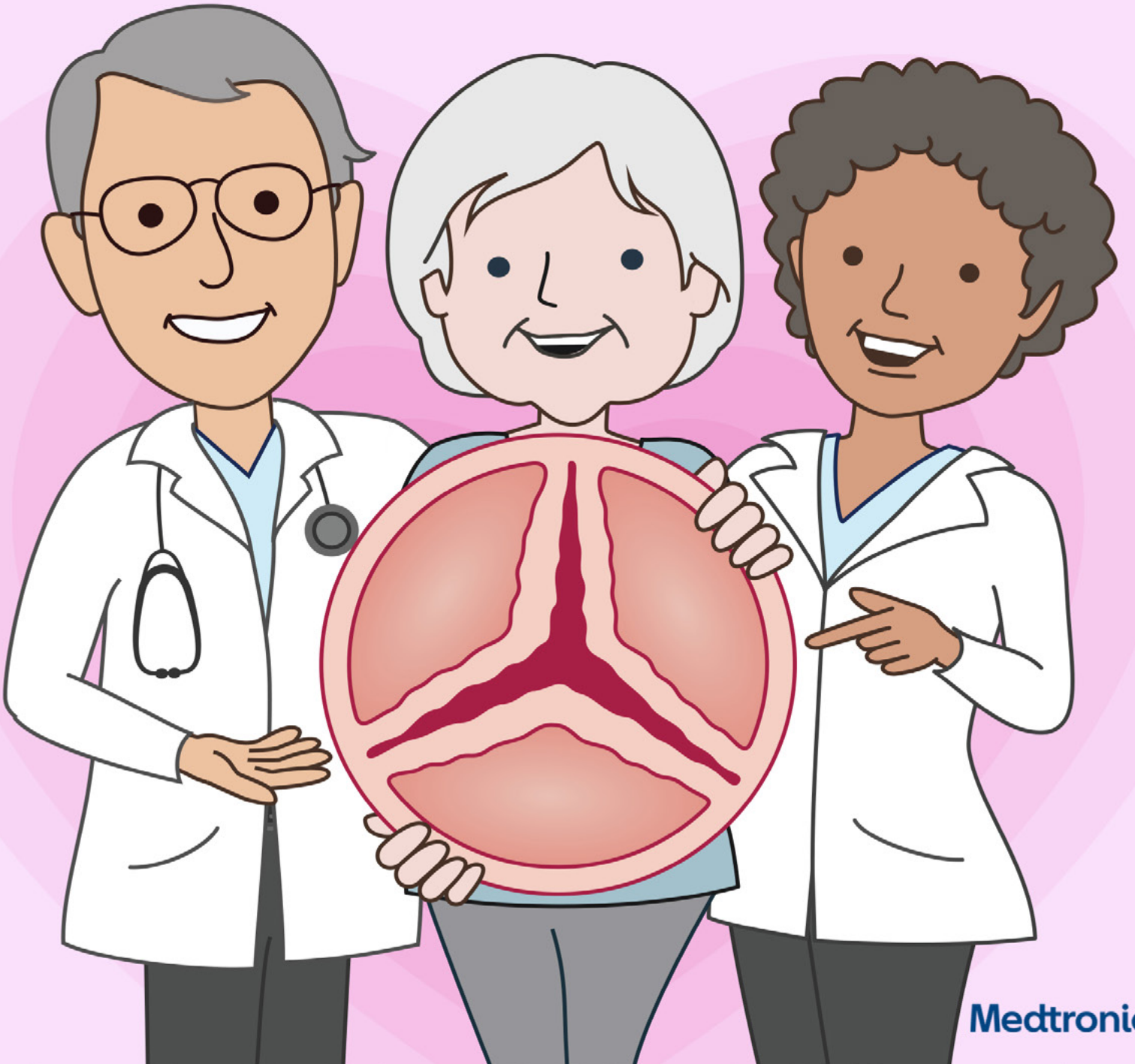
HeartValveSurgery.com

6 EXPERT TIPS FOR WOMEN WITH AORTIC STENOSIS



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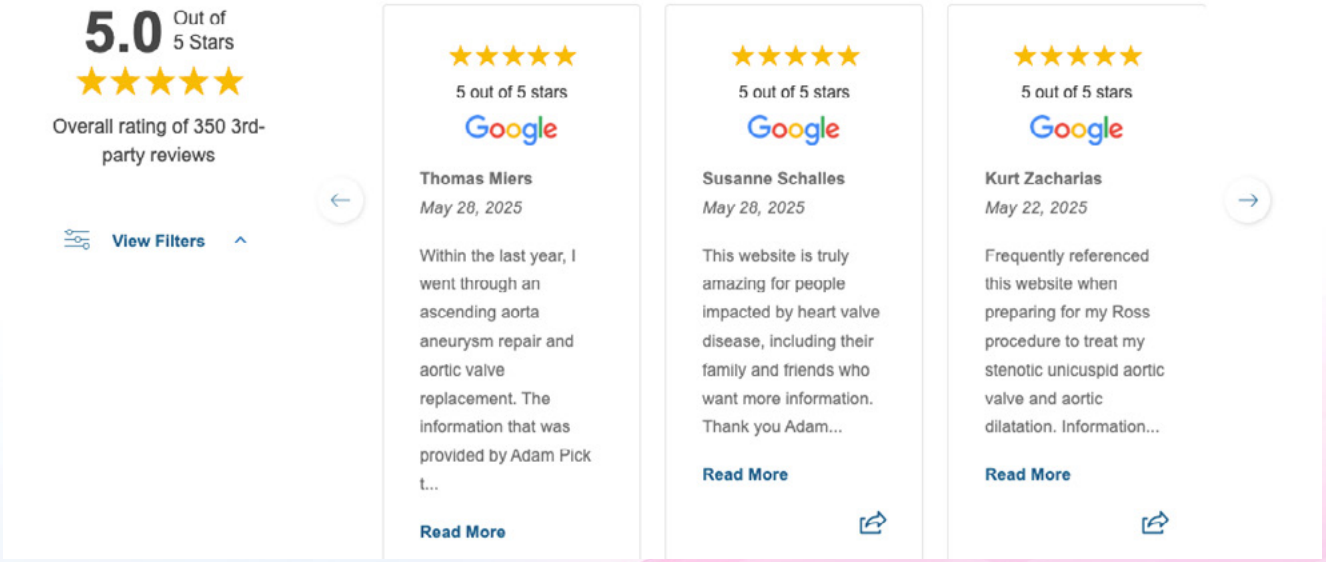

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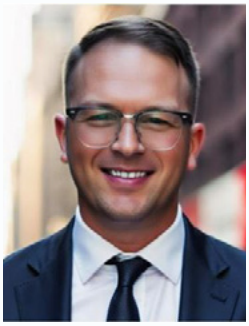

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Please note: A complimentary video playback of this eBook is now available on YouTube at this link.

