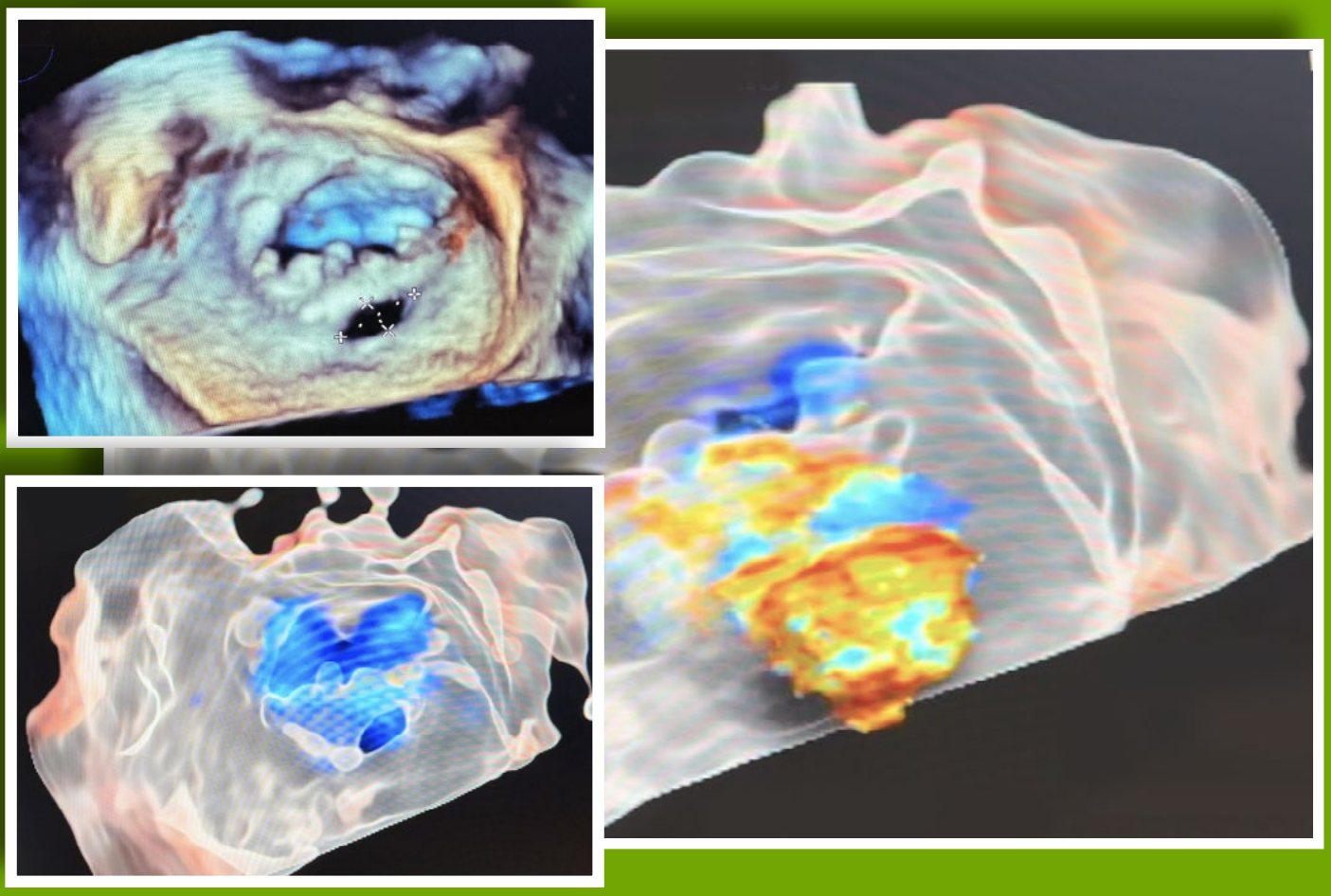
ECHO



MAY/JUNE 2026

2026/2027 EDUCATION CALENDAR

JUNE 2026

37th Annual Scientific Sessions

June 26-28, 2026
Gaylord Rockies Resort and Convention Center, Aurora, CO
Jointly provided by ASE and the ASE Foundation

AUGUST 2026

6th Annual Advanced Imaging Techniques for Sonographers Virtual Experience

August 29-30, 2026
Jointly provided by ASE and the ASE Foundation

OCTOBER 2026

Echo Florida

Disney's Grand Floridian Resort & Spa
Lake Buena Vista, Florida
October 17-19, 2026
Jointly provided by ASE and the ASE Foundation

NOVEMBER 2026

SAVE THE DATE

5th Annual Echo in Pediatric & Congenital Heart Disease: Virtual Experience

November 15-16, 2026
Jointly provided by ASE and the ASE Foundation

JANUARY 2027

SAVE THE DATE

Echo Hawaii

January 18-21, 2027
Fairmont Orchid, Kohala Coast, Big Island, HI.
Jointly provided by ASE and the ASE Foundation

FEBRUARY 2027

SAVE THE DATE

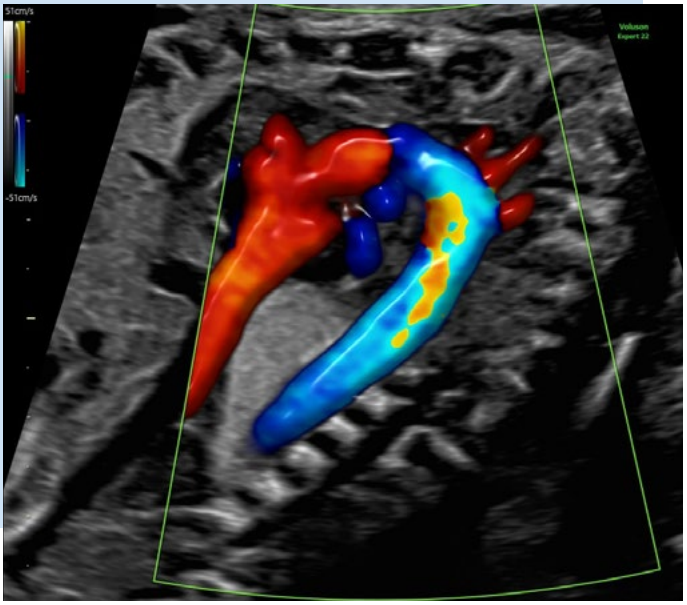
State-of-the-Art Echocardiography

March 12-14, 2027
Westin Kierland Resort & Spa, Scottsdale, AZ
Jointly provided by ASE and the ASE Foundation

Discounted rates for ASE members.
To learn more and register, visit us at ***ASEcho.org/Education-Events****.*

This text also appears in the May/June issues of JASE. ***OnlineJASE.com***

"Fetal Aortic Arch"
Kimberly Melley, RDMS (AB, OB, FE), Nemours Children's Health Cardiac Center, Fetal Cardiac Outreach Clinic, Abington, PA



Contents

AMERICAN SOCIETY OF ECHOCARDIOGRAPHY

Meridian Corporate Center
2530 Meridian Parkway, Suite 450
Durham, NC 27713

ASEcho.org | ASEFoundation.org

Phone: 919-861-5574

Email: ASE@ASEcho.org

FOLLOW US

@/ASE360

Facebook.com/ASECHO

YouTube.com/ASE360

Instagram.com/ASE360

Connect.ASEcho.org

American Society of Echocardiography

Cover art:"Corazon Partio" Severe MR secondary to poor leaflet coaptation. Eccentric MR jet directed posteriorly and going through a posterior ring dehiscence. Clara I. Angulo, MBA, CLSSGB, ACS, FASE, Karla Kurrelmeyer, MD, and Alba Munoz Estrella, MD, Houston Methodist DeBakey Heart & Vascular Center, Houston, TX

EDITORS' NOTE

ASE is very grateful to our members who contribute to *Echo* magazine and values their willingness to share personal insights and experiences with the ASE community, even if they may not be in total alignment with ASE's viewpoint.

President's Message for ***May***

ASE ECHOES AROUND THE GLOBE: THE WORLDWIDE IMPACT OF THE AMERICAN SOCIETY OF ECHOCARDIOGRAPHY

Contributed by ***David H. Wiener, MD, FASE****, Director of Clinical Operations at the Jefferson Heart Institute and Clinical Professor of Medicine, Thomas Jefferson University, Philadelphia, PA*

"American" may be the first word in ASE's name but we are a Society with worldwide impact. As the world's largest cardiovascular ultrasound Society, ASE is proud to number among its members colleagues from 127 countries outside the US, spanning 6 continents (not Antarctica ... yet). The proportion of non-US-based physicians, sonographers, nurses, veterinarians, and scientists who are our members increased this year to 21%. And it's not just about membership; opportunities for leadership within ASE abound for non-U.S. colleagues. International members serve on ASE's committees, and an international member representative is elected each term to fill a permanent slot on ASE's Board of Directors.

"As the world's largest cardiovascular ultrasound Society, ASE is proud to number among its members colleagues from 127 countries outside the US, spanning 6 continents (not Antarctica ... yet).

We live in a digital age and, unsurprisingly, ASE's digital profile also spans the world. Forty-five percent of visitors to the ASE website live outside the US, as do 18% of our Learning Hub users. Sixty-three percent to 78% of followers on two of ASE's social media platforms, respectively, are from outside the US. Our extremely popular EchoGuide app has been downloaded almost 125,000 times! Fifty-four percent of active app users on the iOS platform and 86% on the Android platform reside overseas. ASE is the key digital opinion leader and authoritative repository of cardiac ultrasound knowledge worldwide.

FIGURE 1 ASE's International Alliance Partners span the globe.

ASE is proud to have 39 International Alliance Partners (***Figure 1***). Our 40 *(Editor's note: Between the publication of this article in JASE and this publication in Echo magazine, ASE has gained an additional International Alliance Partner.)* partner societies similarly span the globe (again, all but Antarctica). The International Alliance Partners Program provides a pathway for collaborations, shared resources, and mutual learning with our colleagues in membership-based echocardiography, cardiology, cardiac anesthesiology, and sonographer societies. We and our alliance partners have dedicated tracks at each other's scientific meetings. They chair named topic-based sessions on a rotating basis at our Annual Scientific Sessions. In a reciprocal, rotating fashion, ASE's President, President-Elect, and other leadership travel to represent ASE as faculty members and session leaders at our partners' principal scientific meetings. Beyond educational exchange, the presence of leaders at each other's major meetings provides a forum for collaboration and planning. ASE's Echo Hawaii is held jointly with the AsianPacific Association of Echocardiography and the Canadian Society of Echocardiography, with enthusiastic participation by stellar international faculty and member attendees.

> The International Alliance Partners Program provides a pathway for collaborations, shared resources, and mutual learning with our colleagues.

ASE is sought after as an educational partner. A new opportunity will take place in Saudi Arabia as ASE endorses TCT Plus Middle East, an interventional meeting for which ASE members will be key opinion leaders as interventional echocardiography faculty. We have a longstanding partnership with EACVI for the World Echo Summit which was held last fall in Guadalajara, Mexico. Plans are underway for the next edition, which will take place in the Middle East.

The ASE Foundation, our charitable arm, is another means by which ASE embraces the world. It supports international investigators through research grants and offers travel grants to allow ASE Foundation Top Investigator awardees to present their science at

FIGURE 2 ASE members with our hosts at the ASE Foundation Global Health Outreach event in Dakar, Senegal.

the Annual Scientific Sessions. Through the Foundation's Global Health Outreach program, we collaborate with our International Alliance Partners, local hospitals and ministries of health, and industry partners to support community-based disease detection and prevention education programs, host bi-directional educational exchanges for improved diagnosis and treatment management, and contribute to research and data collection efforts to help guide future health policies. Last year we sponsored highly successful events in Dakar, Senegal ***(Figure 2)*** and Bengaluru, India ***(Figure 3)***; in March we were in Kathmandu, Nepal. The Foundation also disseminates both English and translated ASE guidelines and other educational materials to help facilitate adoption of these quality measures by specialists worldwide.

ASE is a proud member of the World Heart Federation, which champions heart health and acts to reduce the global burden of heart disease and stroke. When you join ASE you open a world of opportunities for collegial interchange, learning, charitable work, and professional growth.

FIGURE 3 Bharatbhushan Patel, RDCS, RDMS, RVS, FASE, scans at the ASE Foundation Global Health Outreach event in Bengaluru, India.

This text also appears in the May issue of JASE OnlineJASE.com

President's Message for ***June***

ECHOES OF GRATITUDE AT THE CLOSE OF A WONDEROUS YEAR

Contributed by ***David H. Wiener, MD, FASE****, Director of Clinical Operations at the Jefferson Heart Institute and Clinical Professor of Medicine, Thomas Jefferson University, Philadelphia, PA*

"It is not your duty to finish the work, neither are you at liberty to neglect it."

–Mishnah, Ethics of the Fathers 2:16

INTRODUCTION

A seafarer planning his course looks back where he has been, to the sky for orientation, and ahead to chart where to go. So too for me, as I conclude a wondrous and rewarding year as your President. ASE is an incredible "Society With A Soul." We have a rich heritage, a set of underlying principles which guides our strategic decisions, a vast array of smart and selfless volunteers, and an incredible, insightful professional staff. I set priorities at the onset of the year aiming to serve our members, our patients, and the science of cardiac ultrasound. My contributions have been incremental, the achievements not exclusively my own. Reviewing our progress can help us chart where we go next.

> ASE now has an Intersocietal Leadership Group comprising expert ASE members who are respected members of and serve as our liaisons to other organizations.

ALIGN

Cardiac imaging and care being a team sport, I set as a top priority alignment and collaboration with other professional societies. Building on Dr. Ted Abraham's vision, ASE now has an Intersocietal Leadership Group comprising expert ASE members who are respected members of and serve as our liaisons to other organizations. We moved forward on meaningful projects in partnership with the American Heart Association. We forged personal relations with the

leaders of and aligned to launch a branded rotating series of disease-based, multimodality imaging webinars with our colleagues at ASNC, SCCT, and SCMR. ASE established a relationship with the Hypertrophic Cardiomyopathy Society, a patient advocacy group; crafted a dedicated POCUS workshop at ASE 2026 in Colorado with the Society of Hospital Medicine; expanded our relationship with the Cardiovascular Research Foundation (CRF) working together to shine the light on new advancesin valve and SHD patient care; and enhanced our relationship with the Society of Cardiovascular Anesthesiology, with mutual engagement on NBE's roadmap and strengthening our respective Foundations. The newly formed Sports Cardiology Society, a field to which cardiac ultrasound is integral, will partner with us for ASE 2027 in Tampa.

SUSTAIN

ASE is taking on the workforce issues facing our members and profession. We released our first workforce survey, affording perspective on which of our members' priorities to address. We made the findings available to members via a webinar, informed the community in an article in the *Echo* Magazine, and are conducting a town hall at ASE 2026 in Colorado to gauge their concerns and seek input on solutions. The Board of Directors planned implementable steps ASE will take to help our members and the field, and our staff began incorporating them into our strategic goal tactics. These include building the sonographer pipeline by promoting sonography as a career, advancing the recognition of the ACS designation, and working with partners in sonography education to increase the number of training sites. We plan to join with industry and with experts in artificial intelligence to ensure continued quality of physician reporting by mitigating the cognitive burden from the increasing numbers of studies with ever growing information content. With the assistance of the members of ASE's Leadership Academy, we are identifying ways to bring professional joy to our members and recognize the importance of their contributions. ASE, with the guidance of our Advocacy Committee, will continue to express our concerns and commitment to the H-1B visa exemptions for needed international trainees, support ample research funding for NIH, and fight preauthorization which is an unnecessary burden to our members and their patients.

“With the assistance of the members of ASE's Leadership Academy, we are identifying ways to bring professional joy to our members and recognize the importance of their contributions.

ENGAGE

ASE broadened its wide tent with a new Inflammatory, Myocardial and Pericardial Special Interest Group (SIG). It is our first SIG purposefully built to include multimodality imaging colleagues, and which extends beyond cardiac imaging to colleagues in rheumatology. The Board of Directors contemplated how we can engage cardiology fellows and cardiac ultrasound students; they are ASE's future members and leaders. Our plans include constituting a new taskforce engaging members from those two groups, which will begin its work in the near future; and providing a meet-up space at the Scientific Sessions with the opportunity for students and early career members to be informally mentored by ASE leaders and past presidents. We revised our Mentor Match program to handle more mentees to provide more customizable mentoring experiences.

OTHER ACHIEVEMENTS

In July, I charged our Guidelines and Standards Committee leaders to design a framework for commissioning and prioritizing guidelines in accordance with our strategic goals. I am pleased to report this took place and will roll out shortly. The Advocacy Committee and staff, along with other partner societies, proposed changes to the interventional echocardiography TEE code structure, addressing a pressing issue for our IE members. I am excited to announce ASE's agreement with Doximity to feature our guidelines on its Dox-GPT artificial intelligence information platform, highlighting ASE's position as the authoritative source for cardiac ultrasound and presenting ASE to the 80% of US physicians, nurse practitioners, and physician assistants who are Doximity members.

I have had the privilege of piloting the ASE ship for one brief year, during which time I strived to be ASE's ambassador, communicator, and convener, and to move ASE thoughtfully towards its strategic goals. I am humbled and eternally grateful you accorded me this privilege. My thanks to my partners in this enterprise: to the inspiring Board of Directors and Executive Committee from whom I learn daily. We are fortunate to have the best staff of any organization; they make me look good. I worked especially closely with our CEO Robin Wiegerink, Deputy CEO Andrea Van Hoever, and Chief Experience Officer Suzanne Morris. I want to express my thanks to my Jefferson echo family, who picked up the slack at my "day job," and to my wonderful, supportive wife and family. I hand the rudder of ASE on July 1st to Dr. Cynthia Taub, a strategic and innovative thinker and inspiring leader with a deep knowledge of and love for ASE and look forward to seeing where we go next. To quote another famous doctor, Dr. Seuss, "You're off to Great Places! You're off and away!"

