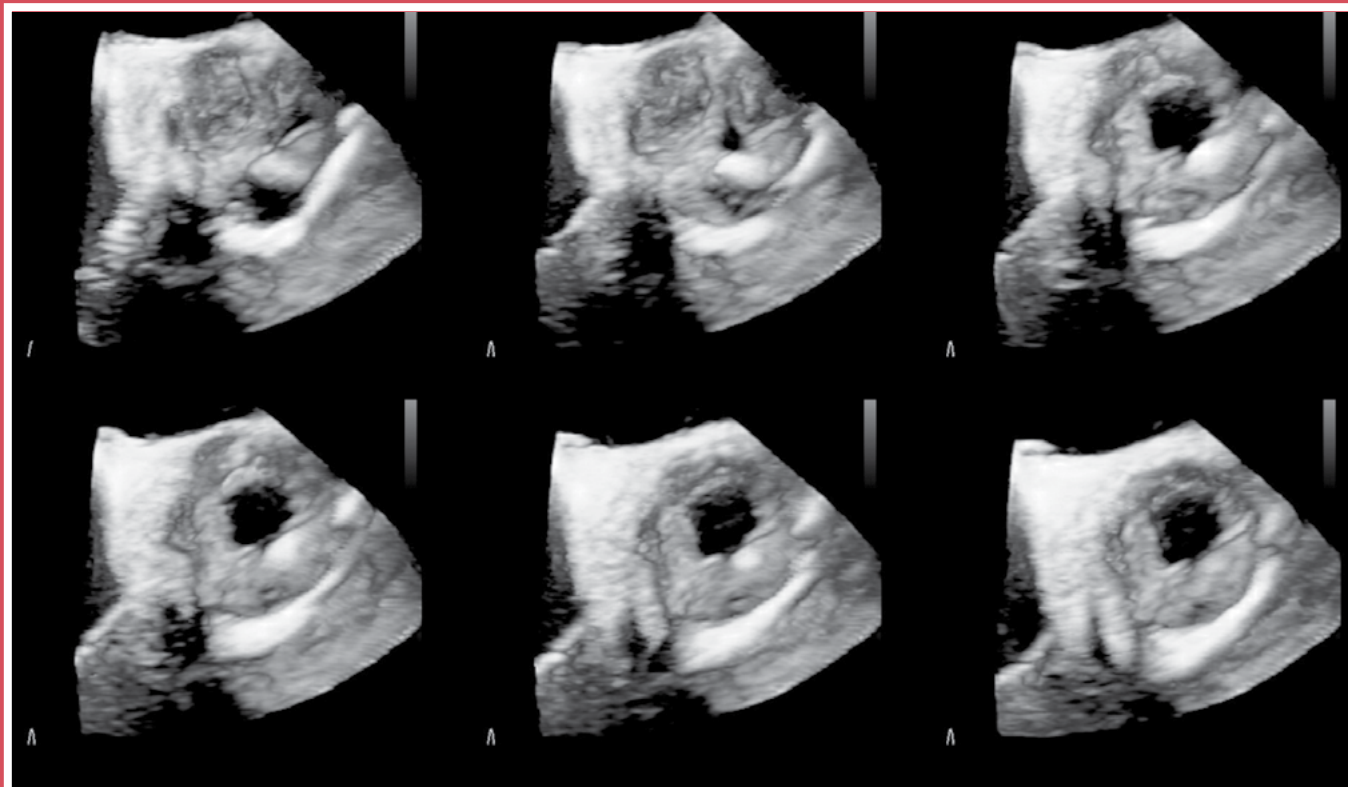


ECHO



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2023 EDUCATION CALENDAR

CONTENT AVAILABLE NOW

Advanced Echo: Echo Access Online Course

Featuring the best content from Echo Hawaii and State-of-the-Art Echocardiography

Jointly provided by ASE and the ASE Foundation

Registered Physician in Vascular Interpretation (RPVI) Online Review Course

An overview of all vascular imaging modalities for board review, introductory learning, or as a review for experienced imaging readers

SEPTEMBER

Echo in Pediatric & Congenital Heart Disease: Echo Access Virtual Experience

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OCTOBER

11th Annual Echo Florida

October 7-9, 2023

*Disney's Yacht & Beach Club Resort
Orlando, FL*

Jointly provided by ASE and the ASE Foundation

Hoag 37th Advanced Echo Symposium

October 20-21, 2023

Provided by Hoag Memorial Hospital Presbyterian
in cooperation with ASE

NOVEMBER

Critical Care Echocardiography Review Course

November 14-16, 2023

*OLC Education & Conference
Center, Rosemont, IL*

Held in Partnership with SCCM and ASE

JANUARY 2024

SAVE THE DATE:

33rd Annual Echo Hawaii

January 15-19, 2024

*Fairmont Orchid, Kohala Coast,
Big Island, HI.*

Jointly provided by ASE and the ASE Foundation

FEBRUARY 2024

SAVE THE DATE:

36th Annual State-of-the-Art Echocardiography

February 9-12, 2024

*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**.

This text also appears in the August JASE.
OnlineJASE.com

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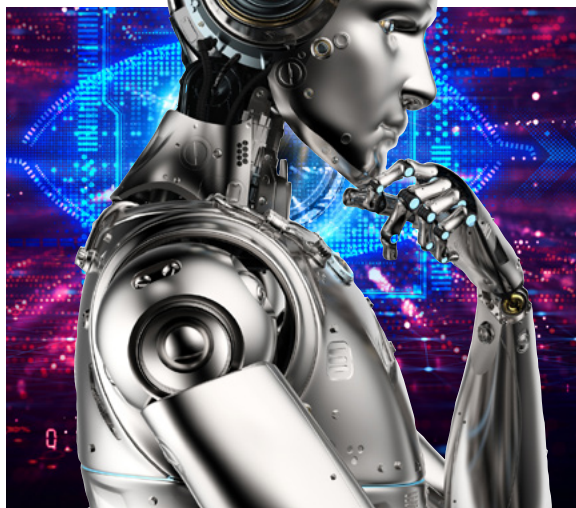
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American Society
of Echocardiography

Cover art: "Unicuspid Aortic Valve Unicorn"
John Goodman, RDCS, RVT, The Christ
Hospital, Cincinnati, Ohio

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.