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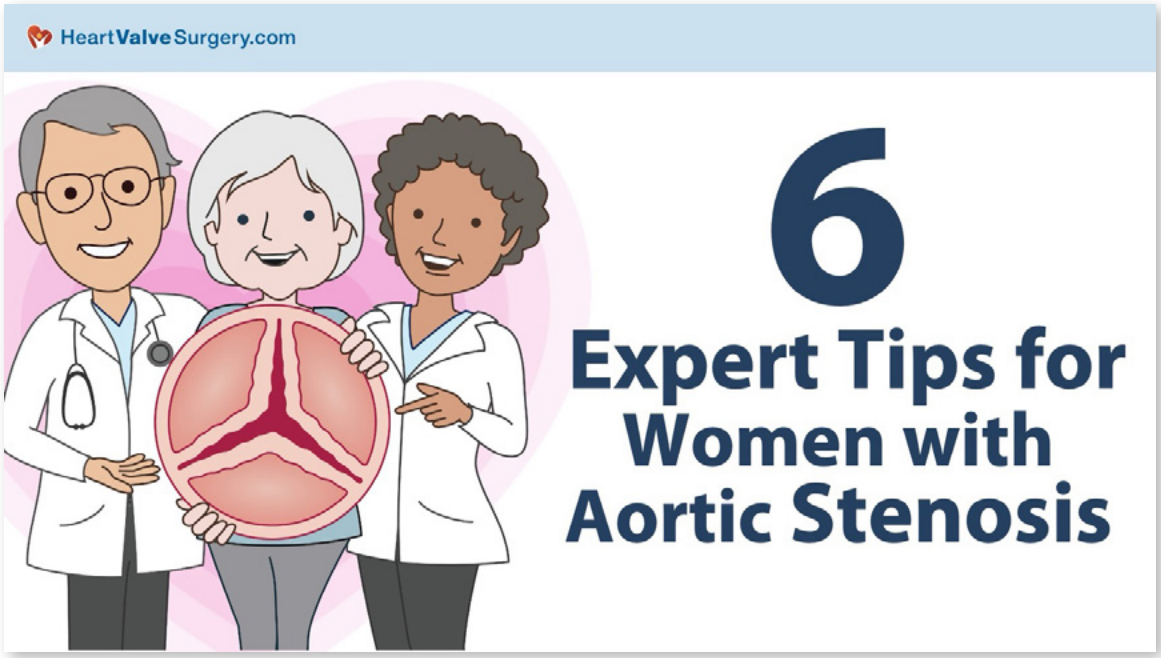
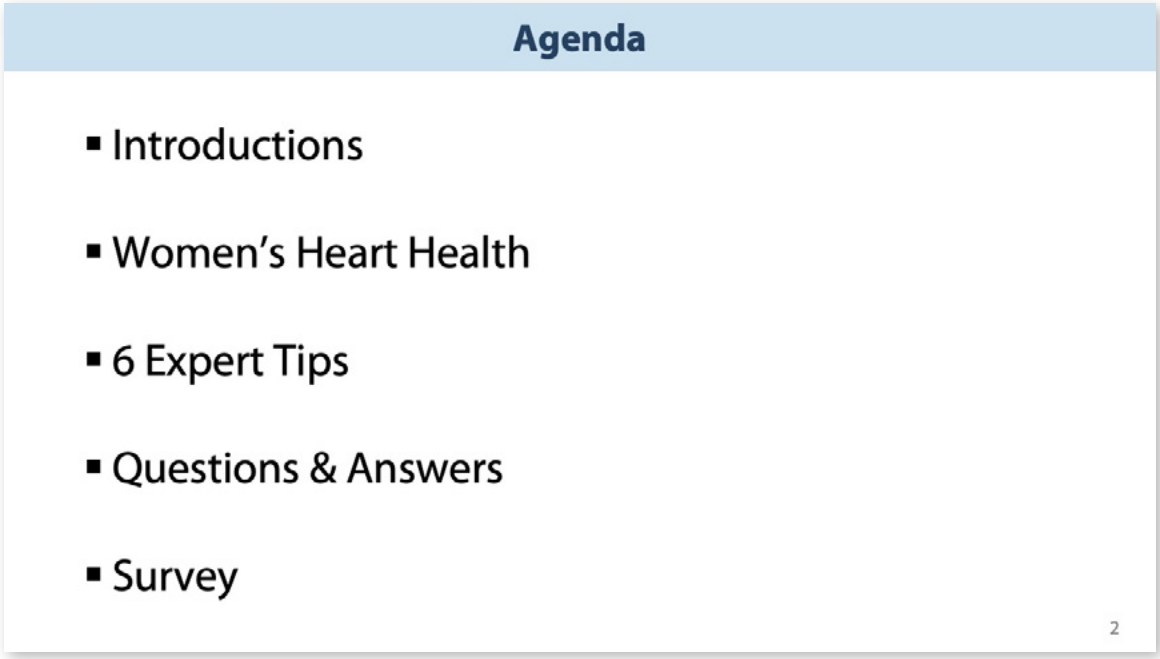
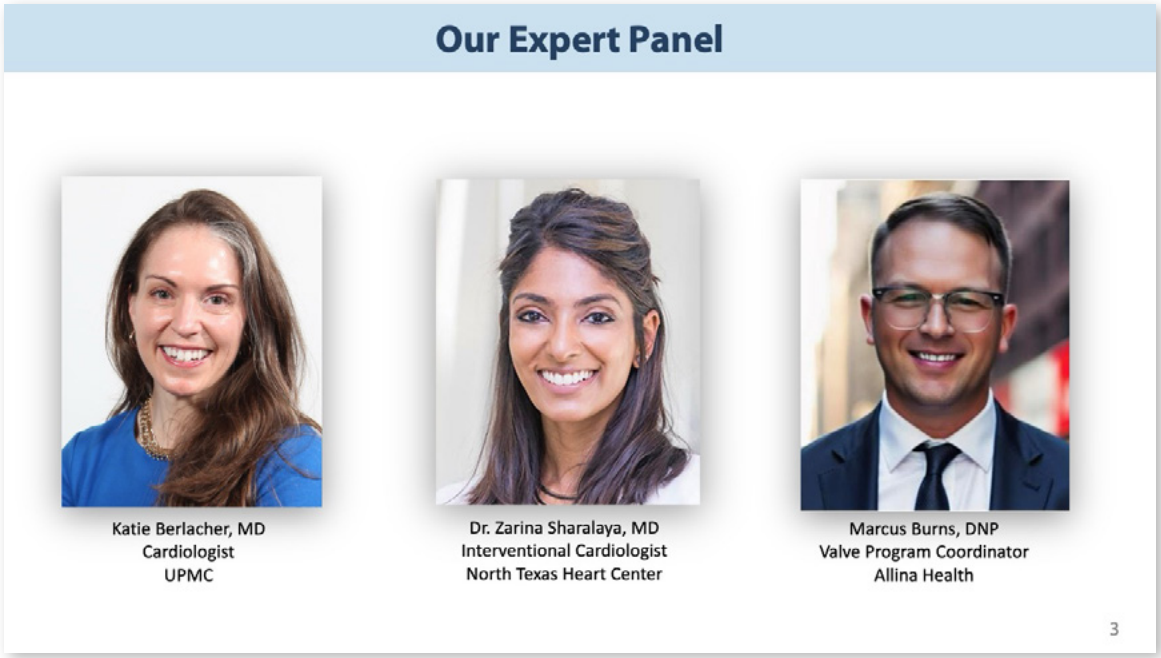