This text also appears in the June issue of JASE OnlineJASE.com

"I have had the privilege of piloting the ASE ship for one brief year, during which time I strived to be ASE's ambassador, communicator, and convener, and to move ASE thoughtfully towards its strategic goals.

David H. Wiener,
MD, FASE
ASE President

SONOGRAPHER SPOTLIGHT

Cardiovascular Sonography Council Chair-Elect, ***Kelly Thorson, DHSc, MSRS, ACS, RDCS, FASE***

Q
A

What is the name and type of facility/ institution at which you work, and what is your current position?

Facility: University of California San Francisco; Principal Cardiac Sonographer

Education: Doctorate of Health Science (DHSc), Master of Science in Radiological Science (MSRS), Bachelor of Science in Diagnostic Cardiac Ultrasound (BS)

Credentials: Advanced Cardiac Sonographer: (ACS), Registered Diagnostic Cardiac Sonographer (RDCS) in Adult, Pediatric, and Fetal echocardiography; Registered Congenital Cardiac Sonographer (RCCS)

When and how did you get involved with cardiovascular ultrasound and who inspires you now?

I became interested in cardiac ultrasound during my undergraduate studies in Utah. I spoke with a friend who had just completed the Diagnostic Cardiac Sonography program at Weber State University, and I wanted to learn more. I investigated the program and found it of high quality, and I thought it would be a great choice. I applied to the Weber State University program and was fortunate enough to be accepted.

While in the program, I became very interested in congenital heart disease and asked the medical director of echocardiography at Primary Children's Hospital if they would be willing to have me complete the final portion of my clinical internship at their institution. This experience ignited my passion for echocardiography in congenital heart disease, and because of my experiences with the people there, I set my sights on a career in congenital echocardiography.

I am continually inspired by the historic trailblazers in the field of congenital heart

> **"Being part of the POCUS guideline and working with Jim Kirkpatrick and the guideline team lit a fire in me to continue seeking roles and work within the ASE."**

disease, such as Maude Abbot, Helen Taussig, Jesse Edwards, Richard Van Praagh, Robert Anderson, Lindsay Allan, Julia Drose, and many others. I am also inspired by the new cardiac sonographers and fellows, and how they are shaping the future of our society and our field.

How did you get involved with the ASE and why do you continue to volunteer?

Many of the leaders and mentors that I have encountered were very active with the ASE. Seeing these people extend their work beyond the institutional level seemed as important as the daily work we do. The impact of their efforts could be seen in things such as guideline documents and advancements in echocardiography. Watching their service enhance their careers while simultaneously forging the future of the field of echocardiography was incredibly exciting, and I sought to align myself with this work. Being part of the POCUS guideline and working with Jim Kirkpatrick and the guideline team lit a fire in me to continue seeking roles and work within the ASE.

I expressed interest in volunteering with the ASE, and in 2013 I was selected to serve on the Information Technology Committee. While the work that we do is incredibly important, the connections and friends that I have made with the ASE are a lifelong gift.

I believe the work of ASE volunteers is essential to the continued growth and refinement of echocardiography. This work is instrumental in driving the level of quality of echocardiography as an imaging technique and profession. It is really the work volunteers and staff do that adds value and quality to society. I have been very fortunate to meet some great people over the years and to have had great collaborations and discussions as part of volunteer activities. It seems like every activity I am involved in throughout the volunteering process and meetings offer personal learning and growth. I am honored to have been part of this, and I feel that the work we do is both important and effective in advancing echocardiography.

What is your current role within ASE? In the past, what other committees, councils or task forces have you served and what have you done with the local echo society?

My current role is as Council Representative on the Executive Board of Directors and this July I will take on the Cardiovascular Sonography Council Chair-Elect. Previous ASE roles include Secretary on the Executive Board of Directors, Co-Editor of Echo Magazine, Educational Committee – Vice Chair, Scientific Sessions Program Committee Member, Point of Care Task Force Member, Industry Relations Committee – Member at Large, Telemedicine and New Technology Taskforce, Speaker at Scientific Sessions. Previous local and other roles: Visual Coordinator of Western Society of Pediatric Cardiology Meeting, Lecturer for Central California Sonographer Society, Chair and Co-Chair of the American Registry of Diagnostic Medical Sonographers - Fetal Echocardiography Exam.

What are some of the changes you have seen in echocardiography since you started your career?

When I began my career, I worked with VHS tapes and relatively simple, yet large, machines. In contrast, current equipment is more compact, offers significantly greater computing power, and supports live artificial intelligence algorithms as well as real-time quantification. At that time, two-dimensional imaging and color Doppler were standard, while harmonic frequency was only starting to be implemented. Today, three-dimensional echocardiography and strain imaging are routinely employed. Ongoing advancements in echocardiography include combining speckle-tracking color Doppler with conventional or power Doppler, which helps address the frame-rate limitations inherent in traditional color Doppler techniques.

What is your vision for the future of sonography? What do you see on the horizon that invigorates you?

Changes in Technology and Usage

Expansion of cardiac ultrasound use will be exponential over the next decade, with its use and that of ultrasound expanding into

virtually every specialty. Just as users on the point-of-care end will grow, users within the echocardiography core and the advanced echocardiography technology end will need to grow. The advanced technology and functions within echocardiography will continue to grow, with these advanced-level skills in advanced imaging modalities such as 3D, strain, and vector flow mapping, which will lead to advanced imaging cardiac sonography specialists. Artificial intelligence will continue to be infused into the image acquisition, presentation, quantification, and decision-making realms of echocardiography. The gap between Electronic Health Record and Echocardiography informatics will continue to narrow, and this will require echocardiography imaging informatics specialists to help understand and manage exchanges between these systems.

Changes in Education in Cardiac Sonography in Congenital Heart Disease

The field of congenital cardiac sonography continues to expand. There is a need for more sonographer specialists for the growing adult congenital heart disease population. In addition to adult congenital cardiac sonographers, the need for congenital pediatric and fetal cardiac sonography remains largely unmet. As echocardiography needs grow and access to care expands to more and more rural regions, the role of the cardiac sonography practitioner and other mid-level imaging professionals will become essential to meet the needs of people living in these areas.

These needs will lead to expanding academic training programs offering advanced education in echocardiography, including pathways for ultrasound practitioners in adult, pediatric, and fetal congenital echocardiography.

What is your advice for members who want to become more involved in their profession or with the ASE?

ASE announces a call for volunteer opportunities in the fall every year. Ask questions to those who have navigated the volunteer areas in the ASE that are exciting to you.

> “Expansion of cardiac ultrasound use will be exponential over the next decade, with its use and that of ultrasound expanding into virtually every specialty.”

The Female Aorta in Focus:

From Measurement to Management

*Contributed by **Thais Coutinho, MD**, Professor of Medicine, Department of Cardiovascular Medicine, Mayo Clinic, Rochester, MN*

Females with TAA have 3 times higher risk of dissection, and about a 40% higher risk of death as compared with males with TAA.

YOU ARE IN THE ECHO LAB, on your last case of the day: a 70-year-old woman with long-standing hypertension who was sent for dyspnea and a murmur. She is 5'2", with a body surface area (BSA) of about 1.5 m^2. Her left ventricle looks normal and valve disease is mild. Just before you move on, you notice that her ascending aorta measures 4.7 cm. You start to type that the aorta is mildly-to-moderately dilated and that routine interval imaging could be considered. You pause, because in a woman of this size, and at this age, you are not sure that 'mild-to-moderate' and 'routine' are the right words.

Thoracic aortic aneurysm (TAA) is much more common in males than females, with males comprising approximately 70% of TAA patients. Yet, if females escape this 'natural protection' and develop thoracic aortopathy, they carry a heavier burden of risk. Females with TAA have 3 times higher risk of dissection, and about a 40% higher risk of death as compared with males with TAA. In some series, 3-year mortality rates for females with undissected TAA approach the 5-year mortality rates for all cancers combined. **TAA is a silent but virulent disease, especially in females**.

Why would a less common disease behave more aggressively in females? Experimental work suggests that

sex hormones are part of the explanation. In animal models of aortic aneurysm, removal of endogenous estrogen with oophorectomy accelerates aneurysm growth and increases matrix metalloproteinase activity, while estradiol treatment in males attenuates matrix degradation and slows aneurysm expansion. These data, among others, support the idea that female sex hormones protect the aortic wall during reproductive years, and that their loss at menopause may remove an important brake on aortic degeneration in females.

Aortic structure matters as well. Females are, on average, shorter and smaller than males, and their aortas are smaller at baseline. For a given absolute aortic diameter, the relative enlargement is therefore greater in a petite female than in a tall male. This is why contemporary guidelines now encourage normalization of aortic dimensions to body size, when appropriate. The aortic size index, calculated as aortic diameter/BSA, the aortic height index, calculated as diameter/height, and the aortic area/height index all help translate a single diameter into a more meaningful estimate of risk for petite individuals. In the patient from our vignette, a 4.7 cm ascending aorta yields an aortic size index of about 3.1 cm/m^2, and an aortic area to height index of 11 cm^2/m – these values represent class 2b and 2a indications for elective aortic repair, respectively. To put this in perspective, by doing the reverse math we conclude that this patient's 4.7 cm aorta (3.1 cm/m^2) is equivalent to a 6.2 cm aorta in an average-sized man with a BSA of 2.0 m^2. Thus, for our petite female patient, the 4.7 cm ascending aorta is in fact a large aneurysm that requires prompt evaluation. **Failure to recognize this concept of relative aortic size is one of the several reasons why females with TAA have worse prognosis.**

The aortic wall itself can also be different in the male vs. female TAA, especially in degenerative aortopathy. Histologic studies of surgically resected aneurysm tissue show that female degenerative TAAs have greater extracellular matrix remodeling, leading to lower content and quality of elastin and collagen in the extracellular matrix of the female aneurysm wall. This, in turn, renders the female degenerative TAA stiffer and weaker, respectively. Perhaps as a direct consequence of this difference, **females with degenerative TAAs experience 3-times faster aneurysm expansion rates than their male counterparts.** In addition, biomechanical testing of TAA specimens reveals that, after the age of 65 years, the delamination strength (the force necessary to dissect the aorta) is lower in female than male TAAs, corroborating the notion that **a TAA in an older female is easier to dissect.**

Failure to recognize this concept of relative aortic size is one of the several reasons why females with TAA have worse prognosis.

A third layer of sex-specific TAA complexity involves aortic function and arterial aging. It is now well established that TAA represents a focal, accelerated expression of aortic aging—a process that is typically accelerated in the postmenopausal female. As such, it is entirely possible that the significant structural wall abnormalities associated with a TAA, when superimposed to the already accelerated aortic aging of older females, may render the older female aorta sicker and more predisposed to adverse TAA complications.

In the echo and vascular labs, these concepts can be distilled into a few practical teaching points.

FIRST, in female patients with aortopathy, also think in indexed size, not only in absolute size. For female patients with a dilated aorta,

or for very short or very tall individuals, it is helpful to index the aorta to body size or at least comment explicitly on body size in the report. The formulas are simple, and even quick mental math can tell you when a value is concerning [think of elective surgical repair when the aorta is ≥3.08 cm/m^2 (class 2b), ≥3.2 cm/m (class 2b), or ≥10 cm^2/m (class 2a)].

SECOND, watch growth as carefully as you watch size, and be sure to measure the aorta in similar windows and similar locations across serial studies. A TAA growth rate of about 0.5 mm/year is typical in male cohorts, whereas females can experience growth 2-3 times as fast. A previous case of a 76-year old woman with a body surface area of 1.5 m^2 whose ascending aorta grew from 4.7 to 5.4 centimeters over 5 years (growth linearized to 1.47 mm/year, far below what guidelines consider 'fast aneurysm growth') before she died suddenly is a sobering reminder that apparently modest numbers can conceal aggressive biology.

THIRD, view the aorta as part of a broader arterial aging syndrome. Even if your laboratory does not measure aortic stiffness, you can still think of aortic function and aging when interpreting aortic images. Wide pulse pressures in the absence of severe aortic regurgitation, for example, are a telltale sign of a stiff, aged, dysfunctional aorta that has lost its pressure-buffering abilities. In the future, we hope to incorporate markers of aortic function and aging in the risk stratification of TAA patients.

FOURTH, bring sex-specific and life course information into your reports. Pregnant women and women contemplating pregnancy require special attention. Contemporary guidance recommends more frequent imaging during pregnancy and postpartum for women with aortopathy, and prophylactic repair at lower thresholds in selected conditions. Echocardiography laboratories can play a central role in these pathways by ensuring that imaging is performed at the recommended intervals, and that reports clearly state dimensions, indexed values, and any interval change.

Through the Council on Circulation and Vascular Ultrasound (CAVUS), ASE can help imagers see the aorta as a vital organ rather than a simple pipe.

FIFTH, use your report to prompt appropriate referral (for males and females). Many females with thoracic aortopathy are followed with sporadic imaging and without structured input from an aortic specialist. When you see a pattern that worries you, such as a petite woman with a high relative aortic size, greater than 1mm/year growth, or exhibiting aortopathy in pregnancy, you may recommend specialist referral in your report. That brief line in the impression section can be the nudge that moves care from passive surveillance to proactive management.

Through the Council on Circulation and Vascular Ultrasound (CAVUS), ASE can help imagers see the aorta as a vital organ rather than a simple pipe. If we measure the aorta carefully, index it when appropriate, and interpret it through a sex-specific and life course lens, we will describe a different story in our reports. For the 70-year old female with a BSA of 1.5 m^2 and a 4.7 cm ascending aorta, that story should now frame her aorta as a clear marker of vulnerability and a cue for more active care. In her case, our words can either normalize a dangerous aneurysm or open the door to timely, life preserving care.

Continuous Learning in Interventional Echocardiography –

A Growing Field Has Growing Options for Education

*Contributed by **Jeremiah Haines, DO, FASE**, Aurora St. Luke's Medical Center, Advocate Health Milwaukee, WI, Department of Cardiovascular Medicine, Wake Forest School of Medicine (Wisconsin Division); **Brianna Madalinski, RDCS, RVT, BS, FASE**, Aurora St. Luke's Medical Center, Advocate Health, Milwaukee, WI; **Renuka Jain MD, FASE**, Aurora St. Luke's Medical Center, Advocate Health, Milwaukee, WI; Department of Cardiovascular Medicine, Wake Forest School of Medicine (Wisconsin Division)*



While there is a steep learning curve, several well-defined pathways exist to support the development of competency in IE.

INTERVENTIONAL ECHOCARDIOGRAPHY (IE) is a rapidly expanding subspecialty, driven by the growth of transcatheter interventions that require pre-procedural diagnostic imaging, intraprocedural guidance, and post-procedural surveillance. The field encompasses both novel device platforms and refined iterations of existing technologies for valves, septal defects, and other cardiac structures. Maintaining familiarity with these devices is essential for both physicians and sonographers, as understanding device-specific parameters and recognizing potential complications directly impacts patient safety and long-term outcomes.

The Challenges of Achieving and Maintaining Competency in Interventional Echocardiography

The continued evolution of this specialty offers a rewarding career that demands ongoing learning and adaptability. While there is a steep learning curve, several well-defined pathways exist to support the development of competency in IE. The 2023 document,

FIGURE 1: Challenges for Interventional Echocardiography in Achieving and Maintaining Competency.
(Figure used with permission from ASE Recommendations for Special Competency in Echocardiographic Guidance of Structural Heart Disease Interventions: From the American Society of Echocardiography, 2023)

ASE *Recommendations for Special Competency in Echocardiographic Guidance of Structural Heart Disease Interventions*, outlines training pathways for cardiologists, cardiac anesthesiologists, and trainees seeking to develop expertise in this field. It introduces the concept of "Level III-IE," which expands upon traditional Level III echocardiography training as defined by COCATS 4 (Task Force 5), and identifies the structural heart procedures required to achieve this designation. Importantly, the document emphasizes that additional, procedure-specific training is often necessary, as many general training programs do not provide sufficient procedural volume.

Among the challenges in IE training is the rapidly evolving nature of the field, driven by continuous technological innovation ***(Figure 1)***. Even those who have recently completed an IE fellowship will find themselves challenged with new devices and techniques. Accordingly, maintaining competency remains an ongoing challenge in this dynamic field. Sustained professional development must therefore be collaborative and team-based, relying on strong partnerships among clinicians, industry, and professional societies.

Didactics Offered in Multiple Formats with a Transition to Case-Based Learning

Didactic learning serves as a foundational educational step in structural and valvular heart disease. Engagement with evolving consensus statements and clinical practice guidelines further reinforces knowledge. ASE offers a broad range of educational opportunities with multiple choices of format. Through the ASE Learning Hub, recorded presentations from live meetings are curated into a structurally focused collection – these can be accessed for those who cannot attend in person. Additionally, the practice of IE has unique considerations, including radiation safety, reimbursement, and training – conversations with key experts in the fields are recorded, and these webinars are available for viewing ***(Figure 2)***.

