



The small solution that could make a big Impact

See new possibilities in structural heart interventions with the first mini 3D TEE probe¹

The University of Arkansas for Medical Sciences (UAMS) is a hub for high quality medical treatment, innovative research, and rigorous academics to train the next generation of clinicians. It also has a rich history of breaking new ground in cardiology. Now its physicians are among a small group of specialists to experience the world's first mini 3D TEE probe in guiding adult structural heart procedures. Dr. Srikanth Vallurupalli, MD, who is the Director of the Non-Invasive Testing Laboratory, recently shared his insights and big plans for the highly compact probe.

Dr. Vallurupalli's team performs TAVR, edge-to-edge repairs, Left Atrial Appendage closures occlusion and valve-in-valve procedures. He's part of the Division of Cardiovascular Medicine, that has a dedicated cardiac intensive care unit, cardiology step-down ward, cath lab, EP lab, and non-invasive testing laboratory on the Little Rock campus. At the VA, there are also state-of-the-art facilities, including a dedicated ICU, cardiology ward, two cath labs, an EP lab, and non-invasive testing laboratory.

Dr. Vallurupalli says he is drawn to new technologies that can provide wider access to minimally invasive therapies and still inspire diagnostic confidence. We asked him to share his initial experiences with the 9VT-D mini 3D TEE probe.

What are the main challenges you face during structural heart procedures? What steps have you taken to overcome these challenges?

Dr. Vallurupalli: From an echocardiography standpoint, the two major challenges are image quality and patient safety. Echocardiography is key to the success of all structural heart procedures. As we image patients who are older and with significant co-morbidities, imaging quality can be challenging. A state-of-the-art TEE probe (capable of 3D imaging) and echo system are key. At the same time, we perform structural TEE on patients with prior esophageal surgery, severe spine arthritis and end stage liver disease, so preventing esophageal injury and bleeding is

paramount for patient safety. We have used pediatric TEE probes in these situations in the past, but the lack of 3D imaging and poor image resolution have been issues.

You are among the first physicians to use the mini 3D TEE probe in your adult structural heart procedures. Can you describe your experience?

Dr. Vallurupalli: The mini 3D TEE probe perfectly addresses the dual concerns of better imaging, while enhancing patient safety. Probe insertion is simple and atraumatic, and the image quality, specifically 3D, is similar to the adult TEE probes.

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Dr. Vallurupalli

Are there any other current challenges that you believe you could overcome with such a miniaturized probe?

Dr. Vallurupalli: I have been an early believer in performing TEE guided structural procedures under moderate sedation. Adult probes are

uncomfortable and can cause partial airway obstruction due to their girth. I believe the miniaturized probe will enable performing most TEE guided structural procedures under moderate sedation. This will improve patient care, increase structural lab and hospital throughput, and reduce complications associated with mechanical ventilation.

Based on your preliminary experience, how could you utilize the mini 3D TEE probe in your lab in the future?

Dr. Vallurupalli: When purchased, I anticipate using the mini 3D TEE probe for 100% of the left atrial appendage occlusion cases since this is the highest risk population we image. For MitraClip and other valve-in-valve procedures (where familiarity is key), I anticipate 50% use in one year.

For echocardiologists, one common challenge is navigating the devices and communicating with the interventional cardiologist during the procedure. How do you address this challenge?

Dr. Vallurupalli: The key to successful communication in the structural lab is good communication outside the structural lab. Successful teams communicate often (and well) and cultivate mutual respect for each other's skills. I am fortunate to work with Dr. Gaurav Dhar MD, our structural interventionalist. We do structural clinic together where we see patients together, review imaging, and discuss potential challenges prior to a structural procedure. This ideal

scenario is hard to replicate in all practice settings, but it's something worth striving for.

Are there any other interesting features and applications that you would find useful in your structural heart procedures?

Dr. Vallurupalli: Continued miniaturization of TEE probes. At some point, they should be no wider than a nasogastric tube.

What impact do advancements in echo have in structural heart procedures and on overall patient care?

Dr. Vallurupalli: Echo is crucial in the care of patients with structural heart disease. Those who have been

performing structural procedures (specifically MitraClip) will attest to the fact that advances in imaging have made the procedure safer, quicker, and more deployable among operators of varying experience levels.

What challenges do you feel are still unmet and should be addressed in the future?

Dr. Vallurupalli: In my opinion, technology is progressing satisfactorily. Advances in image fusion both on the echo cart and the cath system will allow the imager and the operator to speak the same language. The major challenge to structural echocardiography is the reimbursement model. The structural imager is reimbursed about 1/5th of

the structural interventionalist, despite spending as much time in the structural lab. Similarly, TTE guided TAVR remains a loss leader with an echo system and a sonographer being tied up for 1-2 hours in the structural lab for no additional reimbursement. ■

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Srikanth Vallurupalli MD Srikanth Vallurupalli MD is an Associate Professor of Medicine in the Division of Cardiology, College of Medicine at the University of Arkansas for Medical Sciences(UAMS) and a staff cardiologist at the Central Arkansas Veterans Health Care System(CAVHS). He serves as the medical director of the cardiac noninvasive lab at UAMS and the cardiology fellowship training. Dr. Vallurupalli attended medical school at the Jawaharlal Institute of Post Graduate Medical education and Research(JIPMER) in Pondicherry, India. He completed his internal medicine residency and served as a chief medical resident at the University of Illinois at Urbana Champaign. He then worked as an Assistant Professor of General Internal Medicine at the Southern Illinois University in Springfield, IL before moving to Little Rock to complete his cardiovascular diseases fellowship at UAMS. He is level 3 certified in adult echocardiography and specializes in the management of valvular heart disease and structural echocardiography.

¹ 9VT-D probe is exclusively available for Vivid E95 and Vivid E90 systems. Vivid Ultra Edition is released as of 25th August 2022. Ultra Edition is not a product name, it refers to the 2022 release of the Vivid portfolio.

The statements by GE's customers described here are based on their own opinions and on results that were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist, i.e. hospital size, case mix, etc., there can be no guarantee that other customers will achieve the same results.

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