Adam Pick: Hi everybody, my name is Adam Pick. I would like to welcome you to the webinar titled, “Six Expert Tips for Women with Aortic Stenosis”. If I have yet to meet you, I’m the patient, the aortic stenosis patient, who started HeartValveSurgery.com nearly 20 years ago.

The mission of our website is simple… We want to educate and empower patients just like you. This webinar, which has had over 850 patient registrations from people in countries all over the world, was designed to support that mission. Throughout the webinar, you’re going to be in what’s known as “listen only” mode, but I encourage you to submit your questions in the control panel that’s on your screen, and you’ll see why as we look at the agenda for today.

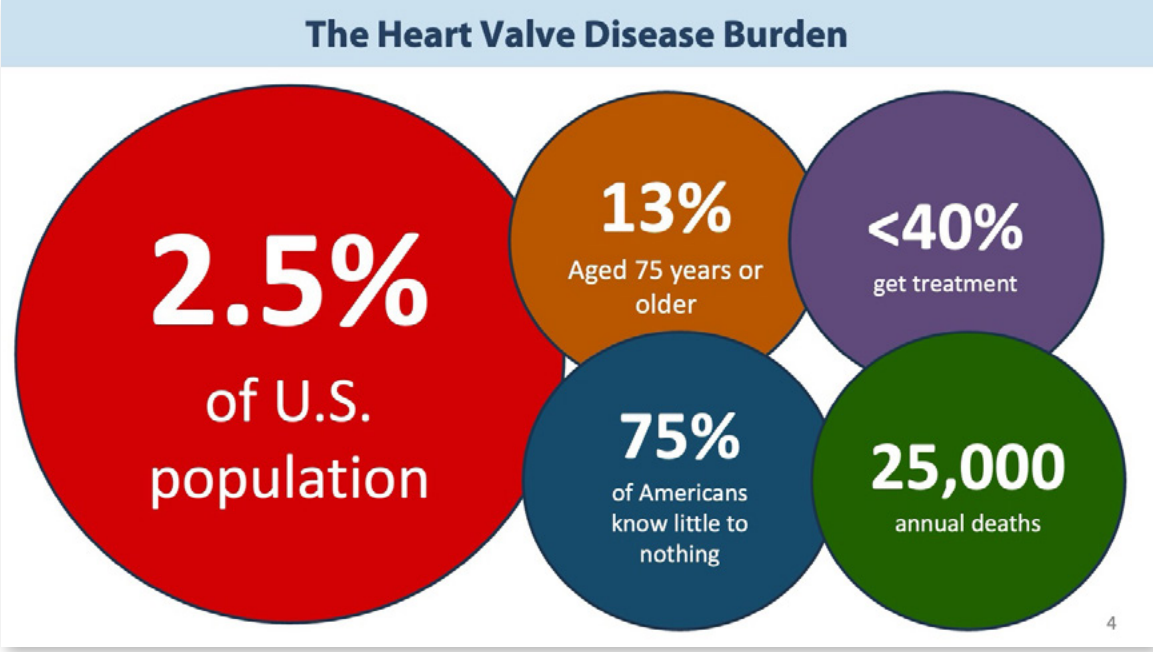


We're going to talk about the burden of women's heart health. We're then going to dive into those six expert tips, have a Q&A session, and then as we wrap up. I'm going to ask you to complete a very quick, seven-question survey.

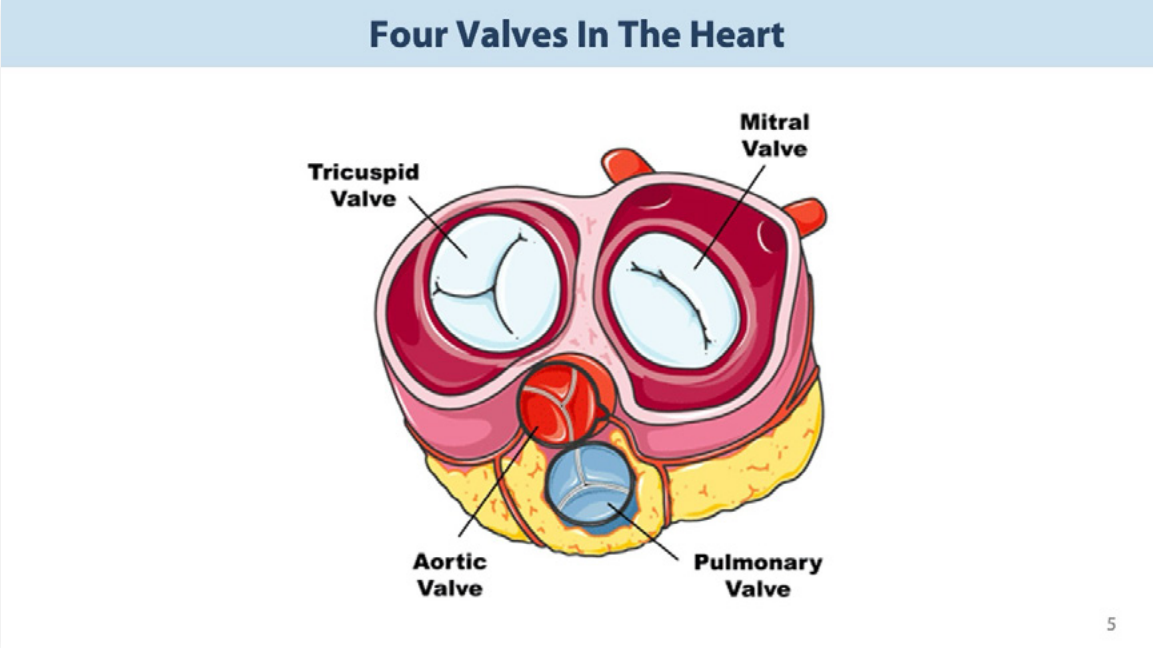


When it comes to our featured speakers, I am honored and humbled that they're taking time away from their very busy practices today. Who are they? We've got Dr. Katie Berlachercker, who is a cardiologist at UPMC in Pennsylvania. We have Dr. Zarina Sharalaya, who is an interventional cardiologist at North Texas Heart Center in Dallas, Texas. We have Marcus Burns, who is a valve program coordinator at Allina Health in Minnesota.

