broader level, I am proud to have been one of the co-founders of the Women in Cardiothoracic Anesthesia Special Interest Group, the first special interest group of the SCA, who has been especially impactful in moving gender equity in the society forward as a visible and critical issue for attention and engagement.

**5. Do you have any advice for fellows and residents?**

The road has been so long thus far – 4 years of undergraduate studies, 4 years of medical school, 4 years of residency, now another year of fellowship. You may be surprised to learn that you learn the most – about being an attending, about cardiac physiology and anesthesiology itself, about leadership, about yourself – in the first five years of graduation from training. I would encourage all of you to do as many cases as you can – seek the hard cases, seek the complex patients, and you will be a better anesthesiologist for it.

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**6. Have you experienced any difficulties as a woman in the field?**

As a woman in a mostly male-dominated field – on both the anesthesia and surgical sides – I have faced many instances of microaggressions throughout the years. Advisors have discouraged me from pursuing cardiac anesthesia because I would make "just as much" as a general anesthesiologist and it was much "too hard" a path. When I was a junior attending, surgeons would ask for my senior male colleagues to come into the room to verify echo findings. The number of times I have been assumed to be a nurse, tech, or some other non-physician personnel are too numerous to count.

And yet, I have also benefited from having many allies, advocates, mentors, and sponsors, who shared opportunities with me and encouraged me to reach further and farther. I have had a tall, male resident assert with an elderly male patient that I was "the boss" and he was the resident. I have been very fortunate to have the support of many male colleagues.

**7. Do you have any advice for other women in the field?**

Cardiothoracic anesthesiology is an immensely fulfilling field. Almost more than any other specialty in anesthesiology, what we do in the operating room makes a difference. As a cardiac anesthesiologist, you have the knowledge and the experience to provide expert care for these patients. Do not let anyone tell you otherwise, and do not let others' judgment of you determine who you really are, what you really want, and how you pursue your goals.

**8. How do you balance work and personal life?**

It is challenging, to say the least! I think it's very easy to get lost in the grind of the OR and academic work and lose sight of the need for work-life integration. As much as possible, I try to do work while I am at work. When I am at home, it is time for the kids and the family. I try to set aside time to spend with my husband, and two children on a 1:1 basis.

**9. What is something you enjoy doing outside of work?**

My favorite activity is travel – I love experiencing new cultures and new foods. My favorite place to visit is Japan. I am also a hobby photographer (which fits in very well with my first hobby!) that enjoys urban landscapes.

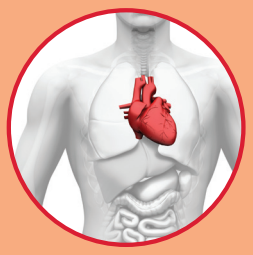
**10. Would you change anything about the path you took to get to where you are now?**

I took perhaps a stereotypical, classic path in medicine – I went straight from undergrad to medical school to residency to fellowship and then to work as an academic anesthesiologist. If I could do it over again, I would take a little breather in between – perhaps a year or two off to experience more of the world. I am making up for it now by traveling whenever I can.

The other thing I might have changed is to do another fellowship in addition to cardiothoracic anesthesiology. During my CA-2 year, I was debating between obstetric anesthesia and cardiac anesthesia, and ultimately decided on cardiac. If I could do it all over again, I would have done both fellowships and specialized in caring for parturients with cardiac disease. As it stands, I am quite envious of our colleagues who get to do both on a regular basis.

**11. What was the best piece of advice you received?**

One of the best pieces of advice that I have received is not to try to fit into the mold that others have set for you. There may be many who want to tell you what to do, how to shape your career, and where to go next. You should define what you want and how you should achieve it. Had I stuck to the mold that was set for me, my career would be very different from what it is now. Figure out what you want and identify the steps that can get you where you want to be.



ECHO CORNER

# LEARNER NOTIFICATION

***The SCA Newsletter is pleased to provide CME for perioperative transesophageal echocardiography. ECHO CME will be available to SCA members in each issue.***

**Society of Cardiovascular Anesthesiologists**
**Activity Title: 2025 SCA Echo Corner Echo Corner (TEE Evaluation of Gerbode VSD)**
**Release Date: 4/1/2025**
**Expiration Date: 4/1/2027**
**Activity Type: Enduring Material**

**Acknowledgement of Financial Commercial Support**
No commercial support was received for this educational activity.

**Acknowledgement of In-Kind Support**
No in-kind support was received for this educational activity.

**Accreditation Statement**
The Society of Cardiovascular Anesthesiologists is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The Society of Cardiovascular Anesthesiologists designates this enduring activity for a maximum of *.25 AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

**Description:**
The mission of the SCA Newsletter Sub-Committee is to inform the membership of the activities of SCA. The goal of the SCA Newsletter Sub-Committee is to produce and distribute the SCA official newsletter, the SCA Newsletter, six times per year. Each issue of the SCA Newsletter publishes education material including ECHO Corner. ECHO corner cases focus on clinical case presentation of diverse echocardiographic diagnosis encountered in clinical practice relevant to cardiothoracic anesthesiologists.