New educational tools continue to expand these offerings. Interventional Microlessons was recently released and developed in collaboration with the ASE Interventional Echo Council. This

Recorded Presentations from Live Meetings:

Cardiac Imaging & Structural Heart Interventions Presentations from ASE's 2025 Scientific Sessions

SOTA 2026 Library - Cardiac Imaging & Structural Heart Interventions Presentations from 2026 SOTA

Webinars Geared Towards IE:

Evaluation of Prosthetic Aortic Valves Webinar

Radiation Safety For Women In Echo Webinar

Recommendations for Special Competency in Echo Guidance of SHD Webinar

Case-Based Content Online:

Mitral Valve TEER Pre-Procedural TTE: A Step-by-Step Guide for Sonographers

eCASE Learning: Transcatheter Tales

FIGURE 2: Sample of Online Learning Available at ASE Learning Hub in Interventional Echocardiography

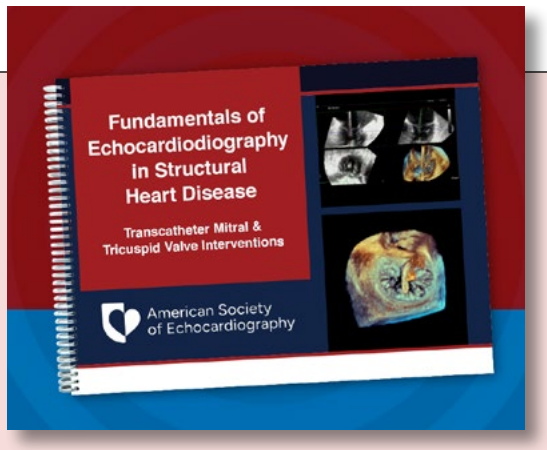
FIGURE 3: Newly Released in 2026 – Interventional Microlessons

Advanced Echo Protocols and "how-to" for 3D and MPR set-up to complete:

- **Tricuspid TEER**
- **LAAO**
- **TAVR**
- **BASILICA**
- **LAMPOON**

product is designed for practicing interventional echocardiographers who would like to improve their 3D TEE skills and learn new procedures. Recorded short videos offer step-by-step guidance in setting up 3D echocardiography and MPR for key structural procedures ***(Figure 3)***.

Physical books have not gone away! *The Fundamentals of Echocardiography in Structural Heart Disease* book is formatted in similar style to the ASE formula guidebooks, a small pamphlet that can be stored in the hybrid lab or even on an echo machine. Chapters provide written step-by-step guidance for key mitral, tricuspid, and left atrial appendage procedures. The content is supplemented by online videos ***(Figure 4)***. Together, these resources deliver didactic learning in formats tailored to the needs of interventional echocardiographers.



Reference Manual with step-by-step procedural imaging for:
- **Tricuspid interventions**
- **Mitral interventions**
- **Left Atrial Appendage Occlusion**

FIGURE 4: Fundamentals of Echocardiography in Structural Heart Disease Book

DIY: Tricuspid Valve Regurgitation

3D Structural Heart Disease Workshop

DIY: LAA Occlusion including ICE

Structural Imaging Bootcamp

FIGURE 5: Hands-on Learning and Simulation at ASE Scientific Sessions 2026

Hands-On Experience and Advanced Imaging Techniques

Hands-on procedural experience remains central to developing proficiency in interventional echocardiography. ASE supports this through scientific sessions, conferences, and workshops that allow IE to practice their skills with mentorship. These experiences are complemented by simulation-based training and device-specific educational programs. The 2026 Scientific Sessions offer multiple opportunities for hands-on learning, allowing participants to refine imaging techniques and procedural skills in practical, interactive environments *(**Figure 5**)*.

Simulated Heart Valve Team Discussions

Interventional echocardiography is a team-based sport, requiring versatility and adaptability to others. At the institutional level, this work involves participation in multidisciplinary heart team conferences and structured case reviews. ASE has expanded its live educational offerings to include simulated heart valve team sessions, developed in collaboration with the Society of Cardiovascular Computed Tomography (SCCT) and the Cardiovascular Research Foundation (CRF). These sessions bring together sonographers, structural echocardiographers, multimodality imagers, interventional cardiologists, and cardiac surgeons, offering valuable insight into complex decision-making and providing new perspectives for both early-career and experienced clinicians.

ASE State-of-the-Art Echocardiography (SOTA): Structural Focus in the Desert

The 2026 SOTA program reflected the energy and rapid evolution of structural heart imaging, offering a thoughtfully curated blend of

FIGURE 6

education and hands-on experience. Live TEE simulation and 3D MPR learning labs provided immersive opportunities to refine procedural skills in real time. Complemented by interactive workshops and case-based discussions, the program captured the spirit of modern interventional echocardiography—practical, collaborative, and continuously advancing. Planning for the 2027 meeting is underway and will include a structural heart focus, while still retaining cutting-edge content for advanced echocardiographers including covering new ASE guidelines and the latest in artificial-intelligence platforms ***(Figure 6)***.

Resources for Sonographers Involved in Structural Interventions

Sonographers play a critical role in structural interventions and must remain current with evolving procedural protocols, real-time 3D imaging innovations, and expanding modalities such as intracardiac echocardiography (ICE). ASE provides extensive educational resources to support continued growth in structural heart imaging, including training in procedural imaging, radiation safety, and hands-on learning opportunities. Recent Scientific Sessions have also featured sonographer-focused "Do-It-Yourself" workshops on tricuspid regurgitation and left atrial appendage occlusion, including dedicated ICE simulation ***(Figure 5)***.

While the path may initially seem challenging, a wide range of educational resources and opportunities now exist to support ongoing growth through ASE.

Conclusion

This is an exciting time in interventional echocardiography. Physicians and sonographers play essential and complementary roles, with sustained competency grounded in technical mastery, adaptability, and collaboration. While the path may initially seem challenging, a wide range of educational resources and opportunities now exist to support ongoing growth through ASE. With engagement and experience, developing and maintaining expertise is both achievable and deeply rewarding.

RECOGNIZING

ASE's 2026 AWARD WINNERS

ASE is proud to support the cardiovascular ultrasound community through recognition of outstanding service, research, and training. We hope you enjoy reading about the impressive careers of the ASE 2026 Award Recipients, who will be recognized during the 37th Annual Scientific Sessions in Aurora, Colorado, June 26-28.

*Contributed by **Natalie Costantino**,*
ASE Senior Marketing & Communications Manager

2026 Physician Lifetime Achievement Award

Sherif Nagueh, MD, FASE
Houston Methodist Hospital
Houston, Texas

Dr. Sherif Nagueh is the recipient of the **2026 Physician Lifetime Achievement Award**, recognizing his significant contributions to cardiovascular imaging, his authoritative work in assessing cardiac function, and his longstanding leadership and service to ASE.

A native of Cairo, Egypt, Dr. Nagueh earned his medical degree and completed his early training at Cairo University Hospitals. He completed an internship and residency in Internal Medicine, followed by a Cardiology fellowship at Baylor College of Medicine in Houston, Texas. He then pursued an Echocardiography fellowship at The Methodist Hospital, now known as Houston Methodist.

Dr. Nagueh joined Baylor College of Medicine in 1996 as an Assistant Professor of Cardiology. He has since built a distinguished career, serving for more than 20 years as a Professor of Medicine at Weill Cornell Medicine and holding various appointments at Houston Methodist including, Senior Member of the Houston Methodist Research Institute, The Levant Foundation Chair in Cardiovascular Diseases, and Director of the Methodist DeBakey Heart & Vascular Center Echocardiography Laboratory.

An internationally recognized expert on cardiac function, Dr. Nagueh is particularly known for his work in left ventricular diastolic function and hypertrophic cardiomyopathy (HCM). His research has significantly advanced the clinical application of echocardiographic assessment of myocardial disease. He has authored more than 300 peer-reviewed publications and over 100 abstracts, contributed to multiple book chapters, and is a frequently invited speaker at scientific meetings around the world.

Dr. Nagueh's service to ASE spans nearly three decades. Since delivering the Feigenbaum Lecture early in his career, he has held numerous leadership roles on the Board of Directors, Committees, Writing Groups, and Task Forces. Some of his contributions include serving as Scientific Sessions Program Committee Chair, founding Chair of the ImageGuideEcho Registry Committee, and Treasurer on ASE's Executive Committee. He has chaired guidelines on the echocardiographic evaluation of left ventricular diastolic function and multimodality imaging for HCM. A Fellow of ASE since 2009, he received the Society's Meritorious Service Award in 2018.

In addition to his work with ASE, Dr. Nagueh has held leadership roles with IAC Echocardiography and the National Board of Echocardiography, Inc. He has served as a manuscript reviewer and editorial board member for several national and international journals, including Associate Editor for the Journal of the American Society of Echocardiography (JASE).

Widely respected by colleagues and trainees, Dr. Nagueh is known for his scientific excellence, kindness, and dedication to advancing cardiovascular care. When not working, Dr. Nagueh enjoys weight lifting.

2026 Sonographer Lifetime Achievement Award

Kenneth Horton, ACS, RCS, FASE
Intermountain Heart Institute
Mascotte, Florida

Mr. Ken Horton is the recipient of the **2026 Sonographer Lifetime Achievement Award** recognizing his exceptional contributions to cardiovascular sonography, his leadership in advancing quality and education, and his active involvement with ASE.

With more than four decades of experience in invasive and non-invasive cardiology, Mr. Horton is an Advanced Cardiac Sonographer with Intermountain Health in Salt Lake City, Utah. Working remotely from Central Florida as an Echo/Vascular Research Coordinator, he leads initiatives in quality assurance, laboratory accreditation, education, and research. Known for his commitment to excellence and mentorship, he has made a lasting impact on both clinical practice and sonographer development.

Mr. Horton's career began with 20 years of distinguished service in the United States Navy. After being accepted into the Naval School of Health Sciences Cardiopulmonary Technician program, he graduated as the honor student of his class in 1985. Following his initial assignment at Naval Hospital Oakland in California, he returned to the program as an instructor and later served as Program Director. He retired from the Navy in 1999 with the rank of Chief Petty Officer.

Following his military service, Mr. Horton worked as a cardiac sonographer at Georgetown University Hospital in Washington, D.C. He later held positions at the University of Virginia University Hospital and the MedStar Health Research Institute Cardiovascular Core Lab before joining Intermountain Health in 2007.

An active member of ASE since 2000, Mr. Horton has served in positions on the Society's Board of Directors, Executive Committee, Cardiovascular Sonography Council Steering Committee, Leadership Academy Cohort 2 Senior Advisor, as well as numerous Committees, Councils, Writing Groups, and Task Forces. He achieved FASE status in 2002 and most recently served as a member of the Sonographer Career Ladder Workgroup.

A frequent and highly regarded speaker, Mr. Horton has delivered more than 50 invited presentations on echocardiography and cardiovascular imaging. He has also authored and coauthored dozens of abstracts, peer-reviewed articles, and book chapters.

Mr. Horton has made significant contributions to Cardiovascular Credentialing International, serving on the Registered Cardiac Sonographer examination committee for more than 25 years and as President from 2015 to 2017. He is also currently a member of the Advanced Cardiac Sonography examination committee.

Outside of work, Mr. Horton enjoys spending time with his wife, Tonya, and their blended family of six children and eleven grandchildren. In his free time, he enjoys watching NASCAR and spending weekends grilling or smoking meat with family and friends.

2026 Richard Popp Excellence in Teaching Award

Smadar Kort, MD, FASE
Stony Brook University Medical Center
Stony Brook, New York

Dr. Smadar Kort is being honored with the 24th Annual **Richard Popp Excellence in Teaching Award**, recognizing her distinguished career as a clinician, teacher, and mentor, and her contributions to advancing cardiovascular imaging education.

Dr. Kort earned her medical degree from the Sackler School of Medicine in Tel Aviv, Israel. She completed her internship and residency in Internal Medicine and her fellowship in Cardiovascular Medicine at Weill Cornell Medicine (formerly Cornell University Medical College), followed by advanced fellowship training in echocardiography at New York University Medical Center.

She is currently a tenured Professor of Medicine at the Renaissance School of Medicine at Stony Brook University on Long Island, New York, where she holds several key leadership roles, including System Director of Cardiovascular Imaging, Director of the Structural Heart Imaging Program, and Co-Director of the Valve Center. She directed the institution's second-year medical student Cardiovascular System Course for more than a decade and continues to play a central role in teaching cardiology fellows, residents, medical students, and sonographers.

With more than 25 years of service to ASE, Dr. Kort has held a wide range of leadership roles on the ASE Board of Directors and served as Chair of the Membership Steering Committee, and Co-Chair of the CME Committee. She has contributed to numerous Committees and Task Forces spanning education, guidelines and standards, advocacy, public relations, and finance. She became a Fellow of ASE in 2002, and she has helped develop numerous national multi-society guidelines and consensus statements.

Dr. Kort has authored more than 70 peer-reviewed manuscripts, over 20 book chapters, and more than 50 abstracts. A highly sought-after speaker, she has delivered nearly 350 invited presentations at national and international meetings. She has served on several prominent journal editorial boards, including the *Journal of the American Society of Echocardiography* (JASE).

Dr. Kort has demonstrated a career-long commitment to mentorship and sonographer education. One mentee describes her as an "Encyclopedia of Echocardiography" reflecting her extensive knowledge of the latest science and technology in cardiac imaging. She has made significant contributions to certification, accreditation, and curriculum development and is currently serving a three-year term as Chair of the Committee on Accreditation for Education in Advanced Cardiovascular Sonography. She was also recently recognized with the Faculty Excellence in Resident/Fellow Mentoring Award and the Outstanding Service Award from Stony Brook Medicine.

In between work commitments, Dr. Kort enjoys spending time with her family and friends, traveling the world, hiking, playing pickleball, practicing yoga, and listening to music.

2026 Circulation & Vascular Ultrasound Council Luminary Award

Bryan Wells, MD, FASE
Emory Healthcare
Atlanta, Georgia

Dr. Bryan Wells is receiving the **2026 Circulation & Vascular Ultrasound (CAVUS) Council Luminary Award** for his exceptional contributions to vascular medicine and ultrasound, and to recognize his significant efforts to advance clinical care, education, and program development in the field.

Board certified in internal medicine, cardiology, vascular medicine, vascular imaging, echocardiography, and nuclear cardiology, Dr. Wells currently serves as Professor of Medicine, Director of Vascular Medicine, Director of the Vascular Medicine Fellowship, and Director of the Vascular Laboratory in the Division of Cardiology at Emory University School of Medicine in Atlanta, Georgia. After graduating from Auburn University with a bachelor's degree in chemical engineering, Dr. Wells earned his medical degree from Medical College of Georgia and completed his residency and chief residency in Internal Medicine at University of Alabama at Birmingham, followed by a cardiology fellowship at Emory University.

An active ASE member for nearly 15 years, Dr. Wells has served as Chair of the CAVUS Council, as the Vascular Representative on the ASE Board of Directors and several Committees, and as a member of the CASE Editorial Board, among other roles. He became a Fellow of ASE in 2017 and recently, he co-chaired the 2025 ASE Guideline *Performing Ultrasound-Guided Vascular Cannulation*.

Dr. Wells has also held leadership roles in other professional societies and institutional initiatives. He currently serves on the Board of Directors for the Society for Vascular Medicine and previously served as the ASE Representative on the IAC Vascular Testing Board of Directors. At Emory, he established the Vascular Medicine service more than a decade ago, building it into a nationally recognized referral center for fibromuscular dysplasia (FMD) and spontaneous coronary artery dissection (SCAD). He also founded and continues to lead a multi-site, accredited vascular laboratory program that has standardized imaging protocols across the institution.

Deeply committed to education, Dr. Wells established one of the nation's limited vascular medicine fellowship programs and serves as principal investigator for the FMD National Registry and the Internal SCAD Registry at Emory. He is also a co-investigator for the federally funded GPAD-3 grant, and multiple renal denervation trials. He has received multiple teaching awards in recognition of his mentorship of more than 50 fellows, residents, and students. Additionally, he has edited two cardiology textbooks, authored numerous peer-reviewed manuscripts, and is a frequently invited speaker at regional, national, and international conferences and symposia.

Outside of Work, Dr. Wells enjoys spending time with his family. His wife is an ophthalmologist at Emory, and together they have three children and two golden retrievers. In his spare time, he stays active by training for marathons and triathlons.

2026 Founders' Award for Lifetime Achievement in Echocardiography for Pediatric and Congenital Heart Disease

Luc Mertens, MD, PhD, FASE
The Hospital for Sick Children
Toronto, Ontario, Canada

Dr. Luc Mertens is being honored as the 19th recipient of the **Founders' Award for Lifetime Achievement in Echocardiography for Pediatric and Congenital Heart Disease** (PCHD) recognizing his lifelong contributions to pediatric and congenital echocardiography and leadership in research, education, and clinical care.

For more than three decades, Dr. Mertens has established himself as a visionary leader and pioneering investigator. He earned his medical degree, obtained a doctoral degree in Medical Sciences, and completed his pediatric residency from the University of Leuven in Belgium. He pursued additional training through a research fellowship at Mayo Clinic in Rochester, Minnesota, followed by a clinical fellowship in Interventional Cardiology at his alma mater in Belgium.

Dr. Mertens began his career at the University Hospitals Leuven, where he served as a consultant pediatric cardiologist. After relocating to Toronto, Canada, in 2008, he joined the Hospital for Sick Children, where he served as Section Head of the Echocardiography Laboratory and Co-Director of the Pulmonary Hypertension Program. He was appointed Full Professor of Pediatrics at the University of Toronto in 2013 and served as a Senior Associate Scientist at the SickKids Research Institute. He currently serves as the Medical Director of the Cardiovascular Program and Division Head of Cardiology at the Children's Hospital of Eastern Ontario, and as Professor at the University of Ottawa Faulty of Medicine.