Heart Valve Disease Burden



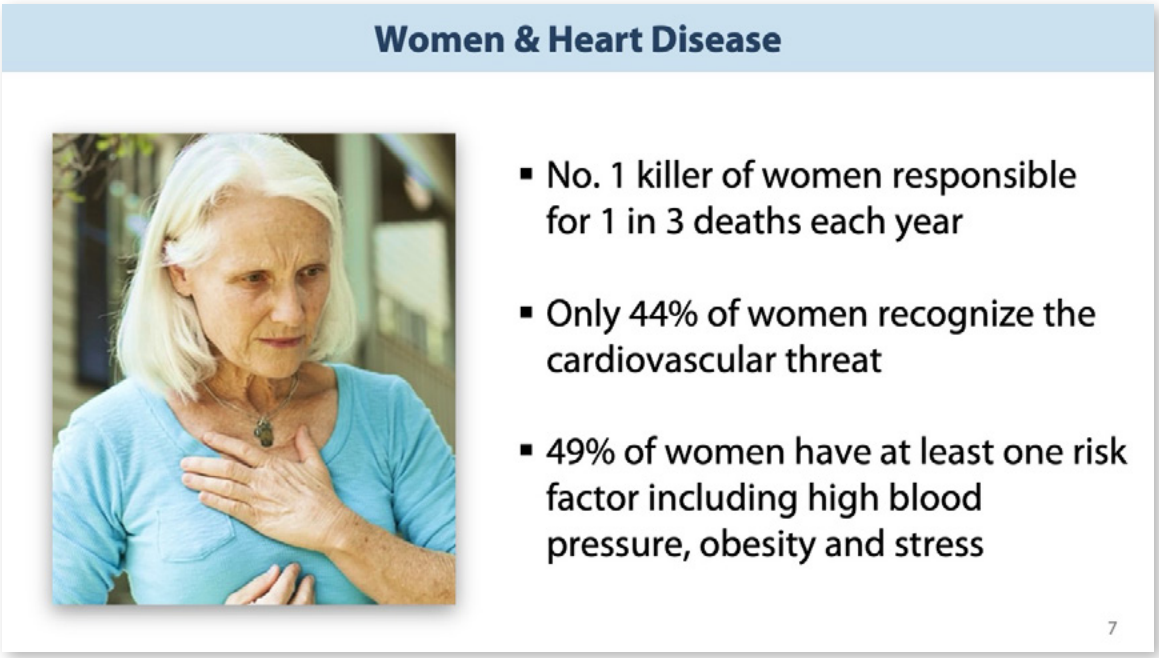
Adam Pick: We're going to get all into your specific tips, but first, we want to set the stage for the reality of heart valve disease and its burden. Let's first look at the United States. About 2.5% of the population have some form of this disease, whether it's a congenital problem or degenerative. As people age, the percentage goes up. 13% of people over the age of 75 have some form of heart valve disease. This is where the awareness problem comes in because 75% of Americans know little to nothing about heart valve disease and that can lead to more problems. 40% of this disease is undertreated. Sadly, as a result, on an annual basis, 25,000 people will lose their lives this year and next year and the year after that - unless something is done. This is a really serious problem.



Let's very quick level set with the top view of the heart to what these valves are, the four valves, tricuspid valve, mitral valve, pulmonary valve, and what we're going to talk about today is the aortic valve.

What are we doing to raise awareness to this disease? One of the things is we are coming together for things like the Heart Valve Disease Awareness Day, which is held every year on February 22nd. It was started in 2017. Over 100 organizations have band together, and you'll see that we have created a big impact for valve disease awareness as we've created over one billion impressions and touched 166 million people. It's a really good start.

Deadly Risks of Heart Disease for Women



Adam Pick: Now let's talk about women and heart disease. This is, again, very haunting when you consider that it's the number one killer of women responsible for one in three deaths each year. Unfortunately, 44% of women do not recognize that cardiovascular threat, while at the same time, 49% of women have at least one risk factor, including high blood pressure, obesity, and stress.

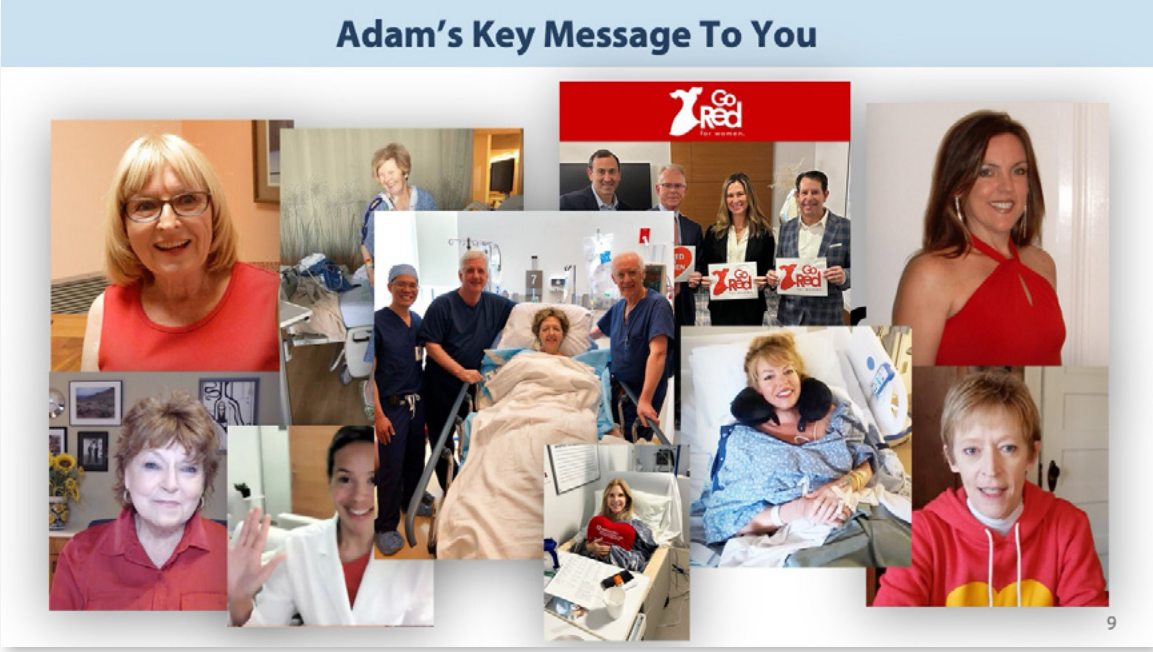
Go Red for Women

- Started by the American Heart Association
- Launched in 2004; Held on the first Friday of each Heart Month
- Goals:
  - Raise awareness
  - Encourage preventative actions
  - Provide resources
  - Support research and advocacy

8

What are we doing now for women? Things like the Go Red for Women initiative. You might see that we're all wearing red today. Why? Because tomorrow is National Wear Red Day, which we want to elevate the awareness to women's heart disease burden. This was started by the American Heart Association back in 2004. Every first Friday of each heart month, we have this day. The goals are perfect; we want raise awareness, encourage preventative actions, provide resources, and then create the support for both research and advocacy to help women protect their cardiac systems and their health.