OPPORTUNITIES FOR PARTICIPATION AT ASE: TIPS FOR SUCCESS

Contributed by **Benjamin W. Eidem, MD, FASE**, Director of Pediatric and Congenital Echocardiography, Mayo Clinic and Professor of Pediatrics and Medicine at Mayo Clinic College of Medicine, Departments of Pediatrics and Cardiology, Rochester, MN

“

I thought it would be helpful to remind our members about the depth and breadth of our committees and task forces with hopes of enabling you to position yourselves to participate and excel in these opportunities.”

It was one of my highest honors as incoming president of ASE to appoint members of our Society to vacancies in our committees and task forces. As I previously elaborated upon in my initial President's Message in the July issue of JASE and Echo magazine, one of my primary focuses for this year will be on our membership. I thought it would be helpful to remind our members about the depth and breadth of our committees and task forces with hopes of enabling you to position yourselves to participate and excel in these opportunities. To do so, I will present **ten tips** to hopefully make each of you a successful candidate for these various roles in our Society.

1. Review the Current Committees and Task Forces at ASE

The best way to participate at ASE is to have a working knowledge of our various committees and task forces. This can be facilitated by reviewing these on our [ASE website](#). You will find the various responsibilities and charges for each committee and task force listed to give you insights into what each committee or task force does at ASE. The current updated membership of each committee and task force is also provided which enables you to communicate with these members to get a better “feel” of their specific committee or task force responsibilities.

2. Be Flexible in Your Initial ASE Participation

One of the great things about ASE is the ongoing opportunity to serve in many diverse committees and task forces over your years of

membership. You may feel that some committees and task forces may not be in your ideal skill set or area of interest; however, every committee or task force will afford you the chance to get a wider vision of ASE as well as to network with other members along with the leadership of those committees. Over my years at ASE, I have served on numerous committees and task forces, and I believe that each of these opportunities gave me a much better appreciation of what our Society is all about.

3. Be Ready and Stay Informed

While most committee and task force assignments begin after our annual Scientific Sessions, there continue to be additional opportunities for participation throughout each year. Many of these may be ideal for you. So, stay informed on Connect@ASE and [Echo magazine](#) as well as other social media posts from ASE detailing these opportunities.

4. Apply for FASE

It is a distinct honor and privilege to be a fellow of our Society! I would highly encourage each of you to review the FASE criteria and application process on the [ASE website](#). When it comes to committee and task force assignments, being FASE is a distinct advantage because it demonstrates your commitment to ASE and volunteers holding the FASE designation are placed first. I would love to have the year of my presidency have the highest number of new FASE members – so please let me know how I can help you to achieve this wonderful distinction in our Society!

5. Be Patient

One big piece of advice from my own experiences at ASE is to have patience in your desire and expectations to participate in our committees and task forces. I view my participation at ASE as a journey. Over my 25 years of ASE membership, there have been many committees and task forces that I was interested in; however, for many of these, I often needed to wait a year or two to be assigned to that

opportunity. We often have more volunteers applying than we have open placements. So, view your membership participation at ASE as a journey and be patient for opportunities because they will certainly come!

6. Consider Participation in All Areas of ASE

In addition to committees and task forces, there are many additional areas to consider for participation at ASE. ASE has [six councils](#) (steering committees), including Cardiovascular Sonography, Circulation & Vascular Ultrasound, Pediatric & Congenital Heart Disease, Perioperative Echocardiography, and our two newest additions, Interventional Echocardiography and Critical Care Echocardiography. Each council has its own governance with several at-large positions available each year. In addition, each council has various opportunities for member participation including their own task forces, podcasts, writing groups, webinars, and other council-specific activities. Utilizing council participation is a great step to other areas of ASE service.

In addition to committees, task forces, and councils, there are many additional areas at ASE for our members to make a “splash.” Be an ASE social media champion on Twitter. Participate in ASE webinars or our live courses, including the Scientific Sessions. My initial participation in our Society was the presentation of a scientific abstract at the Scientific Sessions, and this experience ignited my desire to make a difference in our Society. [Specialty interest groups](#) (SIGs) also provide an avenue for participation and collaboration. Current SIGs include Emerging Echo Enthusiasts, Cardio-Oncology, Neonatal Hemodynamics TnECHO, and Veterinary Medicine.

“One big piece of advice from my own experiences at ASE is to have patience in your desire and expectations to participate in our committees and task forces.”

Participation in educational areas of our Society is also an incredible opportunity and experience including product development, live courses, review courses, and webinars.

7. Participate in the ASE Foundation

The [ASE Foundation](#) (ASEF) is a wonderful place to become involved at ASE. Global outreach has been a very meaningful and rewarding experience for many members of our Society. Travel grants and scholarships within ASEF enable many members to attend the Scientific Sessions and other activities. Funding scholarly research is a wonderful mission of ASEF that enables many early career, as well as seasoned investigators in our Society, to fund their important research efforts. The ASEF also has its own Board of Directors with several at-large positions available. Finally, we can all participate in our Society through philanthropy and giving to the ASEF to enable all their fruitful efforts to continue.

8. Publish Your Important Work in Our Flagship Journals: JASE, CASE, and Echo magazine

In addition to abstract submissions at the Scientific Sessions, ASE journals offer a diverse opportunity for our members to submit and publish their work. Each journal has a distinct “flavor” in their type of content which is ideal for all our members to have a choice for their submissions. I will highlight each of these journals in a future President’s Message.

9. Explore Micro Volunteer Opportunities at ASE

The advent of micro volunteer opportunities at ASE began under the leadership of our past president Ray Stainback. These opportunities are ideal for all members who want to start “small,” with a limited time commitment needed for participation, but enable members to dream “big” for future leadership opportunities in our Society. These can be experiences like product reviews, taking surveys, reviewing articles, etc.

