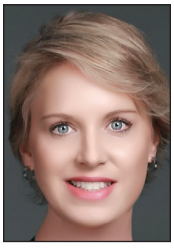
AN INTERVIEW WITH…

With Kendra J. Grubb, MD, MHA, FACC

Dr. Grubb discusses how her unique background informs her approach to structural intervention and conversations about lifetime aortic stenosis management, the next generation of structural/valvular clinical trials, potential steps to combat women's heart disease, and more.



You took a unique approach to training, having completed fellowships in both cardiothoracic surgery and interventional cardiology. What led you down this path, and how do you think this background informs your approach to structural interventions?

I vividly remember the time in general surgery training when robotic surgery was gaining popularity. When I decided to specialize in cardiac surgery, my goal was to be a robotic valve surgeon. The timing was perfect as the PARTNER trial began enrolling patients that summer. During my interview for a cardiac surgery fellowship at Emory, I witnessed my first transcatheter aortic valve replacement (TAVR), and it left a lasting impression. Dr. Robert Guyton mentioned a promising new procedure for aortic stenosis (AS) and invited me to observe. From that moment, I knew I had glimpsed the future.

Having pursued a Master of Health Administration degree before medical school, I recognized the potential for transcatheter interventions to encompass all patients—and all four valves—beyond high-risk patients with AS.

During my cardiac surgery fellowship at University of Virginia, I did as many TAVRs and transcatheter procedures as possible and knew this was going to be a major focus of my career—to be a structuralist. When I had the opportunity to train at Columbia University, a key site for the PARTNER trial, I was determined to acquire the necessary catheter and wire skills for TAVR and become a versatile hybrid surgeon. I even covered ST-segment elevation myocardial infarction calls and performed enough percutaneous coronary interventions to be an interventional cardiologist, albeit not board-eligible. This knowledge equips me to offer patients a wide range of therapies. For instance, when a patient presents with AS, I can propose TAVR while also explaining the surgical options and thoroughly evaluating the risks and benefits of each approach. Ultimately, I am committed to providing the therapy that best meets the patient's needs and preferences.

Can you tell us a bit about your work with the Structural Heart and Valve Center at Emory University? What are your goals as Surgical Director here?

Emory hired me in 2018 to help consolidate three valve centers into one structural heart and valve center of excellence under the Emory umbrella. My focus is on compliance and outcomes, ensuring the highest quality care for our patients and participating in cutting-edge research. I'm pleased to report that our program achieved a 3-star rating and American College of Cardiology Transcatheter Valve Certification.

Your approach to cardiovascular care is centered around "patient-centered" care. How does this philosophy come into play when discussing the lifetime management of AS, something you've had a particular focus on in recent years? How do you balance patient preference versus your clinical expertise?

With my background, I can be an advisor due to my diverse skill sets. I can educate patients about the risks and benefits associated with various therapies, assisting them in making informed decisions that are best for their long-term health. I often have to explain to younger patients that the first valve they receive will be the foundation for future valves. For instance, when patients in their 50s come to my clinic seeking a TAVR, I counsel them that this decision may not be well-informed. Most young patients want the fastest recovery. But this must be discussed in the context of durability. If a young patient wants one

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valve in their lifetime, then a surgical mechanical valve is the best choice. I clarify that while a TAVR is possible, the durability of the valve is uncertain. I make it clear that even biological surgical valves may only last 10 to 15 years. For a 50-year-old patient, we need to plan a strategy that will support them until they are 90. My patient-centered approach involves focusing on each patient's specific wishes and preferences while also educating them about their options to enable them to make informed decisions and take responsibility for their care.

An important piece of the "lifetime management" conversation is valve failure, particularly as younger patients undergo TAVR. What factors influence your procedural strategy choice in the case of transcatheter aortic valve failure?

The issue of TAVR failure due to structural valve deterioration is relatively new. Initially, TAVR valves were outlasting the patients, but now we encounter patients who underwent TAVR at a young age and may outlive their first valve. When discussing management with these patients, the focus is on whether they will be candidates for redo TAVR or TAVR removal. It's important to note that removing TAVR valves is a high-risk surgery, so this should be considered during the initial valve discussion. We can use simulation to predict whether a second valve will be feasible. We know the risk of TAVR valve removal is higher than redoing surgical aortic valve replacement (SAVR) if a biological valve fails. With what we know today, offering TAVR to young patients with > 20 years to live with a plan for TAVR explantation and SAVR "when they are in their 60s or 70s" is inappropriate.

Age and longevity certainly play a role in my decision-making. However, when faced with a failed TAVR valve, the anatomic suitability of a second TAVR dictates redo TAVR feasibility. Based on CTs from the Evolut Low Risk trial, I worked with a group to simulate redo TAVR after CoreValve and Evolut (Medtronic) failure.[1] Fortunately, most valves can be revalved without coronary occlusion or sinus sequestration risk. However, getting into the coronaries after a second valve will be more challenging for many patients (although thankfully, this is not that common).