Key Message for Patients



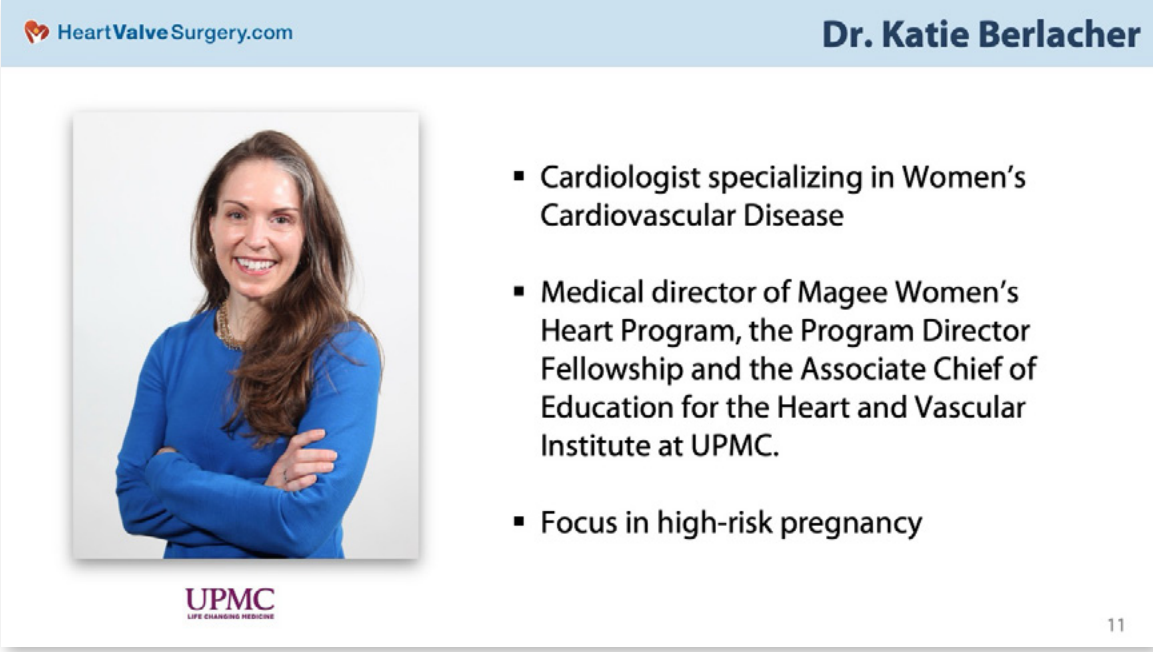
Adam Pick: Unfortunately, I don't have a "tip" to share today. But, I do have a message that I would like to share with you. That message is everybody on this line, whether it's Deborah, Diane, Dina, Elizabeth, Ellen, I just want you to know you are not alone. Whether you're young or whether you're old or whether you're newly diagnosed, whether you're going in for surgery tomorrow, HeartValveSurgery.com has built a community of patients, physicians, and care providers to support you from the moment you're diagnosed to the moment you feel recovered.

My email address is adam@heartvalvesurgery.com. Anytime you want to get in touch with me, all you have to do is email me at adam@heartvalvesurgery.com.

Medtronic Takes Action to Support Women

Adam Pick: One final point before we get to the tips; it's a thank you to our sponsor. Our sponsor is Medtronic. Many of you probably already have some of their devices in your cardiac system, or perhaps you'll be getting a Medtronic device, but this is an organization that is doing some really fantastic things specific to valvular disease and women's heart health. What do I mean? You may have seen that they put together the Women's Heart Health Congressional Day in Washington, DC, bringing together leaders in the space, physicians and patients to tell their stories about the burden. We not only just got together to talk about it; we actually went onto Capitol Hill. You can see us here. We're really talking to congressmen and representatives. Why? Because we want them to get involved. We want them to understand the misdiagnosis, the under-diagnosis, and the undertreatment of this disease. Many thanks to Medtronic for getting us all together today.

Patient Story: Turi Gets Her Life Back



Adam Pick: Let's get to those expert tips. We're going to start with Dr. Katie Berlacher, who is a cardiologist specializing in women's cardiovascular disease. She's the medical director of Magee-Women's Heart Program, the program Director Fellowship and the Associate Chief of Education for the Heart and Vascular Institute at UPMC. Interestingly, her focus is in high risk pregnancy.

Dr. Katie Berlacher: Thanks, Adam, and thanks to everybody who's joined tonight. It's really such a joy to be on here and to celebrate a day early the Go Red Day. It is one of my favorite days of the year in February. It's one of my favorite months of the year because the entire month is heart month. Adam, thanks for all that you do. Thanks to you and your team and all the patients that are on here. I know Zarina and Marcus and I really are passionate about spreading the word about the things that we do.

As Adam said, I am a cardiologist in Pittsburgh, Pennsylvania. I've spent my entire life dedicated to taking care of women and back to majoring in women's studies when I was in college, and really on to focusing on women as I've done all of my training in internal medicine and cardiology, and now directing the center for women's heart disease, which does incorporate high risk pregnancy, but does talk about women and their concerns about heart disease or the developed heart disease in their treatment throughout their lifespan.

That can start as early as in their teen years, but goes all the way through menopause, post-menopause, and beyond. I'm really excited to talk tonight about aortic stenosis. As I was telling Adam and Marcus and Zarina a little bit before we started, I see patients daily, even today, in an ICU who has pretty severe critical aortic stenosis. It's a really important thing that we all talk about.

One of the things that I wanted to talk about today is one of the people that has touched my life for a very, very long time. I've taken care of her as a patient, but really she is my grandmother, first and foremost. Her name, all of her grandchildren call her Turi. That's the way that we could pronounce her last name in its short form. Her first name is Maryanne. That's my grandfather who has since passed, but Maryanne is now 96 years old. This is her a little bit younger. She's one of the faces of aortic stenosis. Sadly, there were a few years ago when she called us really out of the blue saying that she was very fatigued and short of breath, and we did a deep dive into what that could be, and at first ruling out things like a virus or loss of blood or low blood levels.

What it ended up being as we moved forward and looking into the causes of this was to look at her aortic valve. She ended up having a very loud murmur; had never had any sort of ultrasound or workup of that murmur. It led to us finding out that the diagnosis of aortic stenosis, the reason we are here today, is something that she was carrying and something that actually needed to be fixed pretty quickly.