10. Be a Local Liaison for ASE

Local echo labs and echo societies are foundational to ASE. Being an ASE liaison in your echo lab or local echo society extends the reach and emboldens the mission and strategic reach of our Society. ASE has partnerships with over 70 labs and echo groups. Your advocacy efforts at the local, state, and regional level also can play an enormous role in the future of echocardiography as a specialty as well as ASE as a Society.

In summary, ASE is truly the home for all users of ultrasound. We are very fortunate to have an amazing number of very talented members in all areas of our Society. It is my hope that each of our members can find their ideal areas of participation at ASE that can enable and advance their individual career goals as well as facilitate meaningful interactions with many colleagues in our Society.

*This text also appears in the August JASE.
OnlineJASE.com*

Benjamin W. Eidem,
MD, FASE
ASE President



Sonographer

VOLUNTEER OF THE MONTH-AUGUST

Congratulations

Megan Yamat, RDCS, RCS, ACS, FASE

University of Chicago Medical Center



When and how did you get involved with cardiovascular ultrasound?

Growing up in a medical household made it clear to me at a young age that I wanted to work in the medical field. I initiated my career with a nursing major, however, shortly into the program I realized that it wasn't the path I wanted to take. My mother, who immigrated to this country at age 23 due to the nursing shortage of the 70s, introduced me to the field of echocardiography.

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

I currently work at the University of Chicago Hospital as Lead Advanced Sonographer and Clinical Educator. My passion lies in performing clinical scans and educating sonographers and fellows. Working here at the University of Chicago provides me with the opportunity to utilize my ACS credentials by having the ability to jointly function as an advanced sonographer as well as be utilized as a resource for junior sonographers.

When and how did you get involved with the ASE?

In 2013 I submitted a clinical case study abstract for the ASE Scientific Sessions, and to my surprise it was accepted for the Clinical Cases Competition. I was absolutely astonished that my first submission

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I volunteer for ASE because as an organization ASE provides education and endless opportunities for career growth to both sonographers and physicians.

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The evolution of echocardiography has occurred rapidly and the possibilities for advancement are endless. I look forward to being a part of the future of echocardiography.

would turn into my first time presenting at a national conference. This case was definitely a breakthrough for my career because it motivated me to teach tricuspid valve leaflet anatomy on transthoracic echo. Over the years, I continued down the research path and am blessed to work side by side with one of the greatest mentors, Dr. Roberto Lang.

Why do you volunteer for ASE?

I volunteer for ASE because as an organization ASE provides education and endless opportunities for career growth to both sonographers and physicians. I am happy to volunteer and give back to an organization that provides so much for others.

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

Currently I am honored to be a part of the 3rd Cohort of the ASE Leadership Academy as well serving on the IRT committee. In the past I had the privilege of receiving my FASE membership back in 2015 as well as serving on the Guidelines and Standards committee. One of my most memorable opportunities that ASE provided me with was the ability to lecture internationally during the ASEAN meeting in the Philippines. In Chicago, I have served as faculty for the “Heart Beat of Cardiology” meeting run by the University of Chicago and Mayo Clinic performing hands on sessions and training the audience in 3D.

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

My advice for members who would like to get involved with ASE is to attend the Scientific Sessions and utilize the networking opportunities as well as learning from experts in the field. Another way to be involved is to perform sonographer led research and submit case studies and abstracts to the Scientific Sessions. If you are passionate about your career and are looking for opportunities to make a difference, then I urge you to volunteer for ASE.

What is your vision for the future of cardiovascular sonography?

My vision for the future of echo is the continued advancement and growth of the sonographer’s role, in addition to the implementation of artificial intelligence into our workflow to help alleviate workload. I have been extremely excited to have the opportunity to be involved in echo guidance of structural heart procedures, and look forward to the continued involvement of additional procedures in the future. The evolution of echocardiography has occurred rapidly and the possibilities for advancement are endless. I look forward to being a part of the future of echocardiography.

Find Your Voice:

Communication Tools and Tips for the Interventional Echocardiographer

Contributed by **Ruchira Garg, MD, FASE**, Cedars Sinai Medical Center, Los Angeles, CA, and **David Rubenson, MD, FASE**, Scripps Clinic Medical Group, La Jolla, CA



In any partnership, communication is crucial, and can sometimes be overlooked amidst the exciting technology and tools.

INTerventional Echocardiography (IE) was inaugurated as a new ASE Council in January 2023 after three years as a Specialty Interest Group. This designation recognizes the growing number of ASE members with a commitment to the subspecialty area of IE. Echocardiography is synonymous with the practice of cardiology in disease diagnosis and management, but now echocardiographers are at the front lines and alongside interventionalists as partners, working to fix valves, and close appendages and holes by applying our specialized imaging expertise. In any partnership, communication is crucial, and can sometimes be overlooked amidst the exciting technology and tools. We hope to share some advice to help the junior IE specialist find their voice.

Be Prepared

The echocardiographer is intimately involved from the outset, having frequently reviewed the pre-procedural screening trans-esophageal study. Recent ASE Guidelines,¹ identify the critical components of a comprehensive study which are imperative when deciding on candidacy for structural heart interventions. But anatomy and physiology are only part of the equation; the echocardiographer needs an intimate familiarity with the rapidly evolving interventional devices and options that may be

best suited to the cardiac lesion. This is an excellent opportunity to first enter into a partnership, and engage in bilateral communication with your interventional colleague. A skilled interpretation of the echocardiogram provides important perspective into the proposed intervention. And conversely, a nuanced understanding of various device configurations, behavior, and options can best pair the intervention to the pathology. This is also a time to identify additional pre-procedural imaging. Is this a patient who would benefit from CT angiography, to more appropriately size the left atrial appendage? Will intracardiac echocardiography (ICE) be preferable to transesophageal echocardiography (TEE) due to the inferior location of the secundum atrial septal defect and relative deficiency of inferior rim?

Once in the room, the patient is prepped and ready, and things are likely underway.

The temptation may be to dive right in, but take a second and read the room.

These are questions best answered before wheeling the patient into the interventional suite. The pre-procedural assessment is a perfect time to remind ourselves that we are the imaging experts and expected to translate our understanding of echocardiographic anatomy to the interventionalist to facilitate a successful intervention, and provide a less stressful introduction to the relationship than perhaps a first meeting in the catheterization lab. All of these contributions highlight the essential role of the imager to the success of the procedure, and importantly, as an equal member of the care team. Demonstrating this feeling of equality is important in our interactions with other members of the team within the interventional suite.