**Educational Information**

**Physician Practice Gap:**
Echo corner of the SCA newsletter is a written clinical case presentation with echocardiographic images and videos followed by multiple choice questions with explanations. The ECHO corner case review focuses on detailed and concise presentation of clinical findings accompanied by findings on transesophageal echocardiographic (TEE) exam to support the clinical diagnosis. The cases include a written portion with case description, TEE images, and TEE video clips. Three to five multiple choice question are presented to discuss the case. Each question provides an explanation of answer choices and includes a brief discussion of the topic present in each case.

**Needs that Underlie the Gap**
There is a need to provide education to clinicians on how to perform echocardiographic assessment of Gerbode VSD, including qualitative and quantitative assessment as well as to provide clinicians with relevant echocardiographic techniques to distinguish Gerbode VSD from other types of VSDs.

**DESIGNED to Change/Outcome:**
Note that in the field of intraoperative echocardiography in general improvements in patient outcomes are difficult to measure because most of the examinations are diagnostic and not therapeutic which are more determinative of outcomes.

**Educational Objectives**

*After completing this activity, the participant should be better able to:*

- Describe the anatomy of the interventricular septum and the unique features of a Gerbode VSD, including direct (ventricular-to-right atrial) and indirect (ventricular-to-right ventricular-to-right atrial) types.
- Identify the appropriate echocardiographic modalities for assessing a Gerbode VSD, including transthoracic echocardiography, transesophageal echocardiography, and 3D echocardiography.
- Identify the echocardiographic appearance of a successfully repaired Gerbode VSD, including patch or device location and absence of residual shunting.

**Satisfactory Completion**

Learners must complete an evaluation form to receive a certificate of completion. Partial credit of individual sessions is not available.

**Contact Information**

If you have questions regarding your CME certificate, please contact **Natalie Baus at nbaus@veritasamc.com.**

**Disclosure of Financial Relationships**

As an accredited provider of the ACCME, SCA adheres to all **ACCME Standards for Integrity and Independence in Accredited Continuing Education.** The following individuals in control of content development for this activity have indicated that they do have financial relationships with ACCME defined ineligible companies within the past 24 months. All financial relationships have been mitigated. All have indicated that they have no financial relationships to disclose.

**How to Get Your CME Certificate**

1. Go to **https://scauniversity.pathlms.com/courses/103620**
2. Login and evaluate the meeting.
3. Print all pages of your certificate for your records.

ECHO CORNER

# ECHO CASE:
# Gerbode Defect After Mitral Valve Replacement

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## CASE PRESENTATION

A 75-year-old female with past medical history of chronic heart failure with preserved left ventricular ejection fraction (LVEF), atrial fibrillation, and severe mitral regurgitation (MR) who presents for robotic mitral valve (MV) replacement. Transesophageal echocardiogram (TEE) prior to cardiopulmonary bypass is shown below.

WATCH VIDEO 1 WATCH VIDEO 2

**1. What is the Etiology of Mitral Regurgitation?**

a. Anterior mitral leaflet prolapse
b. Bileaflet mitral valve prolapse
c. Posterior mitral leaflet prolapse
d. Carpentier type III mitral regurgitation

The patient underwent robotic totally endoscopic mitral valve replacement with bioprosthetic valve prosthesis with excision of large mitral annular calcification at the hinge of A1, A2, P1, P2, and P3 scallops with ventriculoplasty with bovine pericardial patch repair of atrioventricular groove. Separation from cardiopulmonary bypass was uneventful and TEE showed well-functioning MV prosthesis without paravalvular leak and normal LVEF. Patient was extubated in the operating room and transferred to ICU for post-operative care. On post-operative day #3 patient developed acute hypoxic respiratory failure requiring reintubation. TEE showed the following:

WATCH VIDEO 3 WATCH VIDEO 4

**2. What Best Describes the Abnormality Found on TEE?**

a. Tricuspid regurgitation
b. Atrial septal defect with left-to-right shunt
c. Ventricular septal defect with LV to RV shunt
d. Ventricular septal defect with LV to RA shunt

3. **What are the Causes of Gerbode Defect?**

    a. Congenital
    b. Acquired noniatrogenic
    c. Acquire iatrogenic
    d. All of the above

4. **Which Imaging Modality Provides the Most Definitive Diagnosis of Gerbode Defect Post-Cardiac Surgery?**

    a. Chest X-ray
    b. Echocardiography with color Doppler
    c. Electrocardiogram (ECG)
    d. Right heart catheterization

Patient was diagnosed with supravalvular Gerbode defect. Due to significant shunting and RV dysfunction the patient required intervention. Percutaneous closure with septal occluder device was attempted with fluoroscopic and TEE guidance. However, it was not successful due to friability of the membranous interventricular septum with inability to anchor the device.

**WATCH VIDEO 5**

The patient ultimately underwent sternotomy which revealed 2 cm VSD which was repaired primarily. Post cardiopulmonary TEE showed a successful repair with absence of LV to RA shunt.