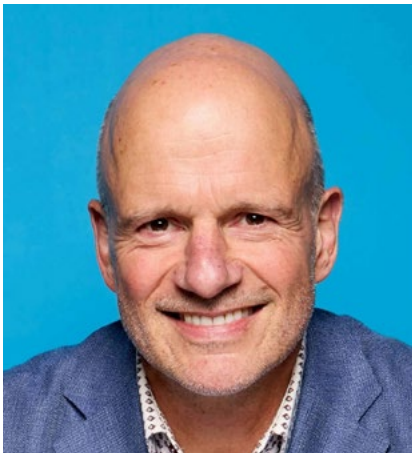
Dr. Mertens' research has focused on developing novel non-invasive imaging techniques for assessing cardiac and vascular function in pediatric populations with congenital and acquired heart disease, with his main research interest in novel technology including strain imaging, ultrafast ultrasound, and more recently in artificial intelligence. He founded and directed the Imaging Core Lab of the Congenital Heart Surgeons' Society, which supports multicenter research across North America. He has contributed to 50 research statements, grants, and clinical trials; more than 400 peer-reviewed publications; and numerous book chapters. Additionally, he co-edited a leading textbook on pediatric and congenital echocardiography and has delivered over 250 invited lectures worldwide.

A dedicated ASE member for 25 years, Dr. Mertens became a Fellow in 2010. Since joining, he has held various roles on Councils, Committees, and Advisory Groups. He is a frequent presenter at the ASE Scientific Sessions and has served as an Editorial Consultant on the JASE Editorial Board for 10 years. He also served as Chair of the ASE guideline *Multimodality Imaging for Cardiac Surveillance of Cancer Treatment in Children* in 2023 and delivered the Feigenbaum Lecture at ASE's 2014 Scientific Sessions.

When not working, Dr. Mertens enjoys exercising (biking, Pilates, and yoga), reading, traveling, and spending time with his family.

2026 Outstanding Achievement in Perioperative Echocardiography Award

G. Burkhard Mackensen, MD, PhD, FASE
University of Washington
Seattle, Washington



Dr. G. Burkhard Mackensen is being honored as the 13th recipient of the **Outstanding Achievement in Perioperative Echocardiography Award** in recognition of his transformative leadership, exceptional clinical expertise, pioneering research, and enduring educational contributions to the advanced subspecialty of perioperative cardiovascular ultrasound.

Dr. Mackensen is the Allan J. Treuer Endowed Professor of Anesthesiology and Chair of the University of Washington (UW) Department of Anesthesiology & Pain Medicine in Seattle. He also serves as Director of Interventional Echocardiography at the UW Medicine Heart Institute. A practicing cardiothoracic anesthesiologist, he is an integral member of the UW structural heart valve team, where he advances minimally invasive, transcatheter cardiovascular care.

Born in Munich, Germany, Dr. Mackensen earned his medical degree from the University of Hamburg, followed by postgraduate training in internal medicine, anesthesiology, and critical care medicine at institutions in Germany and at Duke University Medical Center in Durham, North Carolina. He also earned a PhD from the Technical University of Munich, Germany. Prior to joining UW in 2012, he held several academic and clinical appointments at Duke.

Internationally recognized for his expertise in perioperative and interventional echocardiography, Dr. Mackensen has significantly advanced the understanding of right ventricular function, myocardial strain, and three-dimensional imaging of valvular anatomy and pathology in the perioperative setting. His work has been instrumental in integrating echocardiography into structural heart interventions.

A gifted educator and mentor, Dr. Mackensen has trained numerous residents, fellows, and junior faculty, many of whom now hold academic and leadership roles. He is a sought-after speaker and has provided real-time procedural guidance in more than 50 live structural heart cases broadcast to national and international audiences. He has published more than 150 peer-reviewed journal articles and authored more than 20 book chapters and 125 research abstracts.

Dr. Mackensen joined ASE nearly three decades ago and became a Fellow of ASE in 2006. He has held prominent leadership roles within the Society, serving on numerous Committees, Councils, Task Forces, and guideline writing groups. He previously served on the ASE Board of Directors and chaired the Industry Relations Committee and Perioperative Echocardiography Council. Currently, he is the Director of ASE's State-of-the-Art Echocardiography™ course and a Mentor Match mentor.

Dr. Mackensen also represents SCA on the echocardiography board of the IAC, where he helped establish standards for perioperative echocardiography accreditation and led the UW perioperative echocardiography service to become among the first in the nation accredited by the IAC in perioperative transesophageal echocardiography.

When not working, Dr. Mackensen enjoys cycling, sailing, skiing, playing tennis, and spending quality time with his wife, Jutta, and their three children, Aya, Aaron, and Juliana.

2026 Mentorship Award

Vince Sorrell, MD, FASE
University of Kentucky Gill Heart & Vascular Institute
Versailles, Kentucky

Dr. Vince Sorrell is the recipient of the **2026 Mentorship Award** honoring his leadership and influence in cardiovascular ultrasound, decades-long involvement with ASE, and his enthusiasm for academia and mentorship within the Society and the broader cardiovascular community.

A Fellow of ASE since 2003 and a member since 1995, Dr. Sorrell has held several noteworthy positions in the Society. He is a founding member of the Critical Care Echocardiography Council and has served on the ASE Board of Directors, as well as numerous committees, task forces, and guideline writing groups. Currently, he is the Editor-in-Chief of *Cardiovascular Imaging Case Reports* (CASE), a member of the Publications Committee and EchoGuide® Task Force, Director of Echo Florida, and Chair of the Regional Live Course Working Group. Previously, he received the 10th Annual Richard Popp Excellence in Teaching Award and has been a longtime supporter of the ASE Foundation, including participation in the 2018 global health outreach event in West Virginia.

Throughout his career Dr. Sorrell has been committed to cardiovascular ultrasound education, serving in leadership roles in fellowship and advanced imaging training programs for more than 30 years. Mentees praise his adventurous spirit, humor, and unwavering commitment to their professional and personal growth, as well as his "each echo has something to teach us" philosophy. Dr. Sorrell has published more than 300 peer-reviewed scientific abstracts and papers, 100 book chapters, four textbooks, and numerous electronic educational materials. He is a Fellow of five professional societies and an internationally recognized leader in cardiovascular imaging innovation.

After earning his medical degree from St. George's University School of Medicine in Grenada, West Indies, Dr. Sorrell completed an Internal Medicine residency and Adult Cardiology fellowship at the University of Texas Medical Branch at Galveston. He completed a fellowship in Noninvasive Cardiology and Heart Failure at Temple University Hospital in Philadelphia.

Dr. Sorrell joined the University of Kentucky Gill Heart & Vascular Institute in 2011 to establish the Advanced Cardiovascular Imaging (ACI) Program, which has since grown into a nationally recognized center for clinical care, research, and training. He holds the first and only Anthony N. DeMaria Endowed Professorship and just completed serving in the role as Chief of the Division of Cardiovascular Medicine.

Outside of work, Dr. Sorrell enjoys adventuring in nature with his family, photographing gorillas in Uganda, penguins in Antarctica, whale sharks off Mexico, hammerheads in the Galapagos, llamas in Peru, and sloths in Costa Rica. He finds joy in night snorkeling, cycling, and climbing Kilimanjaro with his son. Passionate about music, he plays piano and seeks out memorable venues and performances. His philosophy is "Tomorrow awaits!"

2026 Meritorious Service Award

Merri Bremer, EdD, RN, ACS, RDCS, FASE
Mayo Clinic
Rochester, Minnesota

Dr. Merri Bremer is the recipient of the **2026 Meritorious Service Award** in honor of her distinguished career as an advanced cardiac sonographer and educator, her exceptional service to ASE, and her significant contributions to the field of cardiovascular ultrasound.

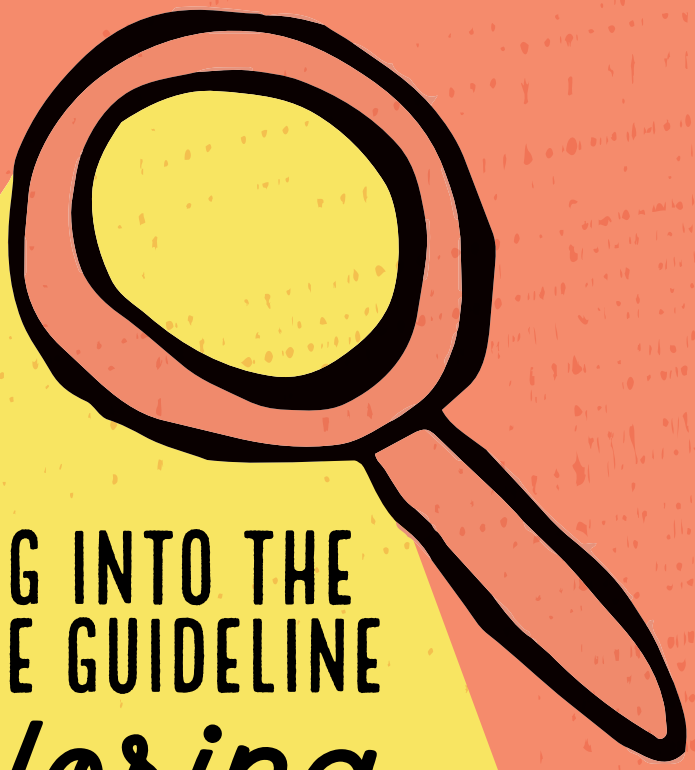
A member of ASE since 1995 and a Fellow since 2002, Dr. Bremer has dedicated more than three decades of service to the Society. Her many contributions include serving on the Board of Directors, JASE Editorial Board, and numerous committees. She was also a senior advisor for two ASE Leadership Academy cohorts and has contributed to multiple guideline writing groups. She currently serves as Chair of the ASE Education Committee and is a member of the ASE Foundation Board of Directors, the AI Curriculum Subgroup, and the CASE Editorial Board.

A longstanding and active contributor to ASE's Scientific Sessions, Dr. Bremer co-chaired the 2018 Scientific Sessions Program Committee and has previously served as faculty, abstract grader, and social media champion. She was previously recognized with the 2021 ASE Cardiovascular Sonographer Distinguished Teacher Award, the Brian Haluska Sonographer Research Award in 2021, and as the ASE Foundation's Most Generous Donor in 2024.

A respected leader in sonography, education, and quality, Dr. Bremer is also actively involved with many other professional organizations, including SDMS, IAC, JRC-DMS, and CCI, where she serves on the Board of Advisors. In these roles, she has helped shape educational standards, credentialing pathways, and quality initiatives for cardiovascular sonographers nationwide. Throughout her career, Dr. Bremer has developed more than 30 echocardiography and sonography courses and curricula, authored several journal articles, book chapters, and abstracts, and is a frequent lecturer at international, national, and regional meetings.

Dr. Bremer has spent the entirety of her professional career at Mayo Clinic in Rochester, Minnesota, where she began as a Registered Nurse in 1984 and trained as an RN sonographer in 1989. Today, she serves as the Program Director for the Mayo Clinic School of Health Sciences Advanced Cardiovascular Sonographer Program and as a Quality Improvement and Education Coordinator for the Mayo Clinic Rochester Echocardiography Laboratory. She is also an Assistant Professor of Medicine at Mayo Clinic College of Medicine and Science. Dr. Bremer earned her Bachelor of Science in Nursing from St. Olaf College, a Master of Education in Adult Education from the University of Minnesota, and a Doctor of Education from Saint Mary's University of Minnesota.

Outside of work, Dr. Bremer enjoys traveling, gardening, reading, music, and theatre.



DELVING INTO THE NEW ASE GUIDELINE *Exploring* "ACHILLES' HEELS"

Contributed by: ***Muhamed Saric, MD, PhD, FASE****, ASE Artifact Guideline Chair, Director, Noninvasive Cardiology, Professor of Medicine, New York University Langone Health, New York, NY and* ***Anita Sadeghpour, MD, FASE****, ASE Artifact Guideline Co-Chair, Associate Professor of Medicine (Cardiology), Georgetown University, Advanced Cardiovascular Imaging, MedStar Health, Washington, DC*

The newly published ASE guideline "Recommendations for the Identification and Mitigation of Cardiac Ultrasound Artifacts" is the first guideline on ultrasound artifacts to describe common artifacts across all echocardiographic modes, including two-dimensional, spectral, and color Doppler, ultrasound-enhancing agents, and three-dimensional echocardiography *(**Table 1**)*.

It is essential for anyone performing or interpreting cardiac ultrasound to be familiar with these common ultrasound "Achilles' heels" and their potential for misdiagnosis, which in some instances may lead to serious clinical consequences. For example: The reverberation artifacts (yellow arrows) arise from the pulmonary artery wall (white arrows) and might be misdiagnosed as type A aortic dissection shown in Figure 1A and 1B.

Notably, despite continued improvements in ultrasound imaging technologies, cardiac ultrasound artifacts remain common as they originate from the physical properties of ultrasound waves.

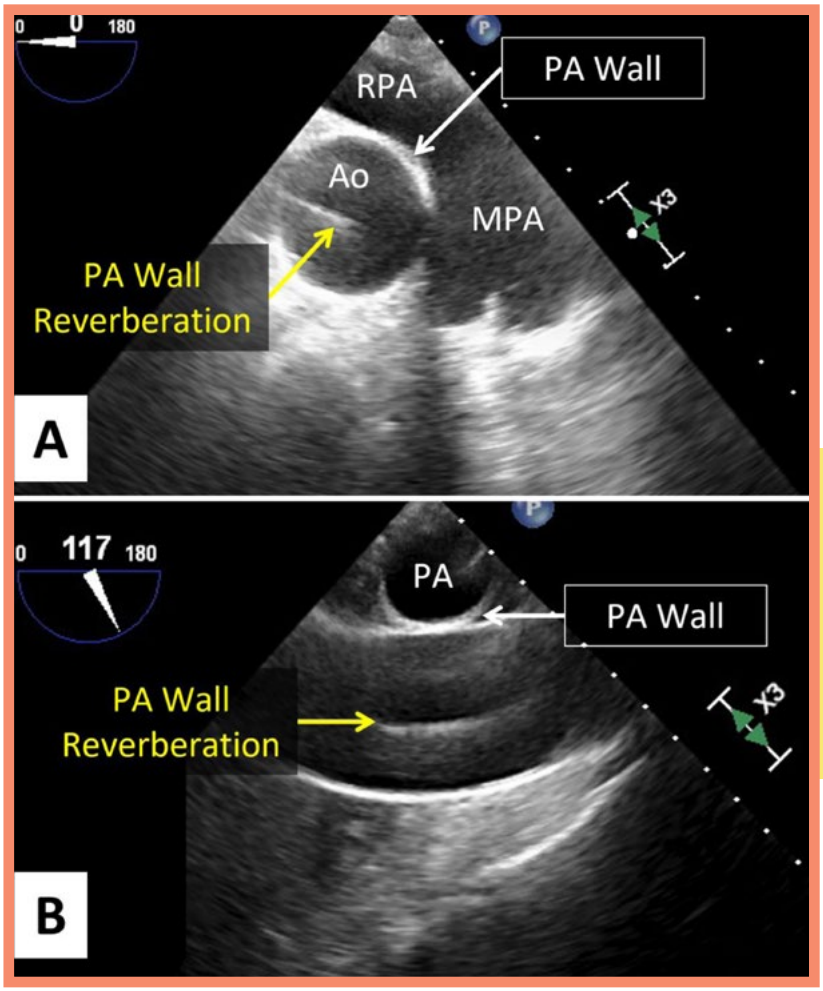


FIGURE 1 2D TEE, high-esophageal short-axis (panel A) and long-axis (panel B) views of the ascending aorta. Ao = aorta; PA = pulmonary artery; RPA = right pulmonary artery; MPA = main pulmonary artery. (Figure 4 from the guideline.)

	ARTIFACTS	ARTIFACT-LIKE PHENOMENA
2D IMAGING IN AXIAL DIRECTION	Simple Reverberation Artifact Complex Reverberation Artifact Mirror Image Artifact Acoustic Shadowing Acoustic Enhancement Speed Displacement (Propagation Velocity) Artifact	
2D IMAGING IN LATERAL DIRECTION	Refraction Artifact Beam Width and slice thickness Artifacts Side Lobe Artifact	
SPECTRAL DOPPLER IMAGING	Doppler Beam Width Artifact Tiger Stripes Artifact Mirror Image / Duplication Artifact Double Envelope Doppler Flow Pattern	Overgain and Undergain in Spectral Doppler Spectral Wall Filter Velocity Scale Error/Aliasing Noncoaxial Intercept Angle in Spectral Doppler Spectral Broadening / Transit time Effect Spectral Doppler Click
COLOR DOPPLER IMAGING	Acoustic Shadowing of Color Doppler Color Doppler Mirror Artifact Color Doppler Reverberation and Refraction Color Doppler Beam Width Artifact Color Doppler Side Lobe Artifact/Color Splay	Color Doppler Aliasing Color Doppler Blooming and “Twinkling”
3D ECHOCARDIOGRAPHY	Stitching (Reconstruction) Artifact 3D Dropout Artifact 3D Blurring and Blooming Artifact Shadowing and Reverberation Artifacts	
IMAGING WITH ULTRASOUND ENHANCING AGENTS	Attenuation Artifact UEA Shadowing Artifact	
	UEA Swirling	
	UEA Doppler Blooming	
MISCELLANEOUS	Artifacts Related to ultrasound Equipment and Devices	

▲ **TABLE 1** Classification of ultrasound artifacts or artifact-like phenomena

Ultrasound image generation is based on transmitting sound waves and receiving returning signals through a transducer with piezoelectric crystals. The ultrasound system has certain assumptions for image generation, and violation of one or more of these assumptions may result in image artifacts defined as features that do not accurately represent the true anatomy or pathology.

Additionally, other sources of ultrasound artifacts include equipment and devices, internal or external to the heart.

There are also useful artifacts that guide us to the pathology, serve as signs of the severity of the condition, or have prognostic importance. For example, Color Doppler Aliasing is beneficial for quantifying flow using the proximal isovelocity surface area (PISA) method ***(Figure 2)*** and the Color Doppler side lobe (splay) artifact can be an indirect clue to the presence of significant MR that might otherwise be underestimated ***(Figure 3)***.

This document provides a uniform, structured approach to managing ultrasound artifacts, including their appearance on images, real-world examples, the mechanisms behind their generation, their clinical impact on diagnosis, and how to avoid or mitigate them.