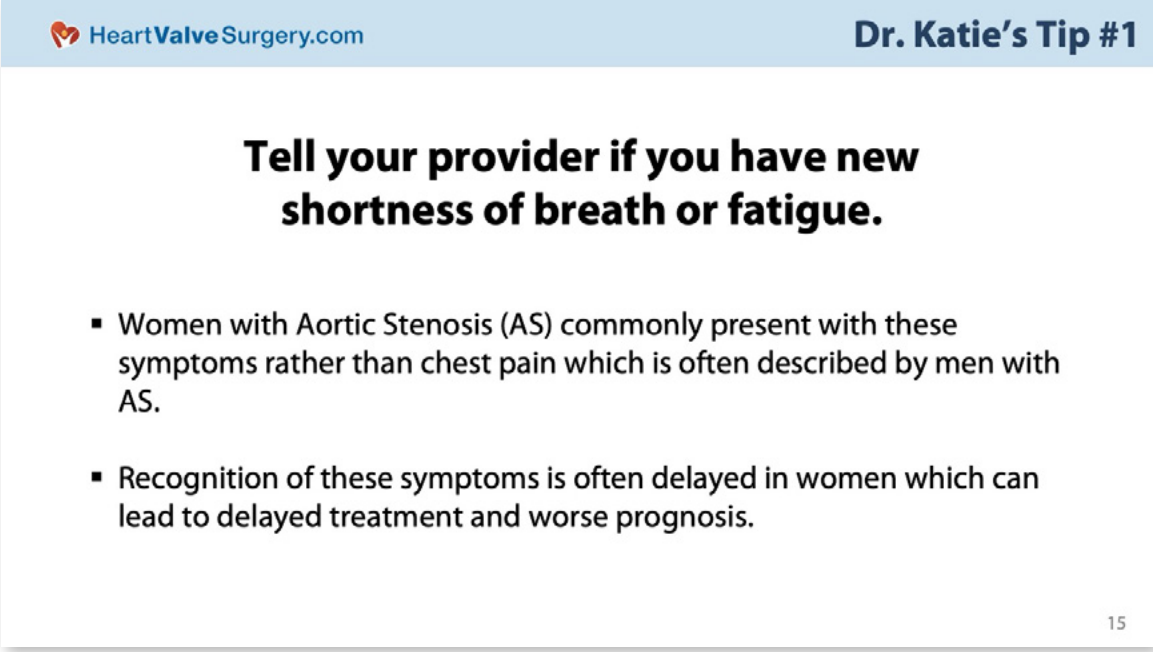
We'll talk about why, because she had some of the telltale signs that suggest severe aortic stenosis when it needs to be replaced. One of the most important things is that what Turi has done since she has had her aortic valve replaced, is to continue to live a very full and vibrant life. That picture on the right-hand side is her with me and a couple of my aunts out for margaritas for lunch. This was just a year and a half ago.

I think one of her favorite things to do on a Friday afternoon is to go get a margarita with some Mexican food, and we love that.

The fact that she was able to have her aortic stenosis diagnosed and treated with a percutaneous aortic valve replacement, which I know Marcus and Zarina and I are going to talk a little bit more about the treatment of that, she was able to have it done without a large surgery and really a very short stay in the hospital, a very successful and quick recovery, and back to an even better life than she had beforehand.

Hopefully that story really shapes some of the things that we're going to talk about today, because I think a lot of the patients that Marcus and Zarina and I see, but also that Adam talks to and really that are on today, are in the same boat, and maybe they go years without knowing that they've had the diagnosis and then are surprised when they get diagnosed.

Tip #1: Speak Up When New Symptoms Appear



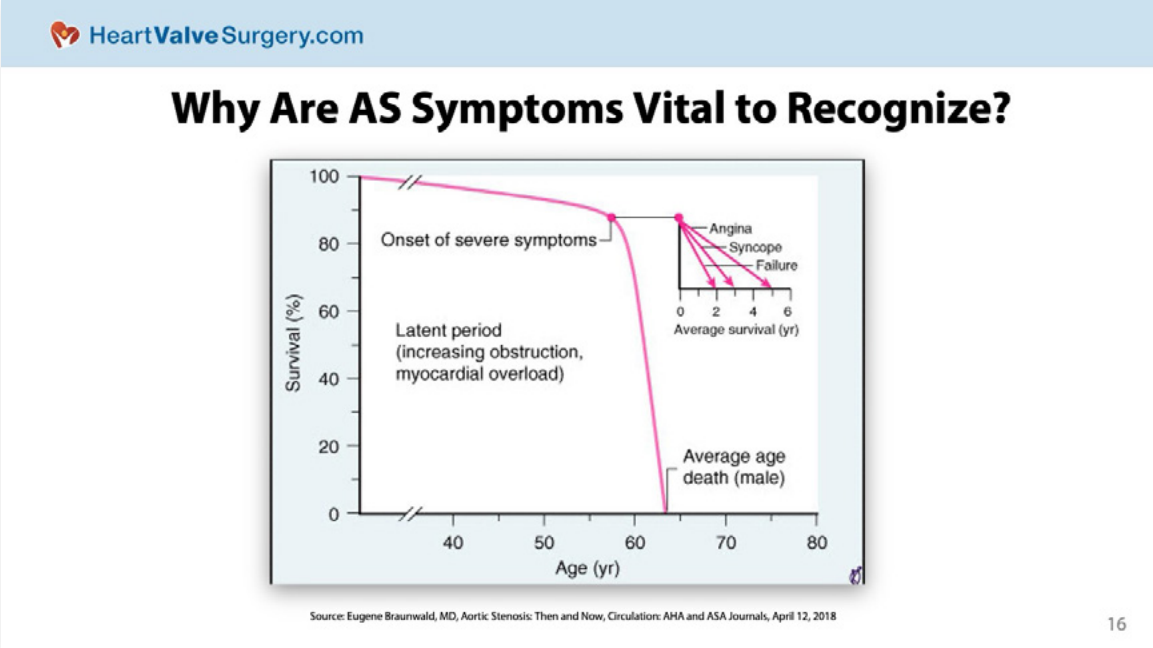
Dr. Katie Berlacher: What we want to talk about really specifically is symptoms that women might have slightly differently or more commonly than men.

We're going to go to the my first tip, which is, tell your provider if you have new shortness of breath or fatigue. Again, this was the primary symptom that my grandmother had, but really the primary symptom that a lot of my patients have, they will tell me first and foremost that they're just tired all the time; that even a nap doesn't make them less tired and that when they start to do activities that's really less activity than they're used to, they become short of breath very, very quickly. The reason that these are important symptoms is because we

know that they are a sign that you have developed more severe aortic stenosis.

Just to go back to what Adam was saying earlier in the webinar when we were talking about the aortic valve, the aortic valve is the last valve of the heart that blood flows through before it goes to the rest of the body.