**WATCH VIDEO 6**

5. **What is the preferred management strategy for a symptomatic patient with a large acquired Gerbode defect?**

    a. Medical therapy with diuretics and afterload reduction
    b. Percutaneous closure with a device or surgical repair
    c. Observation and serial echocardiographic monitoring
    d. Pacemaker implantation

# ANSWERS

## Question 1:

**Answer: C – Posterior mitral leaflet prolapse**

**Explanation**: Carpentier classification is a pathophysiologic classification of MR which categorizes MR based on three types of MV pathology. This functional classification emphasizes the importance of leaflet motion in diagnosing and determining the appropriate surgical approach for mitral regurgitation

- **Type I (normal leaflet motion)** – In this category, the mitral valve leaflets maintain normal motion, but MR occurs due to annular dilation, leaflet perforation, or clefts. Common causes include atrial dilatation (as seen in atrial fibrillation) or endocarditis.
- **Type II (excessive leaflet motion (prolapse or flail leaflet))–** This type results from elongated or ruptured chordae tendineae, leading to leaflet prolapse above the annular plane. A more severe form is leaflet flail, where a ruptured chordae causes the leaflet to move freely into the left atrium. Myxomatous degeneration, Barlow's disease, and fibroelastic deficiency are common causes.
- **Type III (restricted leaflet motion)** – This type is subdivided into:
    - **Type IIIa**: restricted motion in both systole and diastole, often due to rheumatic disease causing thickened, fibrotic, and immobile leaflets.
    - **Type IIIb**: restricted motion in systole due to left ventricular dysfunction, typically seen in ischemic heart disease where papillary muscle tethering prevents proper coaptation.

## Question 2:

**Answer: D - Ventricular septal defect with LV to RA shunt**

**Explanation**: Gerbode defect (GD) is a rare ventricular septal defect characterized by an abnormal shunt between LV and the right atrium (RA) due to high ventricular septal defect within the membranous interventricular septum. The membranous septum is divided by the septal leaflet of the tricuspid valve (TV) into atrioventricular and interventricular portions. Gerbode defects are classified into two types based on defect's location in relation to TV insertion: supravalvular and subvalvular. Thirty percent of defects are supravalvular and occur in the atrioventricular septum immediately superior to TV and anterior to the coronary sinus (Figure 1). Since this defect is located superior to TV it creates a direct shunt between RA and LV.

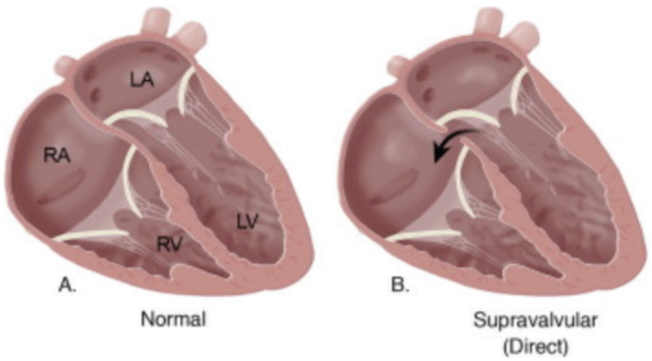


Figure 1. Comparison of normal cardiac anatomy to suprvalvular defect superior to TV. (adapted from Saker E, et. al.)

## Question 3:

**Answer: D- All of the above**

**Explanation**: Garbode defects can be either congenital or acquired. The supravalvular Gerbode defect is more often acquired and accounts for one third of all Gerbode defects. Acquired Gerbode defects are classified into iatrogenic (AGD) and noniatrogenic (ANIGD). AGD are caused by pervious cardiac surgery or percutaneous cardiac interventions. Cardiac surgeries associated with development of GD include aortic valve replacement, mitral valve surgery, and septal defect repairs. Of note, tricuspid annuloplasty ring insertion with concomitant mitral valve replacement can lead to membranous injury due to excessive debridement of mitral annular calcification. Percutaneous cardiac interventions associated with GD include AV node ablation and endomyocardial biopsies. ANIGD causes include endocarditis, myocardial infarction (MI) in the distribution of the right coronary artery, and blunt trauma. MI associated ANIGD have been reported with inferior wall MI with LV-RA shunt located in the basal septum and carry a high mortality rate.

## Question 4:

**Answer: B - Echocardiography with color Doppler**

**Explanation:** TEE is the standard modality in diagnosis of Gerbode defect. The flow across the Gerbode defect in typically high velocity, directed towards RA and is predominantly systolic. It can be difficult to distinguish from tricuspid regurgitation, especially in the presence of pulmonary arterial hypertension. Enlargement of both RA and right ventricle (RV) occur due to increased volume of blood in the right sided heart chambers. TEE can be used to correctly identify the defect's location in relation to adjacent structures. Cardiac magnetic resonance can offer additional information. On physical exam, a systolic murmur is heard in the 4th or 5th intercostal spaces. Acquired Gerbode defects can present with various degrees of atrioventricular blocks on ECG.

## Question 5:

**Answer: B - Percutaneous closure with a device or surgical repair**

**Explanation:** For symptomatic patients with significant shunting, definitive closure is necessary to prevent right heart failure and pulmonary hypertension. Surgical treatment can be considered in patients with Gerbode defects causing pulmonary hypertension or in cases of infective endocarditis with Qp:Qs >1.5. Surgical treatment can performed with either direct closure or pericardial patch.

Percutaneous closure with a device is a viable option in select cases using septal occluder devices. Conservative management may be considered for small, hemodynamically insignificant defects.