Some artifacts cannot be avoided or mitigated. However, recognizing the artifactual image from the actual image and identifying the source of the artifact are critical to avoid misdiagnosis or missing an important diagnosis.

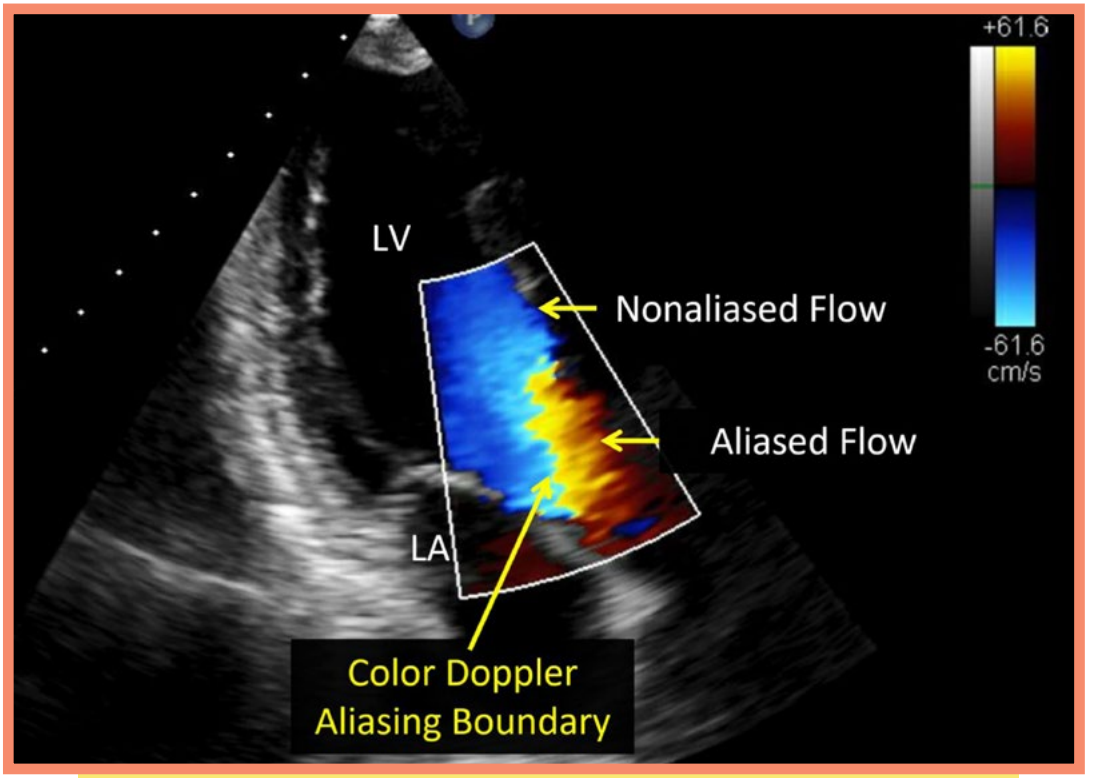
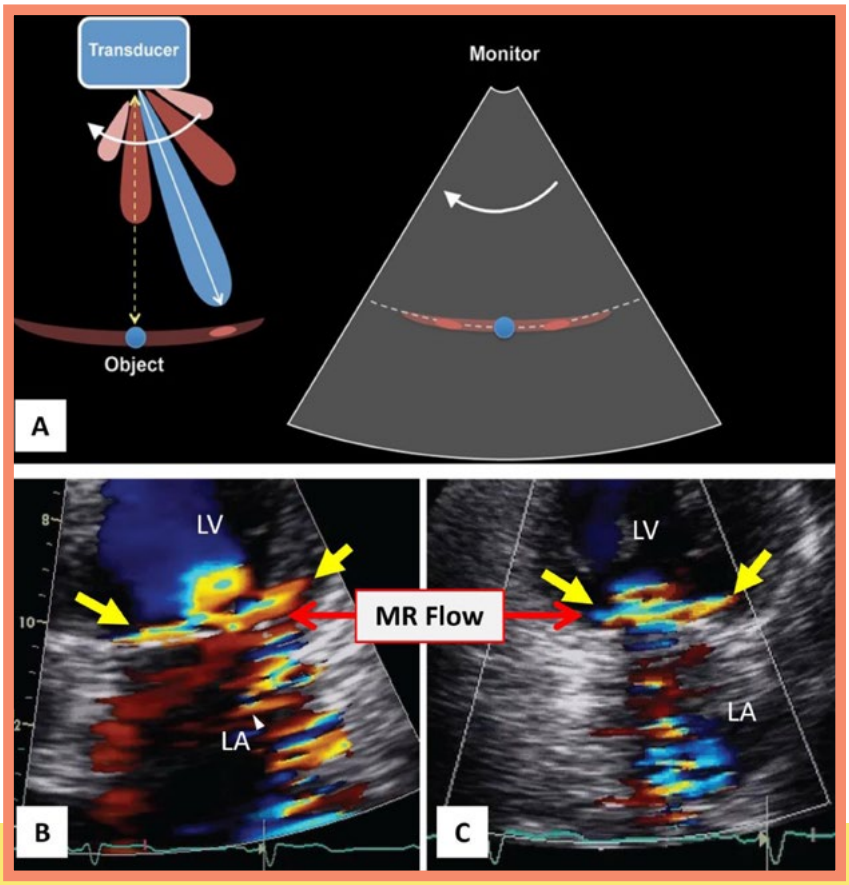


FIGURE 2 Color Doppler aliasing. Color Doppler study in TTE apical long-axis view demonstrates color Doppler aliasing in the LVOT when the velocity exceeds the Nyquist limit (in this case, 61.6 cm/s). LA, left atrium; LV, left ventricle; LVOT, left ventricular outflow tract. (Figure 31 from the guideline.)

We hope the readers enjoy the 44 images and 27 videos dedicated to cardiac ultrasound artifacts from real cases, along with animations of the mechanisms behind them.

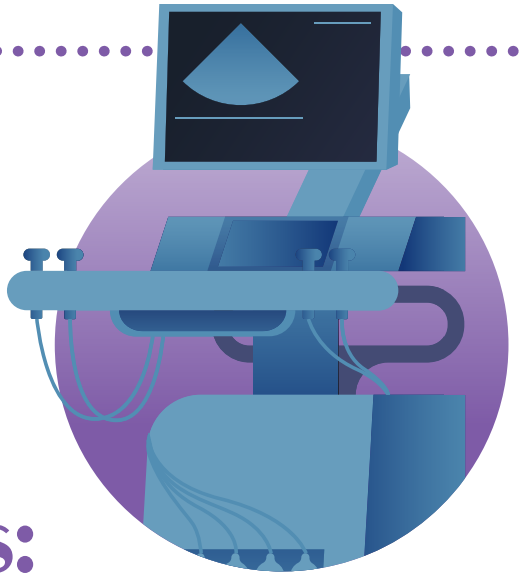
We would like to thank everyone who provided their expertise and guidance in developing this important document.

This document is dedicated to the memory of the late Drs. Roberto Lang and Robert A. Levine, esteemed friends, colleagues, and giants in cardiac ultrasound. They are deeply missed.



▲ **Figure 3** Color Doppler side lobe (splay) artifact. (A) Schematic explanation of how color Doppler side lobe artifact (splay artifact) is generated. While interrogating the imaging plane in a radial direction, the Doppler side lobe energy can encounter a jet with high Doppler power. The reflections of side lobe pulses are interpreted as if there is flow originating from the direction in which the transducer is aimed (central beam direction). As the ultrasound beam sweeps the image through the high-flow signal, the side lobes as well as the main lobe of the color Doppler beam are imaged as a linear "arclike" artifact of color Doppler on both sides of the higher power jet. (B) Two-dimensional TTE zoomed apical four-chamber view in a patient with ischemic MR showing the color Doppler side lobe artifact on both sides of the vena contracta (yellow arrows). (C) Two-dimensional TTE zoomed apical two-chamber view in the same patient demonstrates linear color Doppler side lobe artifact at the level of vena contracta like (B) (yellow arrows). The side lobe artifact is formed as an "arc-like" artifact at a constant distance from the transducer and makes it difficult to accurately measure the MR vena contracta. (Figure 30 from the guideline.)

(Table and Figures from Recommendations for the Identification and Mitigation of Cardiac Ultrasound Artifacts: A Guideline from the American Society of Echocardiography, published in the May 2026 Journal of the American Society of Echocardiography. Reprinted with permission from Elsevier Inc. on behalf of ASE.)



The New M-TEER Guidelines: A MILESTONE FOR INTERVENTIONAL ECHOCARDIOGRAPHY

The field of interventional echocardiography has experienced extraordinary growth over the past decade. As structural interventions have grown in complexity, the responsibilities of the interventional echocardiographer have expanded from image acquisition alone to real-time procedural guidance, communication, decision-making, and partnership in the Heart Valve Team.




*Contributed by **Nishath Quader, MD, FASE**, Division of Cardiology, Washington University St. Louis, St. Louis, MO; **Renuka Jain, MD, FASE**, Aurora St. Luke's Medical Center, Aurora, Milwaukee, WI; **Enrique Garcia-Sayan, MD, FASE**, Department of Medicine, The Texas Heart Institute at Baylor College of Medicine, Section of Cardiology, Department of Medicine, Houston, TX; and **Stephen H. Little, MD, FASE**, Houston Methodist Hospital, Department of Cardiology, Houston, TX*

Recognizing this transformation, the Interventional Echocardiography (IE) Council was established by the American Society of Echocardiography (ASE) to advocate for professional issues affecting interventional echocardiographers – including education, advocacy, reimbursement, training and competency ***(Figure 1*** the Interventional Echocardiography Council 2025 pictured with ASE President David Weiner). The current guideline published in June 2026, "*Guidelines for the Intraprocedural Imaging for Mitral Valve Transcatheter Edge-to-Edge Repair (M-TEER): Recommendations from the American Society of Echocardiography*," chaired by Stephen Little, MD, FASE and co-chaired by Nishath Quader, MD, FASE, represents an important milestone for the field and reflects the collective efforts of experts dedicated to standardizing imaging practice, improving procedural consistency, and defining best practices for contemporary interventional imaging (Little SH, Quader N, et al. J Am Soc Echocardiogr. 2026).

FIGURE 1 The Interventional Echo Council with ASE President Dr. David Wiener at the 2025 ASE Scientific Sessions.

Mitral valve transcatheter edge-to-edge repair (M-TEER) is the "OG" of structural procedures and is one of the most imaging-dependent procedures performed in cardiovascular medicine. For the IE, it is more than just understanding valve anatomy, but also the ability to manipulate echocardiographic images in real-time, anticipate procedural challenges before they occur, and communicate complex spatial information clearly and quickly. Despite the central role of imaging in procedural success, substantial variability remains across institutions in workflow, communication, and image acquisition. As procedural volumes continue to increase and more centers develop structural programs, the need for standardized, echo-specific guidance has become increasingly important. These recommendations help define a common language and establish a structured framework for intraprocedural imaging that can support both experienced and novice interventional echocardiographers. The guideline specifically emphasizes standardization of procedural workflows and communication between echocardiographers and operators as a central component of procedural success. We were honored that SCAI also endorsed this document, as M-TEER is a true partnership between echocardiography and interventional cardiology. The central illustration of the guideline ***(Figure 2)*** captures this evolution by highlighting the sequential imaging steps required to perform successful M-TEER and demonstrating how imaging has become deeply

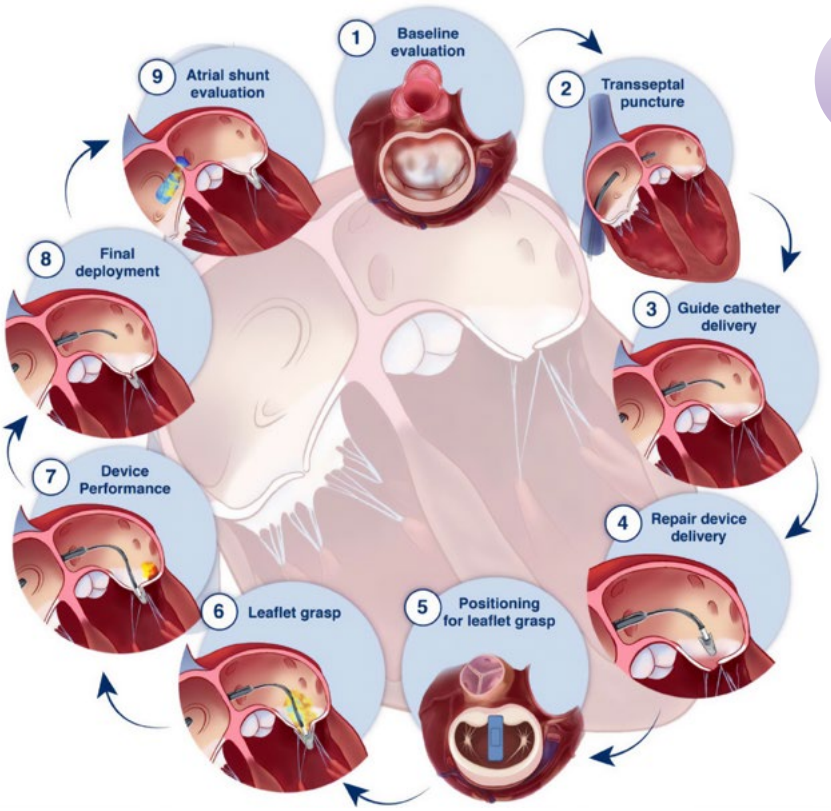


FIGURE 2 Summary of the recommended imaging steps for performance of M-TEER.

(This Central Illustration from Guidelines for the Intraprocedural Imaging for Mitral Valve Transcatheter Edge-to-Edge Repair (M-TEER): Recommendations from the American Society of Echocardiography, published in the June 2026 Journal of the American Society of Echocardiography, is reprinted with permission from Elsevier Inc. on behalf of ASE.)

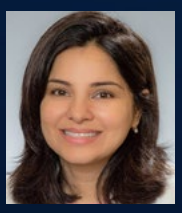
integrated into every stage of structural intervention.

Perhaps the most important theme emerging from this guideline is the recognition that contemporary interventional imaging increasingly depends on advanced imaging technologies that extend beyond conventional two-dimensional echocardiography. Three-dimensional imaging, multiplanar reconstruction (MPR), live volume rendering, and real-time spatial manipulation are no longer optional tools reserved for complex cases—they have become foundational components of contemporary M-TEER imaging. Throughout the guideline, the writing group repeatedly emphasizes how 3D imaging and MPR improve visualization of transseptal puncture, catheter trajectory, device orientation, leaflet grasp, and post-implant assessment. These technologies allow the interventional echocardiographer to move from isolated imaging planes toward comprehensive spatial understanding, enabling more precise communication and more reproducible procedural guidance. Importantly, these technologies are not presented simply as image enhancement tools; rather, they function as platforms for procedural decision-making and workflow optimization. The guideline repeatedly reinforces competency in 2D, 3D, and MPR imaging as fundamental to modern M-TEER performance and procedural success.

Beyond individual imaging recommendations, this document reflects something larger occurring within cardiovascular imaging: the maturation of interventional echocardiography into a discipline with its own competencies and standards. As structural heart interventions continue to evolve, imaging specialists increasingly serve not simply as procedural observers but as procedural partners. This guideline represents an important step toward creating greater consistency, improving communication across multidisciplinary teams, and ensuring that patients undergoing increasingly complex structural interventions benefit from standardized, reproducible, and high-quality imaging guidance. Ultimately, these recommendations help define not only how we image procedures today, but how the next generation of interventional echocardiographers will practice tomorrow.

INTEGRATING ARTIFICIAL INTELLIGENCE

IN ECHO LAB- CHALLENGES AND OPPORTUNITIES



Salima Qamruddin, MD, MPH, FASE
Vera Rigolin, MD, FASE
Ochsner Heart and Vascular Institute,
Northwestern University Feinberg School of Medicine

"THE PURPOSE OF AI IS TO AMPLIFY HUMAN INGENUITY NOT TO REPLACE IT"

- Satya Nadella

ARTIFICIAL intelligence (AI) applications in clinical echocardiography (echo) have arrived, suggesting reduced acquisition and processing times of echocardiograms, decreased variability of measurements, as well as early disease detection. Hence, there is great interest in exploring AI's full potential in the wake of projected shortage of cardiologists and sonographers in the United States.

However, achieving accurate and dependable AI tools in echo lab requires multicenter clinical trials- internally validating these AI models in a large diverse group of patients, followed by a robust external validation[6]. AI models rely on high quality measurements and images[8] (i.e., optimal endocardial border definition, non-foreshortening, appropriate gain settings, high fidelity measurements) to ascertain correct modeling data science[6]. Validating these measurements for cardiovascular outcomes will be crucial to build trust in AI driven measurements[7].

The current ASE guidelines on standardization of echocardiographic reporting[8], highlights these challenges. In addition to generating a standard report on cardiac structure and function including presence of implanted devices (valves, leads), these systems must highlight imaging and technical quality of the studies, presence of artifacts and disease processes, and flag studies that will need more extensive physician review.

Potential benefits of AI measurements on the cart include reduced acquisition time[1], less variability of cardiac chamber measurement and Doppler data[9], and automated measurement of strain and ejection fraction

(EF)[10], allowing sonographers to focus on optimizing images. This is crucial for further development of AI algorithms that **relies** on high quality labeled data fed to convolutional and deep neural networks for outputs. This iterative process will continue to enhance diagnostic accuracy of AI algorithms in echocardiography[9].