The Interventional Suite

Once in the room, the patient is prepped and ready, and things are likely underway. The temptation may be to dive right in, but take a second and read the room. Then refer to your “communication checklist,” especially if this is still a new environment: Do you know all the key players in the room and do they know you?



- **Control Room:** The control room technician is your first indication of the mood in the room. Are things already tense and the lab is three hours behind? This is good information to receive while you clear your head, and don your lead.
- **Anesthesia:** The anesthesiologist will be right at your elbow, and you at their patient's airway, so it's best that you be friends. It is not only polite, but safest for the patient if you acknowledge that you are cognizant of the endotracheal tube and your proximity to it before TEE probe manipulation. They (or an attentive fellow) are also often acutely interested in the images and verbalizing your findings (at a low and non-distracting volume level) may be welcome.
- **Nurses and Techs:** The circulating nurse is responsible for the entire physical environment and thus, important if you want an optimal environment. A stepstool, spot lighting, or display of fluoroscopy images on a separate visible monitor tend to magically appear with a well-nurtured relationship.
- **Device Rep:** With the newer devices and those under trials, frequently the device companies will send a representative. It is their job to know, or find out, every device specification and idiosyncrasy you might need. They can be an incredible resource in the moment, or after the procedure to provide literature references and material to help you understand these new devices and their behavior in situ.
- **Sonographer or Fellow:** This is your right hand (often literally). Real-time verbalizing of images you are capturing allows them to "see" the study with your eyes, so that in no time they are an invaluable extra pair of eyes during the procedure. If they are relatively new, or there is a new device, invite them to look at the table prep of the device, ex vivo, to put the subsequent echocardiography images in clearer context. The switch from acquiring images oneself to verbalizing image optimization, modality, and knobology is a part of training itself. Providing clear instruction

General tenets of good communication should be considered when creating and maintaining a strong relationship with the interventional team

on image optimization, turning on and off various modalities, and even capture duration eliminates the acrobatics required to run the probe and machine simultaneously, and reduces the chances that you end up with only seven or 300 cine captures to review.

- **The interventionalist:** Announce, at an appropriate moment and with an appropriate volume, your arrival at the probe. This is a clear invitation to join the party in progress, and receive an update on the case and their expectations for the duration.

Communication Toolbox

General tenets of good communication should be considered when creating and maintaining a strong relationship with the interventional team, especially for the junior IE practitioner in a new environment. Generally, communication is divided into verbal, non-verbal, visual, written, and receptive.

Non-verbal communication is difficult with eyes on screens precluding eye-contact, and faces and bodies covered by masks and gowns. This places most of the non-verbal communication in tone of voice. We may need to deliver suboptimal information, but when done unambiguously and directly, the interventionalist can then focus on the solution rather than questioning the validity of the information. There are times that ambiguity is required, and that is equally important to convey, so that hasty decisions are not made without taking additional time

Over time, trust builds between the IE specialist and interventionalist, and this is through a foundation of strong and effective communication.

to come to appropriate conclusions based on more imaging. Don't hurry. Reaching the best assessment is more important than completing the case five minutes sooner. There have been many times, that expressing reservations about device positioning may not be definitive, but allows the interventionalist a moment to reassess the situation and avoid a premature deployment.

Written communication has little role during the procedure, but visual and verbal are the crux of our communication and intimately entwined. A dangerous temptation early in one's career is to simply display the images and expect that the room "sees" what needs to be seen. Rather, more akin to a sports commentator, we should be providing commentary

on the acquired images, the physiology, and the relevant action on the echo screen. Ideally, the images are displayed alongside the fluoroscopy, but the interventionalist has their senses already occupied with catheters, fluoroscopy, and the rise and fall of the pulse oximeter tones. Thus, redirect attention to the echo images with appropriate timing, and when pertinent to the procedure. A gorgeous bicuspid aortic valve during transseptal puncture is probably best left to share with the fellows after the case.

Listening, or receptive communication, occupies the majority of our time in the interventional suite. This is how we stay abreast and ahead of the intervention that is underway. Be engaged in the procedure by monitoring the fluoroscopy and listening to the progress so that you can anticipate the next steps. And, while a verbal warning from the interventionalist of C-arm motion is sincerely appreciated, being engaged can save your legs and echo machine from injury. One listening pitfall for the young imager is to be inappropriately swayed by the optimistic suggestions of the interventionalist. Whether you have yet to generate supportive imaging or disagree outright based on your pictures, it is tempting to be agreeable when they tell you how "great the positioning of the device is"

as they eagerly anticipate deployment. Our role is to be receptive to communication but also to remove any rose-colored glasses (and leave the tinting to the machine postprocessing). If you have any reservation or hesitation, you can usually obtain the few seconds or minutes it takes to resolve them before they undertake an irreversible action. A "read-back" is a great way to clarify shared understanding in these, and many other circumstances.

The ultimate goal of the IE specialist is to participate in a successful, morbidity-free intervention with our interventional colleagues and staff. Over time, trust builds between the IE specialist and interventionalist, and this is through a foundation of strong and effective communication. There is a unique satisfaction and joy that emerges as we share this type of special partnership.

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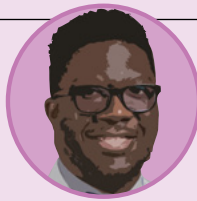
1. Journal of the American Society of Echocardiography, ISSN: 0894-7317, Vol: 36, Issue: 4, Page: 350-365



Underrepresented Minorities

in Pediatric Cardiology

Contributed by **Flora Núñez Gallegos, MD, MPH**; **Jason Williams, MD**; **Colin Dunbar, II, RDMS, RDCS, (AE, PE, FE), FASE**; and **Sowmya Balasubramanian, MD, FASE**



“The importance of seeing yourself in your care team, your role models, or your advisors cannot be overstated”

—Flora Núñez Gallegos

THIS MONTH, WE HAVE curated a piece on medical professionals from historically underrepresented minorities in medicine (URMM). We asked three of our colleagues—one fellow trainee, one attending physician, and one cardiac sonographer—to share, in their own words, their experiences as underrepresented minorities in medicine. We then asked Sowmya Balasubramanian to provide insight from her recent publication in the *Journal of the American College of Cardiology* on the current state of minorities URMM in Pediatric Cardiology.