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LITERATURE REVIEW

# Left Atrioventricular Coupling Index: A Novel Diastolic Parameter to Refine Prognosis in Heart Failure

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**Background**

Heart failure (HF) is a condition characterized by structural and functional remodeling of the left ventricle (LV), and often the left atrium (LA), particularly in cases of chronic HF.[1,2] Due to advancements in echocardiography and a deeper understanding of pathophysiology, the LA has garnered increasing interest in its diagnostic and prognostic value for HF. Heart failure remains a major public health challenge worldwide, with rising prevalence particularly noted in HFpEF, which underscores the critical need for refined diastolic assessment and early risk stratification.3 Historically, left atrial maximal volume (LAVmax), measured at the end of systole, has been shown to be an independent marker for HF severity.[2] However, more recent literature has demonstrated left atrial minimal volume (LAVmin), measured at the end of diastole, to have a stronger association with both invasively measured LV filling pressure and outcomes in HF compared with LAVmax.[4-6] This is because, at this phase, the LA and LV are directly connected without the interference of the mitral valve and, in the absence of mitral valve pathology, LAVmin closely reflects LV remodeling and function.[7] These insights have led to the development of a novel imaging parameter that integrates the LA and LV dynamics: the left atrioventricular coupling index (LACI),[8] defined as the ratio between LAVmin and LV end-diastolic volume (LVEDV).

$$\text{LACI} = \frac{\text{LA min volume}}{\text{LV EDV}}$$

LACI has shown promise as an independent prognostic marker in various cardiovascular conditions,3,9 but its relationship with diastolic dysfunction (DD) severity and HF prognosis remains unclear. Therefore, Fortuni et al. sought to evaluate the association between LACI, DD severity, and clinical outcomes in a large HF cohort. This study is particularly timely given the ongoing search for more nuanced markers that capture the complex interplay between atrial and ventricular function in HF.

**Methods**

Within the derivation cohort, 1,158 patients with stable HF were retrospectively analyzed at a single center from 2008 to 2022. Patients were included if they had sinus rhythm, complete diastolic function measurements, and were on optimal medical therapy for at least three months. Exclusion criteria included recent myocardial infarction or HF hospitalization, severe mitral or aortic valve disease, and reversible or secondary HF causes (e.g., thyroid dysfunction or amyloidosis).

LACI was calculated based on LA and LV volumes that were measured in the same end-diastolic phase defined by mitral valve closure. LACI values were expressed as percentages, with higher values indicating greater disproportion between LA and LV volumes at ventricular end-diastole, which reflects greater impairment of left atrioventricular coupling.10-11 Patients were stratified into tertiles based on LACI (<0.22, 0.22–0.36, and >0.36). Diastolic function was graded using the American Society of Echocardiography (ASE)/European Association of Cardiovascular Imaging (EACVI) algorithm for patients with reduced LVEFs or myocardial disease.[3]

The primary endpoint was a composite of all-cause mortality or HF hospitalization. Secondary endpoints included metrics such as pulmonary artery systolic pressure, renal replacement therapy, and NT-proBNP levels. A validation cohort of 242 patients was used to confirm findings.