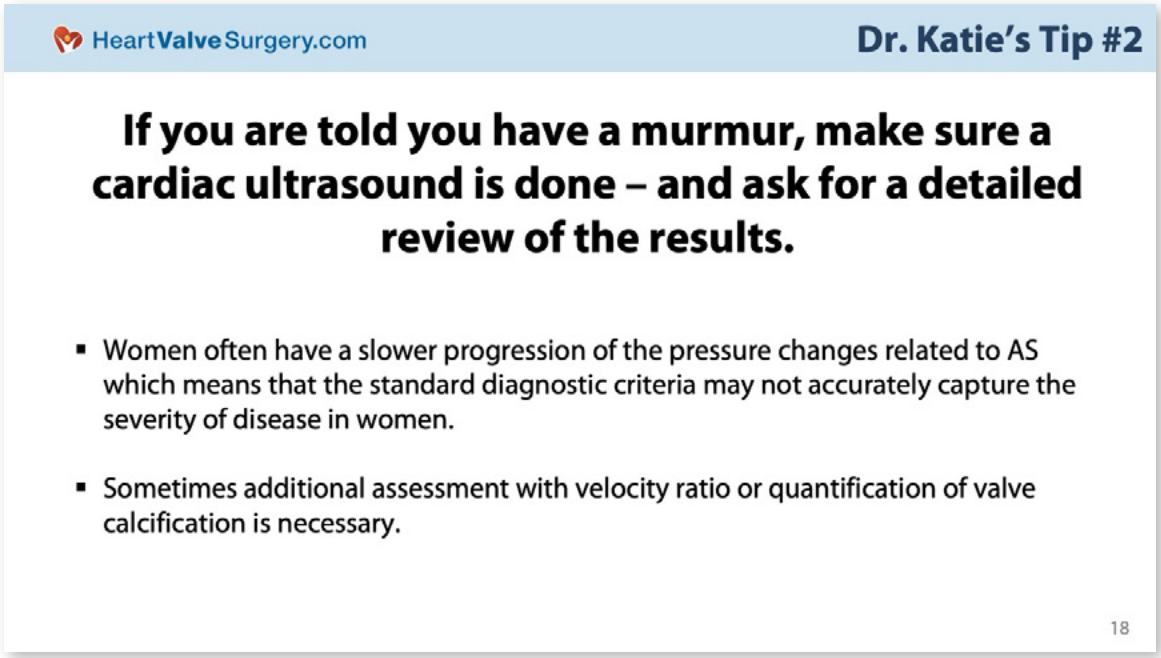
When we say aortic stenosis, what that means is that that valve has become really stiff and calcified. Instead of opening like this, nice and wide, it only opens a little bit, and that means that the blood doesn't go forward as much as it should, and oftentimes goes backwards into the lungs. That's what can cause shortness of breath. Oftentimes, the fatigue is probably part of why or part of the cause of not getting enough blood to the brain or to the rest of the body. Recognition of these symptoms early is really helpful so that we can get a start on all of the diagnostic workup, the imaging that you might need, but also a plan for the treatment.



The reason this is really important is because when you start to develop a symptom from aortic stenosis, we know that, that is the key time, if not maybe even a little past time for us to go in and do a replacement.

Remember, aortic stenosis is really hard to treat with medications. We can treat some of the risk factors with medications, but we can't treat the actual aortic stenosis with a medication that you can take any day, every day. We have to replace that valve when it gets to the point that it is stiff enough. We'll talk about ways that we can do that, but this slide here shows that once you have severe symptoms, we know that there's a short period of time between the time you start to have symptoms and the time that valve causes severe problems or even death to intervene. It's a really short window in which we can actually take steps to prevent bad things from happening to you.

Tip #2: The Importance of Cardiac Ultrasound

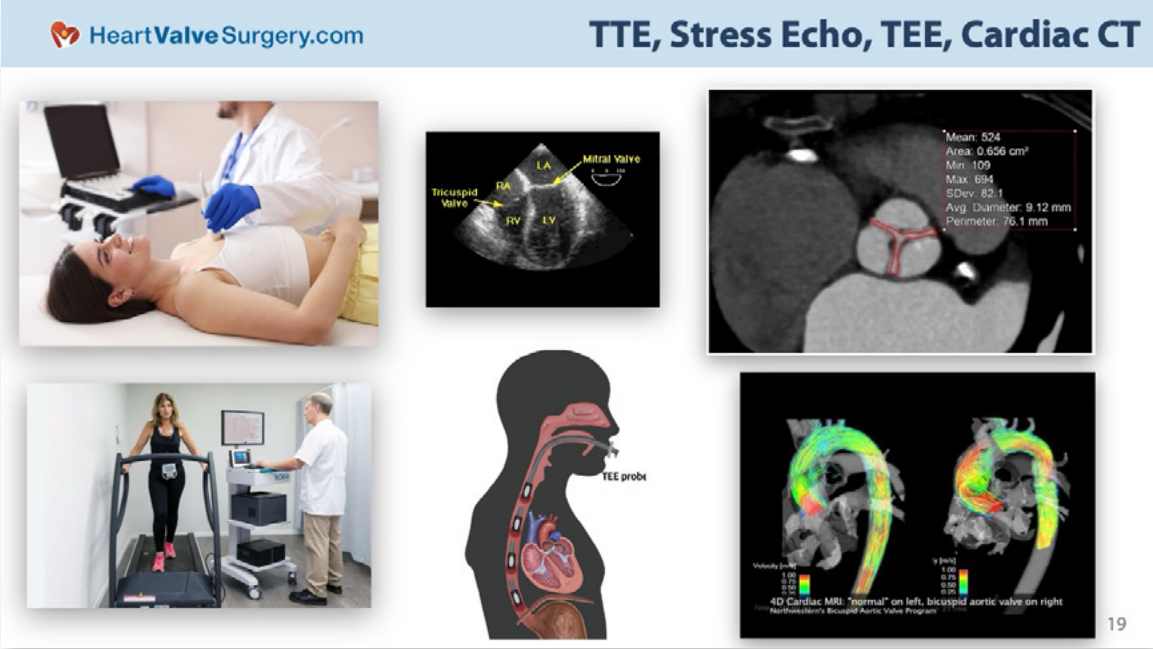


Dr. Katie Berlacher: The next tip that I want to share is how this workup happens. I know that a lot of this information can be overwhelming and that if you have a murmur or somebody tells you that you have aortic stenosis, it feels like you don't know what to do next. We're going to go to tip number two and tell you that if anybody ever tells you that they hear a murmur in your heart, you should make sure that you have a cardiac ultrasound, also known as an "echo" or an echocardiogram done.

If at any point at any time that somebody says, "Oh, I hear a murmur," the next step really should be looking to quantify what that murmur is and find out where it's coming from. When you get that ultrasound, or the echo of that heart, that can really tell us where the murmur is coming from. Murmurs really are just a sound that is made in the heart when blood flow is faster. Faster blood flow occurs when we have a very stiff aortic valve.