Learning from the prior automation on echo carts (auto EF and strain)[11], errors in measurement can be greatly amplified without oversight of tracked data. Hence, automated reporting of images by physicians will rely heavily on good image acquisition and oversight of tracked data by sonographers. Creating sonographer and physician education programs highlighting strengths (for e.g., pattern recognition, less variability, and reduced acquisition time), and weaknesses (for e.g., poor image quality leading to errors in tracking, drifting of AI models) of AI measurements on and off cart, will be crucial for this next era of echo laboratory operations and interpretation. It is also important to note that

Sonographer and physician oversight will continue to be crucial, and it cannot be overstated that AI techniques will augment but not replace human input.

we are only at the tip of the iceberg on the development and implementation of AI. More research and validation are still needed to ensure that AI tools are robust and accurate. Sonographer and physician oversight will continue to be crucial, and it cannot be overstated that AI techniques will augment but not replace human input.

As we move along, AI solutions have the potential to drastically improve the workflow and diagnostic accuracy of echocardiography provided the above challenges are well addressed.

REFERENCES

I. Olaisen S, Smistad E, Espeland T, Hu J, Pasdeloup D, Østvik A, Aakhus S, Rösner A, Malm S, Stylidis M, Holte E, Grenne B, Løvstakken L, Dalen H. Automatic measurements of left ventricular volumes and ejection fraction by artificial intelligence: clinical validation in real time and large databases. Eur Heart J Cardiovasc Imaging. 2024 Feb 22;25(3):383-395. doi: 10.1093/ehjci/jead280. PMID: 37883712; PMCID: PMC11024810.

2. Won D, Walker J, Horowitz R, Bharadwaj S, Carlton E, Gabriel H. Sound the Alarm: The Sonographer Shortage Is Echoing Across Healthcare. J Ultrasound Med. 2024 Jul;43(7):1289-1301. doi: 10.1002/jum.16453. Epub 2024 Mar 27. PMID: 38534218.

3. Khera R, Oikonomou EK, Nadkarni GN, Morley JR, Wiens J, Butte AJ, Topol EJ. Transforming Cardiovascular Care With Artificial Intelligence: From Discovery to Practice: JACC State-of-the-Art Review. J Am Coll Cardiol. 2024 Jul 2;84(1):97-114. doi: 10.1016/j.jacc.2024.05.003. PMID: 38925729; PMCID: PMC12204085.

4. Walensky RP, McCann NC. Challenges to the Future of a Robust Physician Workforce in the United States. N Engl J Med. 2025 Jan 16;392(3):286-295. doi: 10.1056/NEJMsr2412784. PMID: 39813651.

5. Won D, Walker J, Horowitz R, Bharadwaj S, Carlton E, Gabriel H. Sound the Alarm: The Sonographer Shortage Is Echoing Across Healthcare. J Ultrasound Med. 2024 Jul;43(7):1289-1301. doi: 10.1002/jum.16453. Epub 2024 Mar 27. PMID: 38534218.

6. Kagiyama N, Tokodi M, Hathaway QA, Arnaout R, Davies R, Dey D, Duchateau N, Fraser AG, Goto S, Jamthikar AD, Lam CSP, Oikonomou EK, Ouyang D, Pandey A, Poterucha TJ, Raisi-Estabragh Z, Strom JB, Zhang Q, Yanamala N, Sengupta PP. PRIME 2.0: Proposed Requirements for Cardiovascular Imaging-Related Multimodal-AI Evaluation: An Updated Checklist. JACC Cardiovasc Imaging. 2026 Feb;19(2):225-251. doi: 10.1016/j.jcmg.2025.08.004. Epub 2025 Aug 27. PMID: 40892627.

7. Lau ES, Di Achille P, Kopparapu K, Andrews CT, Singh P, Reeder C, Al-Alusi M, Khurshid S, Haimovich JS, Ellinor PT, Picard MH, Batra P, Lubitz SA, Ho JE. Deep Learning-Enabled Assessment of Left Heart Structure and Function Predicts Cardiovascular Outcomes. J Am Coll Cardiol. 2023 Nov 14;82(20):1936-1948. doi: 10.1016/j.jacc.2023.09.800. PMID: 37940231; PMCID: PMC10696641.

8. Taub CC, Stainback RF, Abraham T, Forsha D, Garcia-Sayan E, Hill JC, Hung J, Mitchell C, Rigolin VH, Sachdev V, Sengupta PP, Sorrell VL, Strom J. Guidelines for the Standardization of Adult Echocardiography Reporting: Recommendations From the American Society of Echocardiography. J Am Soc Echocardiogr. 2025 Sep;38(9):735-774. doi: 10.1016/j.echo.2025.06.001. PMID: 40912865.

9. Sahashi Y, Ieki H, Yuan V, Christensen M, Vukadinovic M, Binder-Rodriguez C, Rhee J, Zou JY, He B, Cheng P, Ouyang D. Artificial Intelligence Automation of Echocardiographic Measurements. J Am Coll Cardiol. 2025 Sep 30;86(13):964-978. doi: 10.1016/j.jacc.2025.07.053. Epub 2025 Sep 7. PMID: 40914895.

10. Nolan MT, Thavendiranathan P. Automated Quantification in Echocardiography. JACC Cardiovasc Imaging. 2019 Jun;12(6):1073-1092. doi: 10.1016/j.jcmg.2018.11.038. PMID: 31171260.

11. Smiseth OA, Rider O, Cvijic M, Valkovič L, Remme EW, Voigt JU. Myocardial Strain Imaging: Theory, Current Practice, and the Future. JACC Cardiovasc Imaging. 2025 Mar;18(3):340-381. doi: 10.1016/j.jcmg.2024.07.011. Epub 2024 Sep 11. PMID: 39269417.

From Fellow to Faculty: BUILDING CONFIDENCE IN INDEPENDENT ECHOCARDIOGRAPHIC PRACTICE

Erfan Alotaki, MD, FACC, RPVI
Cardiologist Rochester Regional Health (RRH) | Adjunct Clinical Assistant Professor of Internal Medicine & Cardiology at Lake Erie College of Osteopathic Medicine (LECOM) with a clinical focus on echocardiography and early-career physician education.

The first echocardiogram interpreted independently as a new attending carries a distinct weight. While image acquisition follows familiar protocols, the responsibility of final interpretation and signature introduces a new level of accountability, one that often feels markedly different from fellowship training.

Each year in the United States, approximately one thousand cardiovascular disease fellows complete training and transition into independent clinical practice. Regardless of whether they pursue general cardiology or subspecialty careers, most will continue to rely on echocardiography as a core diagnostic modality. For many, the shift from supervised interpretation to independent decision making represents a pivotal and sometimes challenging professional transition.

This article examines common experiences encountered during this transition and highlights practical strategies that may support early career cardiologists as they develop confidence, efficiency, and consistency in echocardiographic interpretation.

The Reality of Independent Interpretation

Consider a routine stress echocardiogram performed early in independent practice. The patient achieves adequate workload, contrast is utilized appropriately, and global systolic function appears preserved. Yet a subtle question arises: is there a true regional wall motion abnormality in the basal inferior segment? During fellowship, such uncertainty often prompted real time discussion with a supervising attending and shared interpretive decisions. In independent practice, however, responsibility rests entirely with the interpreting physician, a reality that can initially feel daunting.

These "gray zone" cases are not uncommon. Subtle or equivocal findings are a routine feature of echocardiographic practice. Early in one's career, repeated exposure to such cases without immediate external validation may lead to hesitation, second guessing, or repeated review of completed studies. While this response is understandable, it may reduce efficiency and contribute to the emergence of impostor syndrome, wherein competence is questioned despite adequate training and preparation.

Balancing Accuracy and Efficiency

One of the central challenges in early independent practice is finding the appropriate balance between accuracy and efficiency. Fellowship provides protected time for repeated image review and in-depth discussion, fostering skill development in a supportive environment. In contrast, early practice often involves higher study volumes alongside expanding clinical responsibilities.

Working more slowly may compromise productivity, while increasing speed may raise concern for missing subtle but clinically meaningful findings. This internal tension between thoroughness and efficiency can amplify self-doubt if not addressed intentionally.

The Value of a Systematic Approach

Adopting a consistent, systematic approach to echocardiographic interpretation can help mitigate these challenges. Structured, segmental review supported by mental or written checklists reduces cognitive load and promotes diagnostic consistency. Such an approach is particularly valuable in identifying less common but high impact pathologies, including aortic dissection, right ventricular strain suggestive of pulmonary embolism, loculated pericardial effusions, small apical thrombus, small vegetations, and intra- or extracardiac masses.

While this period may be accompanied by hesitation, it is not indicative of inadequacy, it is a fundamental stage of growth.

Standardization of image review not only enhances patient safety but also builds confidence and interpretive efficiency over time, even in high volume practice settings.

Normalizing Uncertainty and Collaboration

Equally important is developing a measured and appropriate threshold for uncertainty. Distinguishing findings that warrant further review from those within acceptable variability is a skill refined through experience. Early-career cardiologists should normalize seeking second opinions from colleagues and sonographers when appropriate. Collaborative review improves diagnostic accuracy, reinforces a culture of quality, and accelerates professional growth.

Over time, deliberate practice and collegial engagement allow efficiency to develop organically without compromising interpretive rigor or patient care.

Transitioning Into the Educator Role

Many new faculty members also assume teaching responsibilities early in their careers. Supervising trainees, providing real time feedback, and answering complex questions may feel challenging when one's own clinical confidence is still evolving. However, teaching can be a powerful mechanism for professional development.

Articulating interpretive reasoning, revisiting foundational principles, and explaining complex concepts reinforce core knowledge and reveal gaps that may otherwise remain unrecognized. In this environment, learning becomes bidirectional, benefiting both trainees and faculty while enhancing overall laboratory quality. Teaching thus evolves from an added responsibility into a central component of professional growth.

A Progressive Recalibration

The transition from fellow to faculty is not defined by an abrupt shift from uncertainty to mastery. Rather, it reflects a gradual recalibration of confidence, accountability, and professional identity. While this period may be accompanied by hesitation, it is not indicative of inadequacy, it is a fundamental stage of growth.

By acknowledging these challenges and adopting structured, collaborative approaches to practice, early-career cardiologists can refine their skills and grow into their roles with confidence. This evolution occurs incrementally; one image, one interpretation, and one teaching moment at a time.

FROM REGISTRY TO REALITY:

The Gap Between Passing Boards and Clinical Scanning

How sonographers grow from technical competency to clinical readiness in echocardiography

Passing boards mark a defining milestone in a sonographer's career, a testament to dedication, discipline, and the knowledge that anchors our field. Yet in echocardiography, it sparks a question we rarely voice: at what point does passing the boards truly translate into clinical readiness?

Desiree Lerma, BS, ACS, RCS, RVS
Advanced Cardiac Sonographer
Memorial Hermann Hospital - Center for Advanced Heart Failure | Houston, TX

Board examinations remain essential to the profession. They establish an important baseline standard and confirm that a sonographer has acquired core knowledge. However, readiness for practice is broader than knowledge alone. Wynne et al. (2024) found that readiness for professional practice is shaped not only by individual capability, but also by workplace context and educational provision. Confidence, communication, clinical exposure, teaching quality, mentorship, and the learning environment all influence whether a graduate is truly prepared to function effectively in practice.

That distinction is especially important in echocardiography, where technical skill and clinical judgment must work together in real time. Real-world readiness shows up in moments that are not always clean, predictable, or ideal. Even with exam knowledge an entry-level registered sonog-

rapher may know the correct answer on an examination and still feel uncertain when faced with a technically difficult patient, limited acoustic windows, a postoperative study with changing hemodynamics, specialty exams or findings that do not fully match the clinical picture. In those moments, the work is no longer about recall. It becomes about recognizing what matters, adapting the study appropriately, documenting limitations clearly, and escalating concern when needed. Readiness, therefore, is not simply the ability to pass a test; it is the ability to apply knowledge safely, consistently, and with clinical purpose (Wynne et al., 2024).

If we hope for sonographers to evolve into trusted clinicians, inspiring educators, supportive mentors, and future leaders, then that transformation cannot be left to chance. It must be crafted with intention and care.

COMPETENCY-BASED ORIENTATION

One of the clearest needs is competency-based orientation. Time-based orientation may be practical from an operational standpoint, but time alone does not guarantee readiness. Lee and Chiu (2022) note that assessments in competency-based education are intended to help learners progress developmentally, and that direct observation of performance provides stronger evidence of achievement than written examinations alone. This is particularly important in echocardiography as the field requires hands-on technical skill and real-time decision-making. Direct observation allows assessors to evaluate both procedural competence and clinical judgment, which written exams cannot fully capture. What ultimately defines readiness is not how many years have passed, but whether the sonographer can consistently obtain diagnostic images, follow protocol with intention, recognize significant findings, and respond appropriately when a study becomes more complex.

STRUCTURED PRECEPTORSHIP

This underscores the vital role of a well-structured preceptorship. Early clinical support should be more than a matter of chance or the presence of a seasoned sonographer. Phillips and Alsop (2025) revealed a clear gap between earning qualifications and achieving true proficiency, calling for stronger managerial commitment, formal processes, and practical tools to ease the transition and guard against burnout. Their research also shows that new sonographers need guidance in report writing, clinical reasoning, and building confidence, along with dedicated time for feedback and transparent tracking of progress. Ultimately, the journey from newly credentialed to clinically dependable sonographer is built on intentional structure, not hopeful assumptions.

FEEDBACK AS A DEVELOPMENT TOOL

Feedback forms the backbone of meaningful growth. New sonographers do not flourish on vague encouragement; they thrive when feedback arrives promptly, is precise, and rooted in what was actually seen. In echocardiography, this means not just knowing a view was incomplete or a measurement needs repeating, but grasping why these details shape the interpretation of the study and ultimately affect patient care. Here, routine practice transforms into genuine clinical insight.

Clinical readiness means recognizing that capturing images is always tied to the reason behind the exam. A technically sound study falls short if the sonographer cannot weave together the indication, the patient's story, and the findings that might shift the exam's direction in the moment. As this connection deepens, scanning gains intention, and the clinical question naturally steers focus, effort, and creative problem-solving.

The literature on sonography education echoes this philosophy. While credentialing is essential, building a clinically adept sonographer calls for a blend of assessment styles and guided practice that mirror the complexities of real-world patient care. This multifaceted approach, highlighted by Dunstatter's exploration of competency-based methods, ensures learning is both rigorous and relevant.

PROGRESSIVE CASE EXPOSURE

Gradually increasing case complexity is essential. Clinical judgment grows with repetition, but it truly flourishes through variety. Sonographers thrive when they encounter routine exams, technically challenging cases, urgent findings, postoperative changes, and situations that demand capable problem-solving. Wynne et al. (2024) highlighted that both clinical experience and the workplace environment are key to developing readiness. In echocardiography, this means that true readiness comes not just

from performing more scans, but from exploring a wider range of pathologies, embracing supported challenges, and steadily gaining confidence in handling intricate scenarios.

This is most evident when the unfolding study demands real-time adaptation. A sonographer might start with a routine scan, only to pivot quickly in response to suspected severe valve disease, surprising right-sided pressure overload, a sudden pericardial effusion, or postoperative findings that defy expectations. In these pivotal moments, growth is measured not just by capturing images, but by discerning clinical priorities, purposefully expanding the study, and voicing concerns with clarity and confidence.

DEPARTMENTAL CULTURE AND PSYCHOLOGICAL SAFETY

The culture within a department can be the difference between sonographers who truly trust their skills and those who simply look the part. When questions are unwelcome, silence settles in, but true preparedness does not. In contrast, an environment that encourages curiosity, open discussion, and constructive feedback helps new sonographers build sound judgment and grow into confident professionals. Wynne et al. (2024) highlighted that the quality of support in the workplace is key to readiness. This support is vital because new sonographers must understand that seeking clarification is essential for patient safety, not a mark of inadequacy.

BEYOND ORIENTATION: A PROFESSION-WIDE CONVERSATION

This conversation shines a light on the future of the profession. Echocardiography now calls for sonographers who are more than skilled image-capturers. The field needs professionals who elevate quality, inspire through education, mentor others, solve clinical puzzles, and help shape the future of echocardiography itself. That is why this discussion reaches far beyond orientation. It is not just about guiding a newly credentialed sonographer through their first months. It is about nurturing the kind of growth and development that empowers sonographers to step confidently into advanced roles as their careers unfold.

Clinical readiness blossoms through guided experience, competency-based assessment, structured preceptorship, meaningful feedback, progressive clinical exposure, and a workplace culture that invests in the future.

Passing the boards is a milestone worth celebrating. It stands as proof of sacrifice, discipline, and true accomplishment. Yet, it is also just the starting line. Clinical readiness blossoms through guided experience, competency-based assessment, structured preceptorship, meaningful feedback, progressive clinical exposure, and a workplace culture that invests in the future. The journey from registry to real-world practice is where technical skill transforms into clinical wisdom, and where a sonographer evolves from a capable scanner into a trusted clinical professional.

REFERENCES

Dunstatter, D. (2022). Competency-Based Assessment Methods in Adult Cardiac Sonography: Students' perceptions and Clinical evaluation. Journal of Diagnostic Medical Sonography, 38(3), 236–245. https://doi.org/10.1177/87564793211070234

Lee, G. B., & Chiu, A. M. (2021). Assessment and feedback methods in competency-based medical education. Annals of Allergy Asthma & Immunology, 128(3), 256–262. https://doi.org/10.1016/j.anai.2021.12.010

Phillips, R., & Alsop, S. (2024). Developing preceptorship programmes by exploring the needs of newly qualified sonographers through the lens of experienced ultrasound preceptors. Ultrasound, 33(1), 4–11. https://doi.org/10.1177/1742271x241249042

Wynne, K., Mwangi, F., Onifade, O., Abimbola, O., Jones, F., Burrows, J., Lynagh, M., Majeed, T., Sharma, D., Bembridge, E., Stubbs, M., Sunner, C., Bergmann, J., Bagade, T., & Malau-Aduli, B.