Flora Núñez Gallegos, MD, MPH

Night rounds on the cardiac floor started: I received sign-out from the outgoing fellow and started to go to each room and check on patients before it got to be too late into the night. I entered the room of an infant with a large ventricular septal defect who was awaiting surgery in the coming days. Having previously reviewed the chart, I knew that the family's preferred language was Spanish. As a native Spanish speaker, I eagerly jumped at the chance to communicate with the family in our native language. The family shared their anxiety about the upcoming surgery, what to expect, possible complications, and expressed hope for their daughter to be able to grow and gain weight following repair. As I was getting ready to step out, the mother-of-the child stopped me and firmly said: “We are so proud of you.” Her words left me frozen.

Flora Núñez Gallegos



“Proud of me?” I asked. “For what?”

She replied, “For showing everyone that we can do it. We can make it here. Thank you for representing us.” I couldn’t help but become emotional. This was the first time we had met. And yet there was profound understanding and compassion.

The importance of seeing yourself in your care team, your role models, or your advisors cannot be overstated.

“As medicine has rapidly advanced in the last century, we must continue to advance the workforce to make sure that we reflect the patients that we serve.”

—Jason Williams

Despite a remarkably small number of underrepresented minorities in academic medicine and within pediatric subspecialties, there is palpable hope for a culture shift towards increased inclusivity and diversity. As an underrepresented female minority who came to this country as an immigrant from El Salvador, it has never failed to dawn on me the privilege, opportunity,

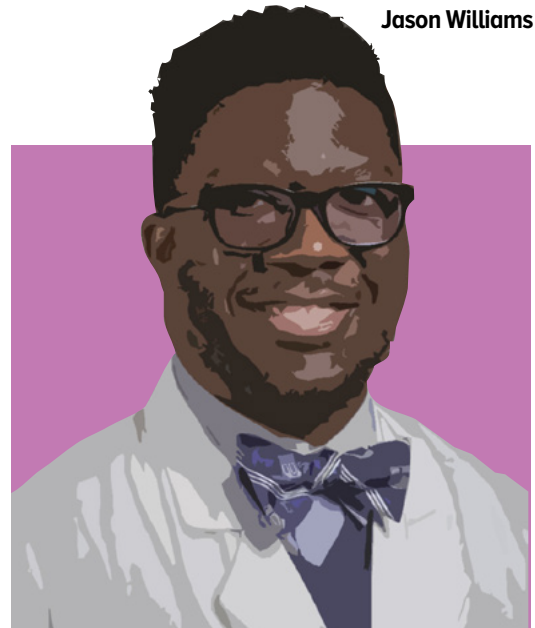
and blessing I have to represent my community in this field.

Flora Núñez Gallegos is an advanced cardiac imaging fellow at Stanford University School of Medicine and will be starting a faculty position at the University of California, San Francisco. Her expertise is in echocardiography, fetal cardiology, and studying social determinants of health as they relate to clinical outcomes.

Jason Williams, MD

Diversity in medicine is a complex topic involving recruitment, inclusion, and retention of those who are underrepresented minority in medicine (URMM). Less than 10% of the pediatric cardiology workforce identifies as URMM, and there is growing data within our field that underscores the need to address this disparity. Within cross-sectional imaging, a noticeable gap in representation persists. I have amazing mentors in imaging. However, none of them have shared the same cultural background as me. As a result, I am acutely aware that I am one of few Black professionals in most rooms. While I am proud of the knowledge and skills I have gained in my early career, imposter syndrome has often crept into my psyche. I have questioned whether I belong or, more importantly, whether I am seen. As a part of my first ASE webinar as a panelist, discussing intraoperative decision making with TEE, I was keenly aware of the great opportunity, but also the gravity of being seen in that moment. Where there are challenges, though, there are opportunities. Changing the landscape of pediatric cardiology will require revolutionizing the systems in place as its gate keepers. I recently co-authored a perspective piece, [“The Heart of the Matter: A Path to Building Diversity in](#)

Jason Williams



Colin Dunbar, II



Pediatric Cardiology” that discusses revamping our recruitment system, establishing formal mentorship programs, and cultivating training environments where URMM can thrive. While concepts of “fit” are important in the workforce, we also have to ensure not to improperly exclude URMM trainees who could thrive. As medicine has rapidly advanced in the last century, we must continue to advance the workforce to make sure that we reflect the patients that we serve.

Jason Williams is an advanced cardiac imaging attending at Duke University Medical Center. His expertise lies in echocardiography, cardiac magnetic resonance imaging and myocardial mechanics. He is passionate about medical education.

Colin Dunbar, II, RDMS, RDCS (AE, PE, FE), FASE

One of my very first patients was a 7-year-old boy who had traveled from a small, rural town out of state to come to this appointment. I explained what we would be doing during our time together, scanning his heart and making sure everything was functioning the way it should. He seemed especially excited to see his heart on the screen! Just before we started, he turned to his parents and said, “See? He’s a nice one.” His parents didn’t respond to him, and didn’t make eye contact with me.

There is not a day that goes by that I’m not aware and conscious, or trying to gauge how patients and their families are perceiving me. The way I carry myself, the way I talk, the way I smile. I make sure parents can always hear what I’m saying, and know it’s a friendly interaction with their kids. I’m aware of my distance and also my contact with patients. My identity as a Black man cannot be disconnected from every interaction, every communication, and every patient experience. As a result, I carry a responsibility to represent who I am as a Black man positively every day. I strive to have a positive impact, and provide a positive presence with everyone I work with and every family we serve. As a leader, I invite discussions about diversity with our team, and am always seeking opportunities for all of us to continue to grow in an

authentic way, both personally and professionally.