**Results**

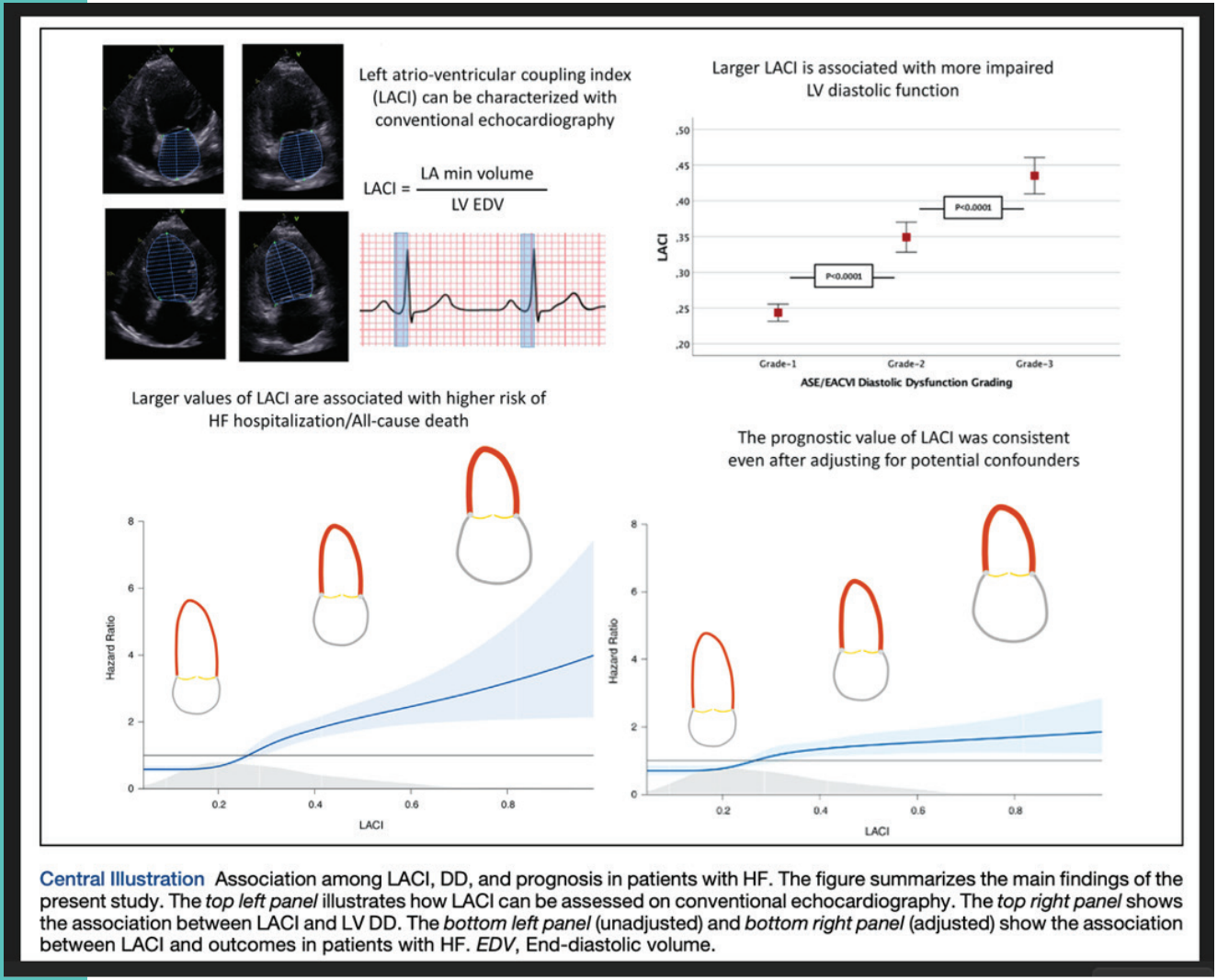
The median LACI was 0.29 (IQR: 0.19–0.42), with patients in the highest tertile (>0.36) displaying more severe HF phenotypes, including higher NYHA class (39.1% in Class III/IV), increased prevalence of hypertension and CKD (P<.0001), and greater values of NT-proBNP (P<.0001). When categorized according to the ASE/EACVI classification, the prevalence of grade 3 DD significantly increased across LACI tertiles (8%, 23%, and 46%, respectively; P < .0001). A cutoff value of ≥0.26 identified moderate-to-severe DD with an area under the curve of 0.75. LACI was significantly associated with the composite end point of death and HF related hospitalization (HR per 1-SD increase, 1.257; 95% CI, 1.169-1.350; P < .001). Moreover, after adjusting for potential confounders LACI showed a consistent independent association with the composite end point in the external validation cohort. The addition of LACI to conventional DD grading models improved risk stratification, with significant improvement in the net reclassification index (net reclassification improvement = 0.150, P < .0001).

**Discussion**

This study highlights LACI as a novel echocardiographic parameter that integrates LA and LV volumes during end-diastole to assess LV DD and predict HF prognosis. Compared to traditional markers like LAVmax, LACI offers a more comprehensive measure of diastolic dysfunction and was independently associated with outcomes, even after adjusting for confounders such as age, renal function, and LV systolic function. The prognostic value of LACI was particularly pronounced in HFpEF patients, where diastolic dysfunction plays a dominant role in disease progression. This contrasts with patients with very severe systolic dysfunction (LVEF <20%), where LACI's predictive utility was lessened, likely due to advanced ventricular remodeling overshadowing atrial contributions. In clinical practice, integrating LACI into routine echocardiographic assessments could enhance early identification of high-risk patients, thereby refining treatment strategies and potentially improving outcomes.

Despite its strengths, including a large sample size, rigorous statistical adjustment, and external validation, the study has limitations. As a retrospective analysis, it is subject to selection bias as patients were required to have diastolic function parameters available, lending itself to sicker patients. Additionally, the exclusion of atrial fibrillation and valvular pathology limits generalizability, as these are common conditions in HF. Moreover, the single-center nature of the study raises concerns about the reproducibility of LACI measurements across different settings; hence, multicenter prospective studies are warranted to confirm these findings and to assess inter-observer variability. Future research should also explore the integration of LACI with advanced imaging modalities, such as speckle-tracking echocardiography, to further delineate the complex interplay between atrial and ventricular mechanics and to enhance risk stratification in HF.

Nonetheless, this study reinforces LACI's value as a diagnostic and prognostic tool. The findings are consistent with current literature highlighting the use of LACI as a novel diagnostic tool and expanding its application to heart failure patients, particularly those with diastolic dysfunction.




**Central Illustration** Association among LACI, DD, and prognosis in patients with HF. The figure summarizes the main findings of the present study. The *top left panel* illustrates how LACI can be assessed on conventional echocardiography. The *top right panel* shows the association between LACI and LV DD. The *bottom left panel* (unadjusted) and *bottom right panel* (adjusted) show the association between LACI and outcomes in patients with HF. *EDV*, End-diastolic volume.