S. (2024). Readiness for professional practice among health professions education graduates: a systematic review. Frontiers in Medicine, 11, 1472834. https://doi.org/10.3389/fmed.2024.1472834

AUTHOR BYLINE

Desiree Lerma, BS, ACS, RCS, RVS, is an Advanced Cardiac Sonographer at Memorial Hermann Hospital - Center for Advanced Heart Failure in Houston, TX, with a professional focus on advanced cardiac imaging, sonographer development, mentorship, and clinical education.

KEYWORDS

clinical readiness; echocardiography; competency-based education; preceptorship; registry examination

MORE THAN CME: UNCOVERING THE DEEP VALUE OF LOCAL ECHO COMMUNITIES

Geetanjali Dang, MD, MS, FASE,
Baptist Health, Jacksonville, FL

The Northeast Florida Echo Society is a locally organized, not-for-profit society dedicated to advancing echocardiography education and professional development across the region. Its founding mission rests on two complementary goals: providing high-quality, accessible education to sonographers and cardiologists at all career stages, and cultivating a sense of community and professional belonging within the field. As the society has grown, understanding what members and attendees truly value has become essential to sustaining and expanding its impact. The Customer Value Interviewing (CVI) process provided a structured methodology to uncover these insights.

CUSTOMER SELECTION AND INTERVIEW DESIGN

Two laddering interviews were conducted with a cardiologist and a cardiovascular sonographer — the two primary professional communities the society serves. This pairing was intentional, as their perspectives on value, while often aligned, are shaped by meaningfully different professional contexts and career trajectories. Both participants had been involved with

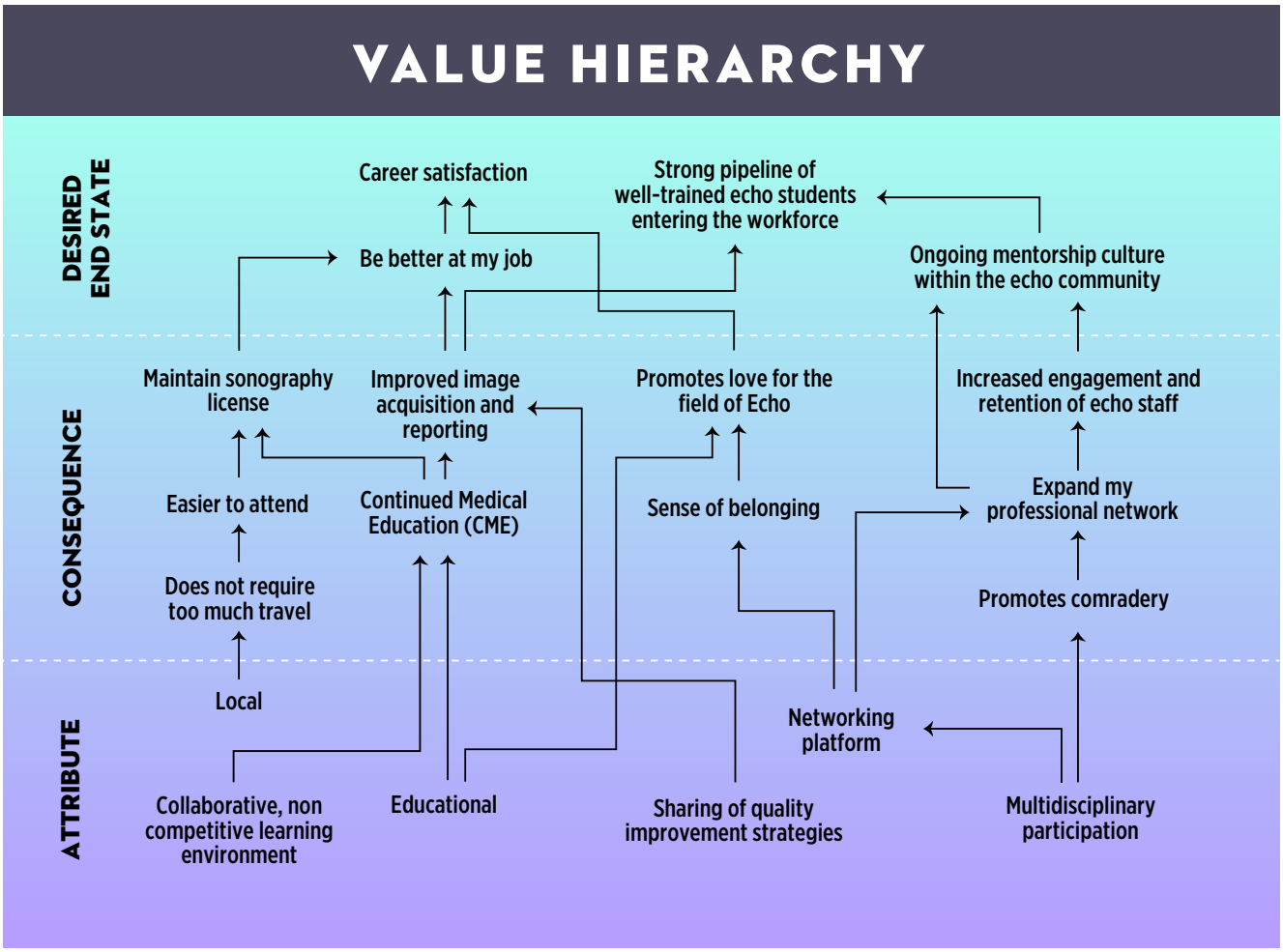
the society in multiple capacities, providing the depth of experience necessary to articulate not just surface-level preferences but underlying motivations and goals.

THE COMBINED VALUE HIERARCHY

The combined value hierarchy identifies six core attributes of the Northeast Florida Echo Society that customers identified as foundational to their participation. Probing each attribute upward revealed a rich set of personal and professional consequences — the intermediate outcomes that form the most diagnostically useful layer of the hierarchy. The laddering process revealed that all six attributes and their associated consequences ultimately converge on a few desired end states, all of which are directly aligned with the society's founding mission.

The hierarchy is distinguished by a pattern of both branching and merging that reveals the interconnected nature of the society's value proposition. The attribute of "Local" branched into two distinct consequences: it simultaneously makes meetings easier to attend and eliminates the burden of excessive travel — one logistical, the other economic. The attribute of "Multidisciplinary Participation" similarly branched: for the cardiologist, it laddered toward professional network expansion; for the sonographer, it laddered more powerfully toward sense of belonging and comradery. Preserving these branches illuminates how the same structural feature creates meaningfully different value depending on professional context.

The merging structure of the hierarchy is perhaps its most revealing feature. Multiple distinct consequences converge on a smaller number of higher-level outcomes, which ultimately merge at the desired end states. For example, improved image acquisition and reporting, CME, and sense



of belonging all contribute — through different mechanisms — to the end state of career satisfaction. This convergence confirms that the society's value is coherent: its various attributes do not produce scattered outcomes, but reinforce and amplify each other along shared pathways. Similarly, consequences related to staff engagement and love for the field of echo both ladder upward to a strong pipeline of well-trained practitioners and an ongoing mentorship culture, reflecting that the society's generative value is produced not just by educational content, but by the motivational and cultural environment it creates.

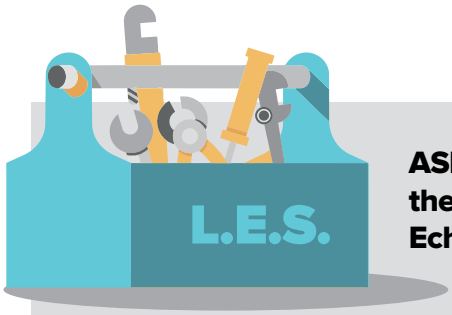
KEY IMPLICATIONS

The hierarchy reveals that the society's value is deeply personal and professional — not merely logistical. Members do not primarily attend because meetings are convenient or CME is offered; they attend because those features create consequences — growth, belonging, competency, connection — that contribute to outcomes they care deeply about: career satisfaction, professional identity, and the long-term health of the echo field. This distinction has direct implications for how the society is positioned, communicated, and designed.

The hierarchy also underscores the importance of the society's collaborative, non-competitive culture — an ambient characteristic that is easy to underestimate in planning but critical to the experience members value. This culture is not a product of any single program; it must be actively protected as the society grows. Both participants independently expressed a desire to see the society contribute to the preparation of the next generation of echo practitioners, positioning it as having a generative mission beyond individual benefit. Programming specifically designed to support students, early-career sonographers, and imaging fellows would directly serve this end state.

CONCLUSION

The Northeast Florida Echo Society's value hierarchy — structured around six core attributes, nine intermediate consequences, and four desired end states — confirms that the society is doing meaningful and resonant work. The society succeeds when it is simultaneously practical (local, accessible, CME-eligible), educational (improving clinical skills and image quality), connective (building networks, comradery, and belonging), and generative (mentoring the next generation and strengthening the echo community). These are not competing demands — the hierarchy shows they are deeply integrated, each reinforcing the others along converging pathways toward shared desired end states. This alignment between what customers articulated and what the society was designed to deliver validates its founding vision and provides a clear roadmap for continued development.



ASE is Proud to Announce the Launch of Our Local Echo Society (LES) Toolkit!

In collaboration with 10 LES leaders from across the country, ASE crafted this resource guide that includes the logistical components of forming a LES, ideas for building and engaging a membership base, and tips for hosting events, meetings, and conferences. Supplemental materials are also included and easy to customize to your LES needs.

Whether you're planning to establish a LES of your own or would like ideas on how to enhance your current offerings, this toolkit is a great place to start! In 2025, ASE created an online LES directory, began promoting LES events on our website, and started an online forum for ASE members who lead their LES. At the 2026 Scientific Sessions, ASE will be hosting our first-ever Local Echo Society Jeopardy with teams from across the United States.

ASE looks forward to continuing its collaboration with Local Echo Societies in the future. Please contact Caroline Ward if you have any questions or would like to learn more about this initiative.

Performing POCUS in rural Rwanda for a child in heart failure.

BRINGING ECHOCARDIOGRAPHY TO THE BOTTOM BILLION:

A POCUS-Based Model for Rural Global Cardiovascular Care

There is a growing cardiovascular disease burden in low- and lower-middle-income countries (LMICs). Yet for the world's poorest populations, the approximately one billion people living in extreme poverty, most of whom reside in rural areas in Sub-Saharan Africa and South Asia, access to cardiac diagnostics remains extremely limited. For many patients in these settings, echocardiography is not merely delayed—it is often unavailable. Cardiac disease frequently presents at advanced stages, commonly as heart failure, and at a younger age than typically seen in high-income countries. Rheumatic heart disease, congenital heart disease, cardiomyopathies, and hypertensive heart disease remain major causes of morbidity and mortality.

Dr. Sheila Klassen, Heart and Vascular Institute and Division of Global Health Equity, Mass General Brigham, Boston USA

The problem is closely tied to health systems structures. Cardiac diagnostics and cardiologist specialist care in many LMICs remain concentrated in urban tertiary hospitals, while the majority of the population lives in rural areas and receives care primarily at district hospitals or health centers. For rural patients, seeking care at tertiary centers may require traveling long distances, borrowing money for transportation, and losing a significant amount of income during travel and hospitalization. In many regions, health insurance coverage is minimal or nonexistent, and health systems struggle with fragile supply chains and limited equipment maintenance capacity.

If echocardiography is to meaningfully impact cardiovascular outcomes in LMICs, it cannot remain confined to urban echo laboratories. Instead, it must be reimagined as a bedside diagnostic tool integrated directly into routine clinical care in rural settings.

Why the traditional echo lab model does not translate

The conventional echocardiography model—dedicated echo laboratories staffed by sonographers and cardiologists—is largely infeasible across most settings in LMICs. While there are multiple reasons for this, the primary explanation is workforce disparities: the United States has roughly 100 cardiologists per million people compared to most African countries which have fewer than two cardiologists per million. These two cardiologists almost always live in the capital city and are essentially inaccessible to most of the rural poor. Across sub-Saharan Africa, the general physician-to-population ratio is approximately one physician per 7,000 people.

Cardiac sonographers, central to the echocardiography workforce in high-income countries, are even rarer. In many LMICs, dedicated sonographers exist only in a few private hospitals in major cities such as Nairobi, Lagos, and Cape Town.

The implication is clear: a system that depends on cardiologists or sonographers performing comprehensive echocardiograms cannot scale to meet the needs of rural populations – the billion or so rural people living at the bottom end of the global income scale. Instead, echocardiography in these contexts must be portable, simplified, and integrated into the bedside clinical assessment performed by the clinician caring for the patient.

Imagine living on $2 per day with highly unstable or informal income, experiencing signs and symptoms of heart failure, and contemplating traveling 100 miles on the back of a motorbike to the nearest tertiary care center to seek care.

Echocardiography as point-of-care ultrasound

Robust and affordable portable ultrasound technology has transformed what is possible in resource-limited settings. Handheld devices now allow clinicians to perform focused cardiac ultrasound at the bedside, even in facilities with very limited infrastructure.

Non-physician clinicians (general practitioners, clinical officers, physician assistants, and nurses with specialized training) can learn to obtain a limited set of echocardiographic views and recognize major structural abnormalities. Over the past decade, a growing body of research has demonstrated that non-physician providers can be trained to recognize rheumatic heart disease using focused echocardiography after only brief training (Beaton et al., 2012; Providência et al., 2024). Studies from multiple countries have shown that nurses, technicians, and community health workers can reliably detect pathologic mitral regurgitation and other hallmark findings of rheumatic heart disease with relatively short training programs, particularly when supported by standardized imaging protocols and ongoing mentorship.

The PEN-Plus strategy: decentralizing cardiac care

The most comprehensive operational model for decentralized cardiac care in low-income countries is the Package of Essential Noncommunicable Disease Interventions—Plus (PEN-Plus) strategy.

Training nurses and general physicians on handheld ultrasound use in rural Rwanda.

PEN-Plus was developed to address a major gap in global health systems: while primary care programs exist for common conditions such as hypertension, care for severe chronic diseases often remained accessible only at tertiary hospitals. PEN-Plus bridges this gap by bringing care for severe noncommunicable diseases, including advanced cardiac disease, to district-level hospitals, closer to where rural populations live (Klassen et al., 2024). Within this WHO-endorsed strategy, rural district or regional hospitals function as intermediate hubs between health centers and tertiary referral hospitals. PEN-Plus clinics manage multiple complex chronic diseases such as rheumatic heart disease, congenital heart disease, type 1 diabetes, and sickle cell disease using an integrated care delivery model.

A central component of PEN-Plus is task-shifting: targeted training of mid-level providers to perform diagnostic and management tasks traditionally performed by specialists. Echocardiography is incorporated into this model as focused bedside ultrasound performed by clinicians working within PEN-Plus clinics. Rather than relying on a separate echo laboratory, clinicians perform scans during routine patient care and integrate findings directly into management decisions.

This approach does not aim to replicate comprehensive echocardiography. Rather, it focuses on answering a small number of clinically relevant questions:

- **Is there severe left ventricular systolic dysfunction?**
- **Is rheumatic mitral stenosis present?**
- **Is there severe hypertension?**
- **Is there a loud murmur raising suspicion for congenital or valvular heart disease requiring referral to a cardiologist?**
- **Is there pericardial disease or isolated right heart failure?**

By focusing on broad categories of cardiac diagnoses common to these settings, clinicians can identify patients requiring treatment or referral to tertiary care even in the absence of advanced imaging.

Most importantly, PEN-Plus provides care that is integrated into the existing health system rather than implementing a vertical program for a single disease and provides social support and financial assistance for patients.

A simplified echocardiography protocol

To support training and implementation, PEN-Plus programs use a simplified cardiac POCUS protocol based on five core views: parasternal long axis, parasternal short axis, apical four-chamber, subcostal view, and inferior vena cava view.

These views allow clinicians to categorize patients into high-yield and common diagnostic categories most often seen in low-income settings: cardiomyopathy, rheumatic mitral stenosis, hypertensive heart disease, congenital or other valvular heart disease, isolated right heart failure, and pericardial disease (Mailosi et al., 2023).

Experience from rural programs, including a case presented at the ASE Scientific Sessions 2025 describing POCUS performed by clinicians in rural Rwanda (Klassen et al., 2022), illustrates how bedside ultrasound can provide access to cardiac diagnostics for patients who would otherwise have no access to echocardiography.

Building systems around bedside echocardiography

Implementing POCUS-based cardiac care requires more than distributing handheld ultrasound devices. Successful programs depend on multiple structural elements which include focused training in limited scanning protocols, ongoing mentoring relationships, clinical algorithms linking ultrasound findings to treatment decisions, and referral networks connecting district hospitals to tertiary cardiac centers.

Telecardiology platforms, cloud-based image upload systems, and handheld devices capable of secure image sharing allow clinicians in remote hospitals to transmit echocardiographic images for review by supporting local and international cardiologists. These systems enable remote mentorship to maintain diagnostic accuracy and provide continuing education to clinicians.

Despite years implementing this strategy, important challenges remain. Many portable ultrasound companies do not ship to, or provide technical support for, equipment used in LMICs. Staff turnover may require repeated training cycles, which is resource intensive. Internet connectivity may be unreliable, limiting telecardiology capabilities. Supply chains for cardiac medications and diagnostic equipment are often inconsistent, and referral pathways to tertiary care may be limited by geography and cost.

Despite these important barriers, the PEN-Plus experience of integrating focused echocardiography

Medson Boti, an experienced PEN-Plus clinician, training other clinicians on POCUS in rural Malawi.

into district-level care has demonstrated that meaningful cardiac diagnosis and management can occur far outside traditional echo laboratories.