Colin Dunbar II is a pediatric cardiac sonographer and serves as the supervisor and clinical lead of the Duke Pediatric Echo Lab at the Duke University Medical Center, and has served in that role for 12 years. He is a national leader in pediatric cardiac ultrasound and volunteers on the ASE Advocacy, Diversity & Inclusion, and ASE Cares Task Force.

“I strive to have a positive impact, and provide a positive presence with everyone I work with and every family we serve.”

—Colin Dunbar

Sowmya Balasubramanian, MD, FASE

We are well past using the arguments of diversity in the workforce being a moral imperative or a virtue in and of itself. An exploding body of literature points to greater innovation, commitment, trust, and retention within diverse and inclusive teams, all of which are critically important in a time when the healthcare workforce continues to face severe shortages. More compellingly, a diverse and inclusive workforce improves patient outcomes. The bottom line is that when there is a sense of belonging in the workforce, there is collective benefit to all.

The question that naturally follows is whether we needed yet another paper to show disparities and underrepresentation as it pertains to pediatric

cardiology. A deeper dive into the data will shed light onto the rationale for this undertaking. In adult cardiology, women comprise 43% of internal medicine residents but only 22% of general cardiology fellows with even lower proportions within procedural fields. Perceptions of cardiology careers included adverse job conditions, interference with family life and lack of diversity, with women trainees placing greater value on stable hours, family life, and positive role models. Underrepresented minorities in medicine comprised only 13% of adult cardiology fellows. It is clear that greater emphasis is required on improving the pipeline of women and URMM.

“The bottom line is that when there is a sense of belonging in the workforce, there is collective benefit to all.”

—Sowmya Balasubramanian

division directors being women (see accompanying figure). While era effect may be a contributor, that alone does not account for the disparate representation in rank and leadership particularly given a healthy pipeline of women medical school matriculants since the early 2000s. In contrast,

Sowmya Balasubramanian

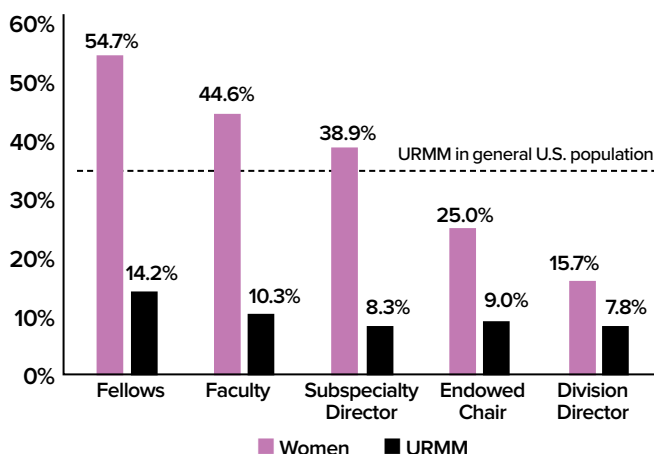


URMM comprise only 14% of fellows and 10% of faculty in pediatric cardiology, pointing to a limited presence overall. These findings underscore two important points: (1) data are imperative to understand the nuances of underrepresentation and (2) as evidenced by the differences in adult and pediatric cardiology, the impediments to advancement appear at different junctures in various specialties underscoring the importance acquiring specialty-specific data. Taken together, data specific to the specialty are imperative for establishing baseline status, to formulate strategic plans and for measuring the effectiveness of interventions that are prioritized.

With clearly established goals and times lines, achieving equity in medicine is tangible and must be made a priority in all pillars of medicine, for it not only advances our workforce but also brings about meaningful progress in improving patient care. And that is my dream.

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REPRESENTATION IN PEDIATRIC CARDIOLOGY



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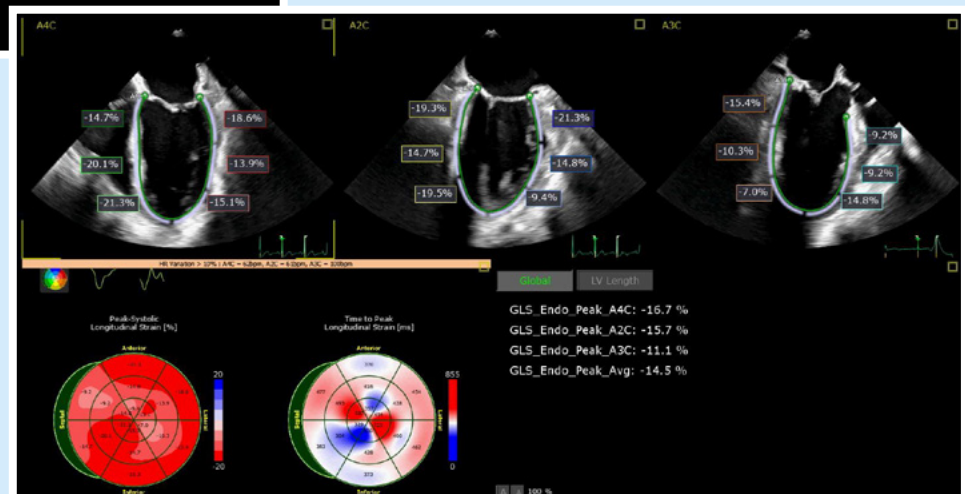
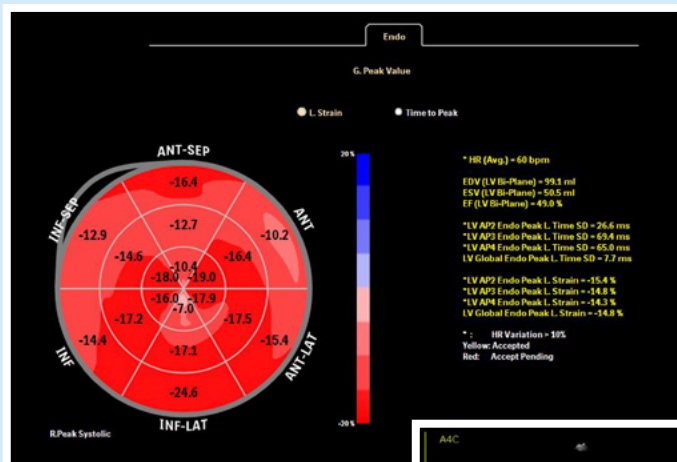
Strain and Perioperative Echocardiography

Contributed by **Program Director, Adult Cardiothoracic Anesthesiology Fellowship, Associate Professor, Department of Anesthesiology, Emory School of Medicine, Atlanta, GA**



STRAIN IS A NEWER method to assess cardiac function and can be a helpful tool for echocardiographers in the perioperative setting when caring for patients presenting for cardiac and non-cardiac surgery.