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# Use of Coagulation Factor Concentrates and Blood Transfusion in Cardiac Surgery: A Retrospective Cohort Study of Adults with Hereditary and Acquired Bleeding Disorders

Tanaka KA, Okada H, Butt AL, Vandyck KB, Ramarapu S, Maier CL, Sniecinski RM, Stewart KE. British Journal of Anaesthesia. 2024 Dec;133(6):1150-1158. doi: 10.1016/j.bja.2024.07.041

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## Background

Cardiac surgery presents a significant risk of perioperative bleeding and the need for allogenic blood transfusion due to factors such as direct tissue injury, surgical blood loss often from multiple anatomical sites, and hemodilution associated with cardiopulmonary bypass [1,2]. This risk is also heightened in revision surgeries, which are independently linked to massive transfusion [3]. Patients with hereditary and acquired bleeding disorders face an even greater challenge, as their underlying coagulopathies exacerbate bleeding tendencies and increase susceptibility to adverse outcomes [1,3].

In cases of hereditary disorders like hemophilia or von Willebrand disease, targeted factor replacement therapy has been effective in reducing bleeding risk [4]. However, acquired coagulopathies—often seen in conditions like liver dysfunction or immune-mediated factor deficiencies—are more complex to manage, frequently requiring off-label procoagulant therapies such as recombinant factor VIIa (FVIIa) and prothrombin complex concentrates (PCC) [1]. While these interventions can be lifesaving, they also introduce concerns about thromboembolic complications and increased healthcare costs.

This study by Tanaka et al. aimed to evaluate the use of coagulation factor concentrates and blood transfusions in cardiac surgery patients with hereditary or acquired bleeding disorders. It assessed key outcomes such as thromboembolism, mortality, and hospital costs, hypothesizing that despite the higher costs, factor concentrates may have reduced perioperative bleeding and transfusion needs, particularly in patients with hereditary bleeding disorders.

## Methods

The study utilized the Premier Health Database (PHD) to analyze data from U.S. hospitals, identifying patients who underwent cardiac surgeries such as coronary artery bypass grafting (CABG) and aortic or mitral valve procedures with cardiopulmonary bypass. Patients were categorized into three groups based on International Classification of Disease (ICD) codes: those with hereditary bleeding disorders (HBD), including hemophilia A/B, von Willebrand disease (VWD), and factor XI deficiency; those with acquired bleeding disorders (ABD), primarily due to advanced liver disease; and a matched control group without known coagulopathies.

The primary outcome assessed was the use of allogeneic blood transfusions and coagulation factor concentrates, while secondary outcomes included total hospital costs, pharmacy and blood bank expenses, as well as clinical factors such as hemorrhage rates, operative duration, acute kidney injury (AKI), ICU stays, and mortality. Data analysis was performed using Chi-squared and Fisher's exact tests to evaluate associations between categorical variables.

## Results

The study identified 449 patients in the HBD group and 1,162 in the ABD group. While HBD patients were more likely to be admitted electively, ABD patients had a higher proportion of urgent or emergency admissions. The administration of coagulation factor concentrates varied significantly, with 35.5% of HBD patients receiving VWF, factor VIII (FVIII), or factor IX (FIX), whereas ABD patients showed a 2.5- to 4.5-fold increase in the use of procoagulants, including PCC, activated prothrombin complex concentrates (AICC), and FVIIa. The use of antifibrinolytic therapy was similar across all groups, but antiplatelet therapy was more common in BD groups, while oral anticoagulant use was lower. Surgical times remained longer for both BD groups compared to controls.

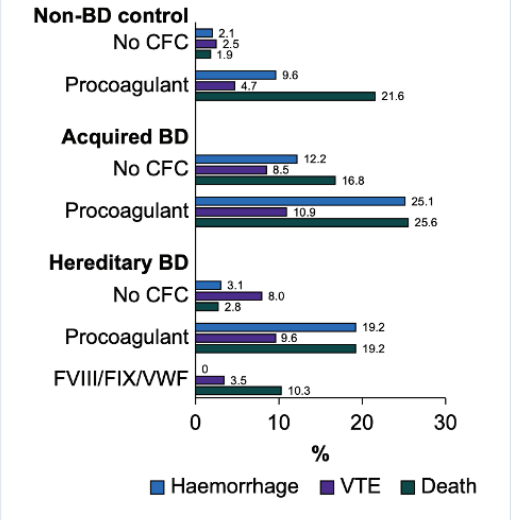


Fig 1. The percentage of patients in each bleeding disorder (BD) group with perioperative haemorrhage, venous thromboembolism (VTE) including deep vein thrombosis and pulmonary embolism, and in-hospital death. Each group was stratified for use of clotting factor concentrates (CFCs): procoagulant factor concentrates (Procoagulant) including anti-inhibitor coagulant complex (AICC), activated factor VII (FVIIa), or prothrombin complex concentrate (PCC). For the hereditary bleeding disorders group, the data relating to the classical CFC replacements for factor VIII (FVIII), factor IX (FIX), or von Willebrand factor (VWF) are also shown. The percentages of patients who received AICC, FVIIa, or PCC were as follows: 18.5% for hereditary bleeding disorders, 45.7% for acquired bleeding disorders, and 4.5% for the control group. In the hereditary bleeding disorders group, 14.9% of patients received FVIII, FIX, or VWF concentrates. Non-CFC haemostatic agents such as antifibrinolytic drugs (tranexamic acid or epsilon-aminocaproic acid) and 1-desamino-8-D-arginine vasopressin (DDAVP) were included in the no CFC category.