Looking ahead

This experience of bedside POCUS in rural health systems in LMICs challenges traditional assumptions about how echocardiography must be delivered. In many settings, POCUS performed by clinicians is the only feasible approach to diagnosing structural heart disease.

Different health systems will require different echocardiography protocols, adapted to available workforce, system structure, resources, and disease patterns. Continued research and operational experience will be essential to determine how best to implement and standardize these approaches.

For members of the ASE, this work represents an important opportunity. As global leaders in echocardiography education, research, and guideline development, ASE members are uniquely positioned to help shape best practices for cardiac POCUS in resource-limited environments. By contributing expertise in training, protocol development, quality assurance, and mentorship, the echocardiography community can help ensure that this powerful diagnostic tool reaches patients far beyond traditional echo laboratories—including the bottom billion who live in the world's poorest and most remote regions.

ASE's POCUS Specialty Interest Group is focused on all of these goals. Learn more here.

Uploading POCUS studies to cloud storage in rural Malawi for later discussion.

REFERENCES

Collier, *P. The Bottom Billion: Why the Poorest Countries Are Failing and What Can Be Done About It*, Oxford University Press. 2007

Beaton, A., Okello, E., Lwabi, P., Mondo, C., McCarter, R., & Sable, C. (2012). Echocardiography screening for rheumatic heart disease in ugandan schoolchildren. Circulation, 125(25), 3127–3132. https://doi.org/10.1161/CIRCULATIONAHA.112.092312

Klassen, S. L., Dusingizimana, W., Ngoga, G., Kamali, I., Dusabeyezu, S., Ntaganda, E., & Kwan, G. F. (2022). Using Point-of-Care Ultrasound in Heart Failure Diagnosis and Management in Rural and Resource-Limited Settings. CASE, 6(6), 259–262. https://doi.org/10.1016/j.case.2022.04.012

Klassen, S. L., Okello, E., Ferrer, J. M. E., Alizadeh, F., Barango, P., Chillo, P., Chimalizeni, Y., Dagnaw, W. W., Eiselé, J. L., Eberly, L., Gomanju, A., Gupta, N., Koirala, B., Kpodonu, J., Kwan, G., Mailosi, B. G. D., Mbau, L., Mutagaywa, R., Pfaff, C., … Mocumbi, A. (2024). Decentralization and Integration of Advanced Cardiac Care for the World's Poorest Billion through the PEN-Plus Strategy for Severe Chronic Non-Communicable Disease. In Global Heart (Vol. 19, Number 1). Ubiquity Press. https://doi.org/10.5334/gh.1313

Mailosi, B. G. D., Ruderman, T., Klassen, S. L., Kachimanga, C., Aron, M. B., Boti, M., Kumwenda, K., Bukhman, G., Muula, A. S., Banda, N. P. K., & Kwan, G. F. (2023). Decentralized Heart Failure Management in Neno, Malawi. Global Heart, 18(1). https://doi.org/10.5334/gh.1210

Providência, R., Aali, G., Zhu, F., Katairo, T., Ahmad, M., Bray, J. J. H., Pelone, F., Khanji, M. Y., Marijon, E., Cassandra, M., Celermajer, D. S., & Shokraneh, F. (2024). Handheld echocardiography for the screening and diagnosis of rheumatic heart disease: a systematic review to inform WHO guidelines. In www.thelancet.com/lancetgh (Vol. 12). www.thelancet.com/lancetgh

CELEBRATING ASE LEADERSHIP ACADEMY COHORT 4 GRADUATES

The Class of 2026 shares their favorite quotations on leadership to commemorate their program experience and inspire future ASE leaders to apply for Cohort 5!

Madhav Swaminathan, MD, MMCi, FASE
Program Director of ASE Leadership Academy Cohort 4
Wake Forest University, School of Medicine,
Winston Salem, NC
Chair, Anesthesiology Department
Professor, Cardiothoracic Anesthesia, Anesthesiology

"I have always considered the issue of listening the most important for leaders. It is like the "duty factor" for ultrasound probes. Defined as the time spent sending a signal as a ratio of the time spent listening. For clinical ultrasound that is about 0.1% so the machine spends most of its time listening rather than sending a signal. We need to be like that- With a very low duty factor".

COHORT 4 GRADUATES

Alicia Armour, MA, ACS, RDCS, FASE

Duke Health

Practice Administrator

"Of all the skills of leadership, listening is the most valuable—and one of the least understood."

— Peter Nulty

Ingrid Moreno Duarte, MD, FASE

University of Texas Southwestern/ Children's Medical Center, Dallas, TX

Assistant Professor, Department of Anesthesiology and Pain Management

Program Director for the Pediatric Cardiac Anesthesiology Fellowship

Divisions of Adult and Pediatric Cardiothoracic Anesthesiology and Adult Critical Care Medicine

"There are opportunities that appear only once in life, and you have to take them, even with fear and doubt."

— Inspired by my father

Joyce Johnson, MD, MSCI, FASE

Johns Hopkins All Children's Hospital, St. Petersburg, FL

Associate Professor, Johns Hopkins University School of Medicine

Director, Fetal Cardiology

"Have your own style. Be a first-class version of yourself instead of a second-class version of someone else."

- Judy Garland

COHORT 4 GRADUATES

Karl Richardson, MD, FASE

Atrium Health Wake Forest Baptist, Winston Salem, NC

Director, Echocardiography and Stress Laboratory

"In almost all situations, we would do well to recognize the possibility–even probability–of good intent in others."

- Stephen Covey

Clara I. Angulo, MBA, ACS, FASE

Houston Methodist Hospital, Houston, TX

Advanced Echo Sonographer

"What would you do if you weren't afraid?"

-Sheryl Sandberg

Jeremy Slivnick, MD, FASE

University of Chicago Medicine, Chicago, IL

Assistant Professor

"Seek first to understand, then to be understood."

-William Covey

COHORT 4 GRADUATES

Lynsy Friend BS, ACS, RCS, FASE

Dartmouth Health, Lebanon, NH

Technical Director

"The more intentional you are about your leadership growth, the greater your potential for becoming the leader you're capable of being. Never stop learning."

- John C. Maxwell

Nishath Quader, MD, FASE

John T. Milliken Department of Medicine,
Washington University, St. Louis, MO

Professor of Medicine, Cardiovascular Division

"Leadership and learning are indispensable to each other."

–John F. Kennedy

Parag Tipnis, MD, FASE

University of Wisconsin, Madison, WI

Associate Professor of Medicine

Medical Director of Adult Echocardiography

Associate Chief, Ambulatory Cardiovascular Medicine Services

"A leadership journey is a marathon not a sprint!"

COHORT 4 GRADUATES

Sowmya Balasubramanian, MD, MSc, FASE

University of Michigan, C.S.Mott Childrens Hospital, Ann Arbor, MI

Clinical Associate Professor

"A shortcut is the longest distance between two points."

-Charles Issawi

Anisiia Crowley, MD, FASE

University of Cincinnati Medical Center, Department of Internal Medicine, Division of Cardiovascular Health and Disease, Cincinnati, OH

Associate Professor of Clinical Medicine

Medical Director, Echocardiography

"Great leaders are not defined by the absence of weakness, but rather by the presence of clear strengths."

-John Zenger

Kyle Lehenbauer, MD, FASE

Saint Luke's Mid America Heart Institute, Kansas City, MO

Assistant Professor of Medicine

"What you do has far greater impact than what you say."

—Stephen Covey

COHORT 4 GRADUATES

Betul Yilmaz Furtun, MD, FASE

Texas Children's Hospital, Baylor College of Medicine, Houston, TX

Associate Professor, Pediatrics-Cardiology

Medical Director, Fetal Cardiology

"We didn't come here just to grow ourselves—we came to become the kind of leaders who make growth possible for others. Lead authentically, embrace your own path, and trust your inner strength to shape your influence."

Vidhu Anand, MBBS, FASE

Mayo Clinic, Rochester, MN

Professor of Medicine

Consultant, Cardiovascular Medicine

"You are what you do, not what you say you'll do."

Andrew C. Peters, MD, FASE

Sidney Kimmel Medical College at Thomas Jefferson University, Philadelphia, PA

Assistant Professor of Medicine

Director, Advanced Cardiac Imaging, Cardiovascular Section

"If your actions inspire others to dream more, learn more, do more, and become more, you are a leader."

-John Quincy Adams

IMPORTANT INFORMATION FOR COHORT 5 APPLICANTS!

- The application window for Cohort 5 will open January 1, 2027, and close February 15, 2027
- Applicants must have a nomination letter from a current or past member of the ASE Board of Directors
- Cohort 5 of the Leadership Academy program will run from June 2027 to June 2029
- See additional FAQs on the ASE Leadership Academy website page

Professional Development Series

The Blueprint for a Great Presentation: FROM PREP TO PODIUM

Christina Fields, BS, ACS, RDCS, RDMS, RVT, FASE
Quality Assurance Heart and Vascular Sonographer at The Christ Hospital in Cincinnati, OH

Mentor Match Cohort 3 Mentor

As a sonographer, maintaining continuing education is essential to our growth. My foundational years in sonography school and in my early career both encouraged being an active member of organizations like ASE for advocacy and education. Through encouragement from my leaders, I was able to understand several new technologies in the field of echocardiography as each year progressed. During those early years, I would see different names or faces on guidelines and in webinars and would look up to them. As my "new sonographer" nerves wore off and confidence grew, I realized I had something to give back to my team, and I could be someone that fosters growth for others in this field.

Education at my own organization was achievable, and I volunteered to give a presentation covering work-related musculoskeletal disorders. Speaking wasn't something that came naturally, and I over analyzed every word and punctuation in my presentation. A misspelling or mispronunciation would make me feel like a failure. Thankfully, that fear of failure through imperfection was conquered, and after the presentation, I felt something electric. Ever since then, my professional growth continued and led me into a sonography leadership role focused on quality and education. Each opportunity I am given to educate others helps me grow as well. Being called upon to help spread education and advocate for sonography is one of the biggest honors I have had. Being a member of ASE has allowed me to grow as a sonographer in more ways than I ever anticipated. I strive to keep our values strong and grow this community. This growth came from encouragement from others and the belief that I, too, could be the person whom other sonographers listen to and feel inspired by.

Speaking in the sonography field can occur in many different avenues. If your organization doesn't have established educational opportunities or a clinical ladder, lunch is a great time to practice your presentation skills with your team. Presenting at your local sonography schools, societies, or to fellows in training is another option to consider. Even if you don't think you have something major to share, you can champion the next generation of sonographers through speaking at career-focused events. Submitting abstracts at local symposiums or ASE Scientific Sessions are wonderful ways to get your foot in the door at a more national level.

Deciding on a topic is also a big consideration. I find that presenting on a subject I'm passionate about is always the best topic. At the beginning, you might not feel like an expert, but don't let that stop you. Chances are, if there is something you do not fully understand or you think a case is interesting, someone else likely feels the same way. Even if you are not initially an expert on a topic, you will be after spending time researching and organizing your presentation.

To get started, here are some tips to present like a professional!

- Have clear objectives and ensure you have met them during your presentation.
- When finding resources, keep things organized. This will help you when citing your references later. If your organization has a library, ask them for help.
- Pay attention to what you liked from other presentations. What held your focus? Was it their tone, their images, their engagement? Incorporate those aspects into your own presentation to enhance your "voice."
- Don't read word for word from your

presentation. Keep some things out to share, so your audience stays engaged. Presentation notes are helpful to keep from reading word for word. Printing these notes ahead of time is helpful if you don't have presenter mode.

- Know your time limit. Each slide will be about one minute of talking depending on your cadence. An hour talk might be 45-60 slides. Have time for questions.
- Respect HIPAA and sonographer autonomy when sharing images.
- Engage with the audience by asking them questions. If you have a case you are presenting, ask them what they see before diving in.
- Practice your presentation to yourself, to your friends, and to your family. The more you recite the presentation, the more seamless presenting will go. This will help you identify errors and allow you to fly through complicated words flawlessly.
- Be prepared ahead of time with how your presentation is being shared. Some organizations have technical limitations due to advanced security with certain e-mail access, file sizes, and dropboxes. Don't wait until the last minute to figure this out. Having a backup flash drive is helpful in a pinch.
- Acknowledge those who helped you. Everybody appreciates a shoutout!
- Have water handy if it's a long presentation.
- After your presentation, breathe! You did it. You did something incredible. Take any constructive feedback you receive for potential growth. If there was a way you wanted to phrase something or a little tidbit you forgot to share, it will be okay. Presentations seldom go exactly how we expect them to in our heads. Celebrate the experience and allow the version you presented to shine, too!

Bonita Anderson, MSc, AMS, DMU (Cardiac), ACS, FASA, FASE
Sonographer and Educator at The Prince Charles Hospital, Senior Lecturer and Advanced Cardiac Scientist at the Queensland University of Technology in Queensland, Australia

Leadership Academy Cohort 4 Session Facilitator

FINDING your unique presentation style is a personal, evolving journey—one that Christina Fields beautifully describes as being shaped by experience, confidence, and vision. Ultimately, a high-impact PowerPoint (PPT) is less about the slides themselves and more about the strategy behind them. Think of it as an iceberg: the 20-minute delivery is merely the visible tip, while the massive bulk of research, planning, creation, reflection, and rehearsal lies beneath the surface.

1. The Building Blocks

A standard presentation consists of six core sections. However, you don't need to build them in order.

- **The "Easy Wins":** Title, Disclosures, and Acknowledgements. Start here to build momentum and to help get in the "zone."
- **The "Heavy Lifting":** The Body, Learning Objectives, and Take-Home Messages.
- **Tip:** Draft the Body first, then write your objectives and take-home points to ensure your goals and your conclusions are perfectly aligned.

2. The Preparation Phase

Mark Twain once said, *"It usually takes me more than three weeks to prepare a good impromptu speech."* For a 20-minute PPT, the same rule applies—what appears effortless is often carefully prepared over considerable time.

- **Research & Strategy:** Dedicate thought time to fact-gathering and content planning before you even open PPT.
- **Technical Mastery:** Explore resources like Leila Gharani's YouTube channel for advanced PPT tips (special thanks to Prof. Greg Scalia for introducing me to this channel and for many more PPT tips & tricks).
- **AI Coaching:** Use the "Rehearse with Coach" feature in PPT. It provides real-time feedback on your pace, pitch, and use of "filler" words, followed by a detailed improvement report (special thanks to Dr. Madhav Swaminathan for introducing me to this tool).
- **Avoid "Death by PPT":** Google "Quite Possibly The World's Worst

PowerPoint Presentation Ever" to learn exactly what mistakes to avoid when creating your PPT presentation.

3. Pre-Event Readiness:

Technical preparation safeguards your effort. Don't leave your success to chance.

- **The Speaker Ready Room:** If available, visit early to check file formatting and video playback with the expert A/V staff.
- **Triple Backup:** Save your presentation in three places: a USB drive, the Cloud, and your local hard drive - to safeguard against "Tech Gremlins".
- **The "Check-One-Two":** Visit the stage before your session starts. Check the microphone, ensure your fonts are legible from the back row, and—most importantly—confirm that your videos play!

4. Delivery & Discussion:

- **Talk *With*, Not At:** Treat the session as a conversation rather than a broadcast. Scan the room and engage the audience.
- **Respect the Clock:** Staying within your allocated time is the highest form of respect for your audience and fellow speakers.
- **Master the Curveball:** During Q&A, listen actively and keep answers concise. If you don't know an answer, bridge to your relevant expertise: *"I don't have that specific data on hand, but what I can tell you is..."*

Ultimately, a great presentation isn't just about perfectly polished slides. It's about the work you do before stepping on stage. When preparation, clarity, and connection align, you aren't just 'giving a talk'; you're creating a moment where your passion meets their curiosity, and that is where real learning happens.

MY TOP 10 TIPS FOR SUCCESS

#	TIP	STRATEGY
1	The 30:1 Rule	For every 1 minute of your talk, dedicate at least 30 minutes to preparation. Remember the iceberg: quality is built "under the waterline" during research and planning.
2	Define your "One Thing"	Every presentation should have a single, focused goal. If the audience remembers nothing else, what is the one message they must take home?
3	Design for Simplicity	Choose a clean, consistent slide design. Your slides should support your words, not replace them.
4	Build a Logical Flow	Stick to a clear roadmap: Intro → Body → Conclusion.
5	Prioritize Visuals	Use high-quality images; keep text minimal and large.
6	Rehearse Aloud	Don't just read your notes/slides silently. Practicing out loud is the only way to find your flow. Use "Rehearse with Coach" in PPT to track your pace, filler words ("um," "ah"), and pitch.
7	Engage the Room	Don't just broadcast - interact. Scan the whole room (don't forget the back corners) and encourage interaction (ask the audience what they see).
8	Master Tone & Texture	Vary your pitch and use deliberate pauses after an important point to let the information sink in.
9	Respect the Clock	Never run over your allotted time. Staying on time is a sign of professionalism. It shows respect for the audience, the organizers, and the speakers following you.
10	Command the Q&A	Anticipate questions, listen carefully and answer with composure. If you get a curveball, bridge back to your expertise.

Disclosure: The ideas and information in this piece are my own; Google Gemini was used as a collaborative tool to assist in the final composition.

IMPORTANT DATES AND ANNOUNCEMENTS

- Cohort 4 of the ASE Leadership Academy graduates in June! Cohort 5 applications open in January 2027.
- Cohort 4 of Mentor Match applications are closed. The next application cycle will open fall of 2026.
- Visit the ASE Learning Hub to watch the new Leadership Academy "Presenting like a Pro" webinar.
- Do you have a story to share that relates to professional development? Submit this form for a chance to be featured in an upcoming edition of the Professional Development series.

ECHO

ASE'S MISSION

To advance cardiovascular ultrasound and improve lives through excellence in education, research, innovation, advocacy, and service to the profession and the public.