We will discuss strain and its utility in perioperative echocardiography, beginning with a case: A 64 year old male patient presents for urgent coronary artery bypass grafting (CABG) after workup for stable angina revealed multivessel coronary artery disease (CAD). His anginal symptoms acutely worsen and he is now being expedited to the operating room. Initial transesophageal echocardiogram (TEE) shows a left ventricular (LV) ejection fraction (EF) of 50%. Global longitudinal strain (GLS) is -14.5%.



PREOPERATIVE	INTRAOPERATIVE	POSTOPERATIVE
Identify high risk surgical patients Early surgical or transcatheter interventions	Predict LV or RV failure Titrating vasoactive medications Adding mechanical circulatory support	Identify patients at risk for prolonged ICU care Identify patients at risk for procedure related morbidity

Strain is a dimensionless method to assess myocardial deformation and can identify decreases in ventricular function prior to changes in EF.^{1,2} In systole, the LV shortens in longitudinal and circumferential planes and thickens in the radial plane.^{1,2} Strain can be calculated by measuring those changes in each direction of deformation:

Strain = (length in systole-length in diastole)/length in diastole¹

Longitudinal and circumferential changes are shortenings and reported as negative values.¹ Radial changes are thickening which are reported as positive values.¹ Strain is usually reported as an average for all segments and GLS is the average of longitudinal strain measurements.¹ As GLS is assessing longitudinal deformation, it is reported as a negative value. ASE guidelines on chamber quantification notes the variety of vendors and software related to strain assessment but suggests a value of -20% for GLS in a healthy person.³

GLS has been validated to be more sensitive in detecting LV dysfunction when compared to LV EF assessment.² Because of the ability to detect subtle and early changes in LV function, strain assessment can be used to risk stratify patients preoperatively, help guide intraoperative management, and to plan for postoperative care.⁴

Attention is now being paid to exploring new aspects of strain assessments, specifically RV and LA strain. In terms of RV strain, potential utility could be in predicting RV failure post cardiac surgery.^{2,5} LA strain may have utility in predicting postoperative atrial fibrillation.⁵

Returning to our case: *Patient has an uneventful CABG x 3 and post-revascularization TEE showed unchanged LV*

EF of 50% and improved GLS -18% with no inotropic support. Subsequent transthoracic echocardiogram (TTE) on postoperative day # 3, prior to discharge home, showed LV EF 50% and GLS of -19.5%.

Strain assessment is limited in that it is a newer technique and requires experience and training to perform accurately. Additionally, much of the data on strain is taken from TTE studies, and while TTE and TEE strain measurements do seem to correlate, TEE strain values should be further validated.¹ Also, there are several vendors offering strain software and ideally, strain measurements and values for normal and abnormal findings should be standardized.^{1,3}

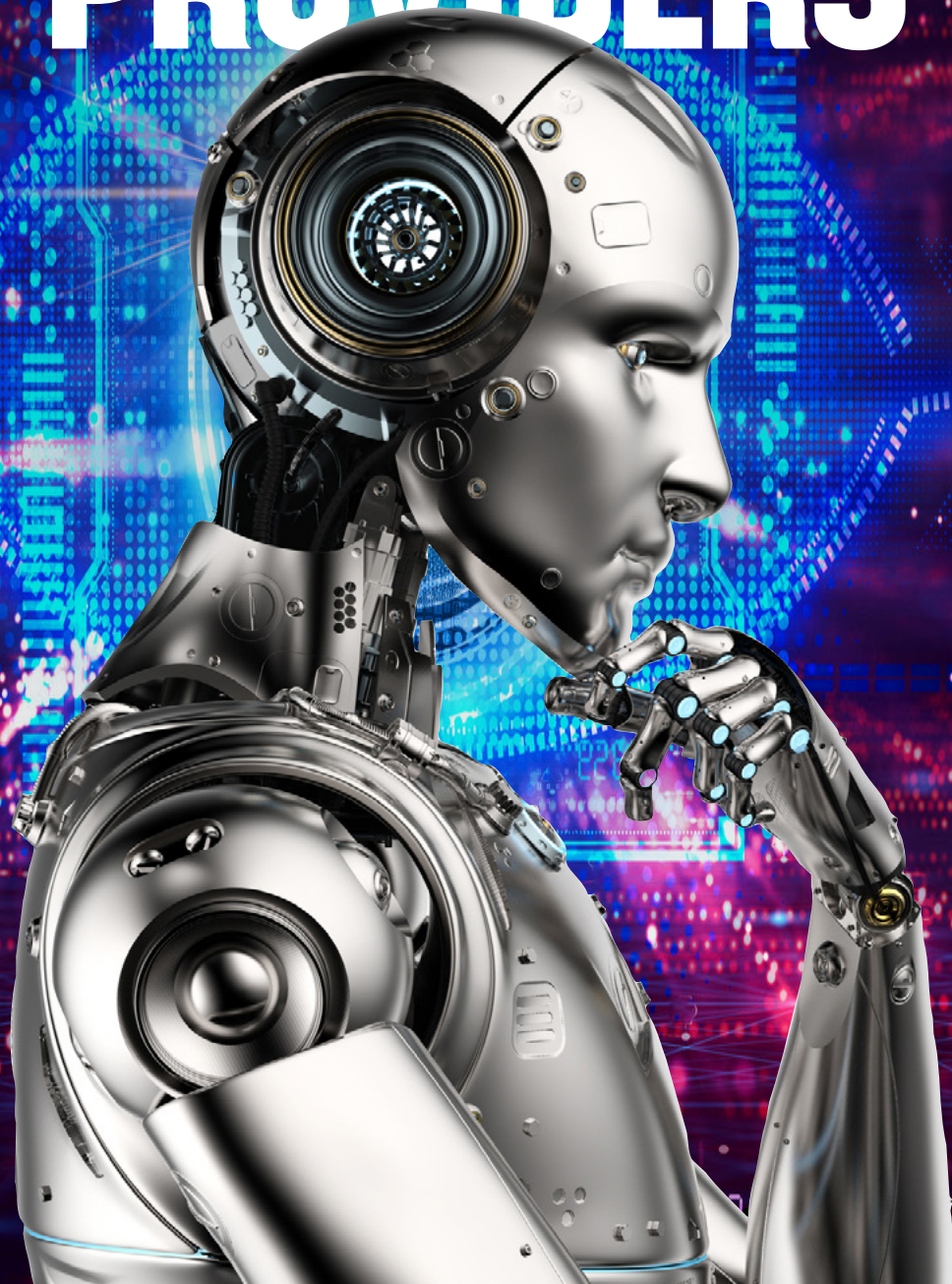
In summary, strain assessment may be a helpful tool in the evaluation and management of patients. As with any novel method, understanding of the utility and limitations is important to appropriate use. There are currently no guidelines for strain measurement and further studies are needed to validate the potential for routine use.