What are some important planning/procedural considerations to keep in mind for a TAVR explantation specifically?

The cause of valve failure is crucial for TAVR explantation. If a patient's valve fails due to endocarditis or patient-prosthesis mismatch, they are not candidates for redo TAVR. Surgical explantation must be planned to address the underlying pathology of the aortic valve and any concomitant diseases, such as mitral regurgitation or coronary artery disease. There are new tricks for removing the valves surgically. For the self-expanding valves, you can collapse the frame in a piece of tubing—like recapturing the valve—and it makes removal much easier. We are getting better at TAVR explantation, and there is a great Heart Valve Collaboratory paper that shows the steps.[2]

With your insight from pursuing a Master of Science in Clinical Trials degree, where do you think are the biggest gaps in the current generation of structural and/or valvular clinical trials? What needs to be tackled in the next decade?

I made the decision to pursue this degree at the University of Oxford because I recognized my lack of sufficient knowledge in trial design. Furthermore,

DR. GRUBB'S TOP TIPS FOR INTERDISCIPLINARY HEART TEAM COLLABORATION

01 Celebrate the small wins.

02 If you want to go fast, go alone—if you want to go far, go together.

03 Remember to include everyone on the team and ensure that they have a voice, especially the quiet listeners in the group. They often have great solutions because they are thinking while the rest of us are talking over each other.

I sought exposure to a global perspective on trials, rather than limiting my focus to the Western world. As clinicians, we often ask important questions; however, designing a trial to adequately answer those questions in a way that will impact practice is quite challenging, especially in transcatheter valve technology, where advancements occur rapidly. We still have much work to do with the current valve technology, and the next decade promises to be extremely exciting. Although we consider TAVR a mature technology, we are still learning about its optimal use and durability. We are beginning to understand that there is no TAVR class effect, and we will likely discover specific valves for certain anatomies as the technology continues to evolve. Future TAVR trials will explore new indications, such as bicuspid AS and aortic regurgitation, and earlier treatment. We have shown in surgery that asymptomatic severe AS and even moderate AS has a poor prognosis without an operation, and there is a significant amount of research pointing to the need for earlier intervention in the disease process to prevent myocardial damage. The upcoming asymptomatic and moderate AS TAVR trials that will be released later this year will significantly influence our future patients and patient selection.

I am particularly excited about the advancements in mitral and tricuspid technologies and interventional therapies for heart failure over the next decade. We will find solutions for mitral and tricuspid valve disease that are as effective and safe as TAVR, and then the focus will shift to durability.

You recently authored a piece on intravascular lithotripsy (IVL)–facilitated transfemoral TAVR in patients with peripheral artery disease, noting that it is safe and feasible.[3] How would you summarize the benefit of this technique, and what are the next steps for research?

We studied using lithotripsy to facilitate transfemoral TAVR in patients with calcified iliofemoral vessels. About 5% of patients do not have adequate iliofemoral access per the device instructions for use. To prevent injuries, some of these patients undergo lithotripsy to soften the calcium, allowing passage of the femoral sheath. This enables the procedure to be performed while the patient is awake, and they can be fast-tracked for discharge the next day. Our publication focused on complications and aimed to establish safe parameters for performing IVL-facilitated TAVR. This study was a single-arm series, and our next step is to compare these patients to a cohort who underwent transfemoral TAVR using propensity matching.

You have shared a particular interest in combating women's heart disease, the leading cause of death in women. What are some steps individual physicians can take to make a difference here in their communities and practices?

Physicians in the community need to be aware that women may present symptoms differently. There is growing concern that women are seen by multiple physicians (including cardiologists) multiple times before they are sent for a diagnostic test. I have been advocating for establishing a "murmur clinic" for years. We must emphasize to patients that a murmur isn't normal, and understanding its cause is essential.

Specifically for women, we are taught from an early age to do a monthly breast exam and "talk to your doctor" if we find a lump. We should be equally as proactive in understanding the cause of a murmur. Educating women about the symptoms of heart disease and ensuring early detection and treatment may lead to better outcomes.

What is one piece of advice you wish you received as a medical student or early career physician?

At this career stage, I wish I had been told that it's okay to say, "No, thank you." In the first few years of your career, you tend to take on many activities, sit on numerous committees, and explore various "opportunities" that may not necessarily benefit your career or align with your professional focus. Although this shotgun approach can be helpful initially, there are only so many hours in a day, and it would have been more beneficial to focus earlier in my career. If I had to do it over, I would find mentors earlier who could help guide me on the path. ■

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