The ABD group exhibited significantly higher morbidity and mortality than both the HBD and control groups. Cardiac arrest risk was 2-4 times higher in ABD patients, and hemorrhage rates reached 15.8%, compared to 5.4% in HBD patients. Mortality was highest in the ABD group at 19.2%, considerably exceeding that of HBD (5.6%) and controls. Procoagulant use was linked to increased hemorrhage rates across all groups, and venous thromboembolism (VTE) rates were higher in BD patients regardless of procoagulant use, while in controls, VTE was more frequent among those who received procoagulants. Additionally, ABD patients had significantly longer intensive care units and hospital stays, contributing to substantially higher total hospital, blood bank, and pharmacy costs. In contrast, control group patients experienced fewer transfusions, lower bleeding rates, and the lowest overall mortality.

## Discussion

Cardiac surgery carries a high risk of intraoperative bleeding, influenced by cardiopulmonary bypass, revision surgeries, and patient-specific coagulopathies—both hereditary and acquired[2,4]. The study found that patients with acquired bleeding disorders experienced the highest rates of adverse events, including severe bleeding, increased transfusion needs, and thrombotic complications. In contrast, hereditary bleeding disorder patients generally underwent cardiac procedures without significant increases in mortality or resource utilization, likely due to the effectiveness of targeted factor replacement therapies[1].

However, acquired bleeding disorders, often associated with advanced liver disease, presented greater challenges in hemostatic control. The need for procoagulant therapy in this group correlated with both increased hemorrhagic episodes and higher rates of thrombosis, contributing to substantial pharmacy and blood bank costs. The study suggests that standard therapeutic approaches are less effective in acquired coagulopathies, as overcorrection can lead to thrombosis, while inadequate treatment may result in life-threatening hemorrhage[1].

These findings emphasize the importance of standardized hemostatic protocols, the potential expansion of point-of-care coagulation testing, and more nuanced clinical decision-making to optimize the balance between minimizing bleeding risk and reducing thrombotic complications in cardiac surgery[1,4].

While this study provides valuable insights into the management of bleeding disorders in cardiac surgery, it has several limitations. As a retrospective analysis of the Premier Health Database, the findings rely on ICD-coded diagnoses, which may introduce coding inaccuracies and misclassification of bleeding disorders. Additionally, the database lacks granular patient-level data, such as laboratory values, precise timing of interventions, and long-term follow-up outcomes, limiting the ability to establish causal relationships between treatments and complications. Future research should focus on prospective studies incorporating real-time coagulation monitoring, standardized treatment protocols, and longitudinal data collection to refine perioperative hemostatic strategies and improve patient outcomes in high-risk cardiac surgery populations.

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# Extracorporeal Blood Purification and Acute Kidney Injury in Cardiac Surgery: The SIRAKI02 Randomized Clinical Trial

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**Summary**
The study by Pérez-Fernández et al. investigates the efficacy of extracorporeal blood purification (EBP) in reducing cardiac surgery-associated acute kidney injury (CSA-AKI). Conducted as a double-blind, randomized clinical trial across two tertiary hospitals in Spain, the study enrolled 343 high-risk patients undergoing nonemergent cardiac surgery. Results indicate that EBP significantly reduced CSA-AKI incidence within the first seven postoperative days, with a rate of 28.4% in the EBP group compared to 39.7% in the control group. The study concludes that EBP may be a promising intervention for mitigating CSA-AKI risk.

**Strengths**

1. **Robust Study Design**: The trial employed a randomized, double-blind methodology, enhancing the reliability of the findings.
2. **Significant Clinical Impact**: The demonstrated reduction in CSA-AKI incidence suggests a potential improvement in postoperative outcomes.
3. **Comprehensive Data Collection**: The study assessed multiple patient subgroups and examined secondary outcomes, including cytokine levels and renal function markers.
4. **Safety Considerations**: The intervention did not lead to an increase in adverse events, supporting its feasibility in clinical settings.

**Limitations**

1. **Limited Generalizability**: The study was conducted in only two hospitals, which may limit the applicability of findings to broader populations.
2. **Lack of Long-Term Outcomes**: While the study assessed 90-day survival, long-term renal function and quality-of-life metrics were not extensively explored.
3. **Potential Bias in ICU Management**: Blinding was not feasible for surgical teams, which may have influenced perioperative fluid management.
4. **Confounding Factors**: Variability in CPB duration and fluid balance may have influenced CSA-AKI incidence beyond the effect of EBP.

**Conclusion**
This study provides strong evidence that EBP reduces CSA-AKI in high-risk patients undergoing cardiac surgery. While promising, further large-scale, multicenter trials are necessary to confirm its long-term benefits and establish standardized implementation protocols.

# Potassium Supplementation and Prevention of Atrial Fibrillation After Cardiac Surgery

**Potassium Supplementation and Prevention of Atrial Fibrillation After Cardiac Surgery The TIGHT K Randomized Clinical Trial**

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## Background

Potassium supplementation has traditionally been one of the strategies used to decrease the incidence of atrial fibrillation post cardiac surgery (AFPCS). Institutions have developed protocols for correction of the potassium lab value to a high normal range, but this practice is not evidence based, can potentially carry risks, and no cost benefit analysis has been carried out. To address the above the authors studied whether potassium supplementation, when the value falls below 3.6 mEq/L (relaxed control) is inferior to potassium correction when the value falls below 4.5 mEq/L (tight control), as it relates to AFPCS, and a cost analysis of the intervention was carried out.