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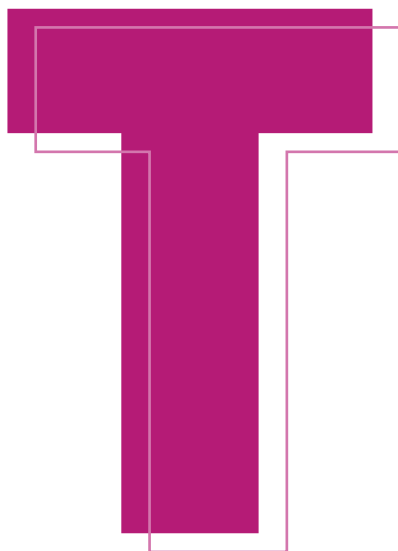
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The Transformative Impact
of AI on Medical Imaging:

EMPOWERING HEALTHCARE PROVIDERS



Contributed by
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The transformative power of artificial intelligence (AI) in the realm of medical imaging has been the subject of extensive discussion for over a decade.

However, the practical implementation of AI algorithms in this field, although promising, is laden with challenges. The FDA has, to date, approved over 500 AI algorithms for medical imaging, but transforming these algorithms into affordable, usable products remains a hurdle for companies. Furthermore, the integration of these tools into the imaging workflow often introduces friction, thus inhibiting widespread adoption.

A paper published in *Frontiers in Cardiovascular Medicine*¹ in 2019 emphasized the potential for medical imaging AI to enhance the quality, equality, and cost-effectiveness of healthcare systems. The authors also forecasted other benefits such as improved patient-physician relation-

ships, better healthcare delivery, and increased physician job satisfaction. Yet, they also acknowledged the challenges AI implementation faces, predicting its initial application in well-circumscribed tasks, with the ultimate goal of integrating these tasks into a seamless and efficient pipeline.

The ideal scenario is for AI integration into the existing workflow to be seamless, leading to improved outcomes as the only noticeable difference from a consumer standpoint. To achieve this goal, it's crucial to address several key obstacles: earning the physicians' trust in AI tools, enhancing accessibility, ensuring transparency, and granting physicians the autonomy to decide whether to utilize or dismiss AI-derived information.

As of early 2023, cardiology-related AI algorithms rank second among imaging specialties in the number of FDA-approved AI algorithms. Many companies are developing solutions in the cardiac imaging AI space, but navigating these offerings and attaining adoption is a complex, expensive, and a time-sensitive process. When a hospital wishes to implement an AI tool, it typically entails a lengthy period of research, evaluation, purchasing and IT approvals, and resource allocation for deployment. Each selection of a new AI vendor triggers this process anew.

Upon selection, an AI tool often operates in isolation or remains disconnected from an institution's daily imaging workflow. Most AI algorithms for cardiac imaging today are either tied to a specific vendor or exist as separate software, which poses a challenge

For widespread use, AI tools must be readily accessible and offer physicians the control to decide where and how to apply the resultant information.

for busy cardiology departments that serve hundreds of patients a day. Therefore, to drive adoption, integrating the tool into the standard imaging workflow is critical.

Transparency is another crucial factor in building physician trust and promoting the adoption of AI tools. As Seetharam, Shrestha, and Sengupta² stated, machine learning (a subset of AI) shows promising results in cardiac imaging by improving decision-making based on identified data patterns. Deep learning, inspired by the human brain's processing capability, takes this a step further. As these technologies advance, providing transparency into what tools are being used to review and evaluate cardiac imaging becomes imperative for both physicians and patients.

For widespread use, AI tools must be readily accessible and offer physicians the control to decide where and how to apply the resultant information.

The future of AI in cardiac imaging, like many new technologies, is teeming with innovative tools. The challenge for the medical imaging industry is to ensure these tools enhance practitioners' workflow rather than impede it, while also facilitating broad availability to physicians in institutions of various sizes, private practices, and imaging centers.

The onus may fall on the existing medical imaging industry players to resolve these challenges. They could draw inspiration from other industries that have seamlessly integrated emerging technologies into everyday life, such as Amazon. Starting as a platform for books, Amazon has evolved into a streamlined, user-friendly platform where customers can compare options, enhancing their trust and reliance on the technology. Consequently, a plausible direction for AI in cardiac imaging could be the creation of a platform that simplifies access to AI tools as much as placing a one-click Amazon order or purchasing through Apple Pay. The potential impact of such an innovation on facilities of all sizes and patient care is significant.



Laurie Smith is a principal and COO at Core Sound Imaging, Inc.—makers of the Studycast System, a comprehensive imaging workflow platform. The Studycast System is a platform for medical imaging workflow that has been disrupting and streamlining medical image storage and reporting for 15 years. Studycast is connecting physicians to their images and interpretation tools from any Internet-connected device. Laurie has been a member of ASE since 2007.

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