## Methods

This is a multicenter (23 centers in the UK {21} and Germany {2}), non-inferiority, open -label, prospective randomized clinical trial which took place between 10/2020 and 11/2023. Approval was obtained by the UK Health Research Authority and by the research ethics committees at the University of Münster and Charité Universitätsmedizin Berlin, Germany and was conducted in accordance with the Declaration of Helsinki. The clinical trial was codesigned and coordinated by the London School of Hygiene and the Tropical Medicine Clinical Trials Unit, who also performed the statistical analysis. An independent steering committee oversaw the trial.

Inclusion criteria: adults scheduled to have isolated CABG surgery

Exclusion criteria: history of atrial fibrillation, atrial flutter or supraventricular tachyarrhythmias, previous or current use of antiarrhythmics, second degree Mibitz II A-V block or complete heart block, ESRD dialysis dependent or patients with preoperative serum potassium ≥ 5.5 mEq/L.

Patients were randomized either in the tight group (potassium supplementation below 4.5 mEq/L) or relaxed group (potassium supplementation below 3.6 mEq/L). Patients and caregivers were not blinded, but the lab and validation committee were. The patients were followed for 120 hours or until discharge, whichever came first.

Primary outcome: the incidence of new onset of AFPCS (atrial fibrillation, atrial flutter or other supraventricular tachyarrhythmia lasting more than 30 sec or present on the entire 12 lead ECG) detected on the telemetry monitor, ambulatory heart rhythm monitor (AHRM) or ECG.

Secondary outcomes: the incidence of new onset AFPCS detected by AHRM, the incidence of at least one episode of AFPCS detected clinically or by AHRM, occurrence of at least 1 episode of non -AFPCS arrhythmia found on AHRM, in-patient mortality, CCU and hospital length of stay and the cost of purchasing and administering potassium.

Prespecified exploratory outcomes, (used as markers of burden from AFPCS): mean duration of AFPCS as proportion of the duration of monitoring and the median number of AFPCS episodes among patients with AHRM detected AFPCS.

The statistical analysis included non-inferiority study of the risk difference of AFPCS among the two treatment groups. Efficacy, safety and per-protocol analyses were also done. The statistical analyses were conducted with Strata version 18.1 and the trial was registered with ClinicalTrials.gov prospectively.

**Results**

From the 5568 patients who were assessed 1690 were found eligible and were randomized. Patients who did not receive just a CABG procedure, who withdrew, died during the operation, did not follow the protocol or were randomized wrong, were excluded. For the efficacy analysis 837 and 830 patients were included in the tight and relaxed groups respectively. The "per protocol" group included 782 patients in the relaxed group and 702 in the tight group.

The patient characteristics in the two treatment groups were not significantly different. No difference was found in the number or duration of AFPCS or non-AFPCS episodes between the groups.

The primary endpoint was met by 219/837 (26.2%) and 231/830 (27.8%) of patients in the tight group and in the relaxed group respectively. Analysis showed non-inferiority of the relaxed treatment group. From the secondary outcome analysis, no differences were found among the two treatment groups except for cost. The average cost per patient was 111.89 $ higher in the tight group compared to the relaxed group.

Obviously, the average potassium concentration and frequency of treatment were higher in the tight treatment group.

**Discussion**

The goal of this study was to provide evidence for potassium supplementation practice after CABG as it relates to efficacy, safety and cost. Potassium is essential for the development and maintenance of the action potential across cell membranes. Patients with clinically significant hypokalemia may develop ventricular arrhythmia and cardiac arrest[1,2]. It is considered that potassium concentration is associated with post operative atrial fibrillation in critical illness[3]. It is common practice to maintain a high normal potassium concentration to decrease the incidence of AFPCS but there is lack of solid evidence in the literature[4,5] supporting this practice. AFPCS has been found to complicate CABG post operative course in about 30% of cases6, and is associated with increased morbidity, mortality, length of hospital/ ICU stays and cost of care[4,7]. Most AFPCS episodes occur within the first 5 postoperative days[8].

In this multicenter international prospective randomized study the authors showed non-inferiority of a more relaxed approach to potassium supplementation, compared to a tighter correction, which is the most common practice today, as it relates to AFPCS for up to 5 postoperative days. Correction of potassium below 3.6 mEq/L was non inferior to supplementation below 4.5 mEq/L in terms of efficacy and safety. Potassium needed to be corrected fewer times in the relaxed group which resulted in a significant decrease in cost. Although no harm was detected among the 2 groups with the potassium administration, the risk to the patients from accidental fast administration is lower the fewer times correction is required.

**Study Limitations**

1. Open- label study is subject to reporting bias. (addressed with the use of independent validation committee)
2. Incidence of AFPCS was assessed only for CABG patients. Whether the same will apply after other cardiac surgeries will need to be similarly assessed.
3. A slightly lower incidence of AFPCS was observed in this study population compared to the pilot group or the literature, but the statistical significance was maintained
4. There was higher percentage of non- adherence to the protocol in the tight group, which prompted additional sensitivity analysis, but the findings were no different.

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