What we do with that echo is measure some of the velocities, the speed of the blood, as well as gradients, the pressure in the heart. Once we get to certain velocities and pressures, we can estimate how severely thick and close that valve is, and it can tell us what the right time is or when we want to replace that valve.

Sometimes an echo is not enough. We have to do more studies to look at that aortic valve to get more information. I'm going to go to the next slide and say if or when you review the results of your echo of the ultrasound of your heart with one of the clinicians that you are seeing, they might say, now we need to have a CT scan, or a stress echo, or a TEE, which is just a different kind of ultrasound from inside the body.



These are a bunch of pictures of those types of studies where we get more information about the heart valve, and that really helps us estimate not only if it's time to replace it, but also how we could go about replacing it and what that best approach is.

On the left hand side, you see the ultrasound on the top left. On the bottom left, you see a stress echo. That means we ask you to walk on a treadmill and then take pictures of your heart immediately after. The middle pictures, top one is what the clinicians see, and the bottom one is for you to show that the teeny tube that's about the size of my pinky, that's what goes in your throat and behind your heart to take pictures sometimes. The last one on the far right hand side is what's called a cardiac CT scan. I'm sure many of you have had or know of others who've had a CT scan.

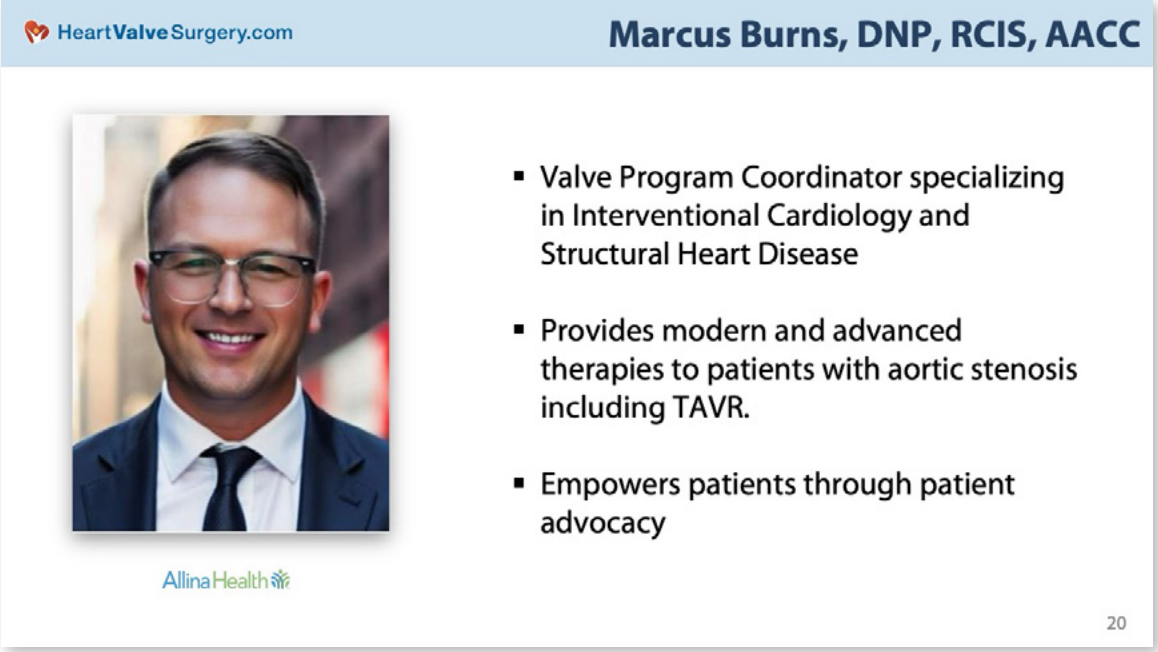
This is a special kind of cardiac CT that allows us to estimate the amount of calcification that are in hearts and in the valves so that we can estimate the severity, but also the approach to treating it. Again, the two main tips that I have, if you have shortness of breath or fatigue, make sure that you tell a provider about it so that we can get more information about it; and then second, make sure that if somebody tells you, you have a murmur that you're getting it looked at with an ultrasound of the heart.

Patient Question: High Calcium Foods, Supplements and Aortic Stenosis

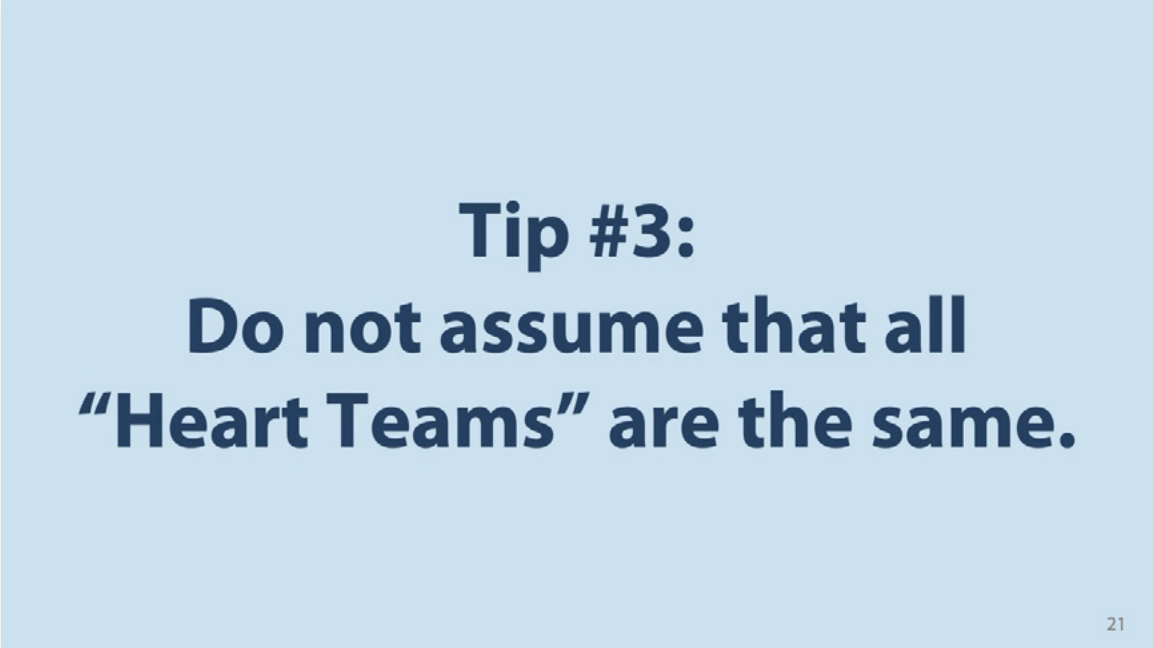
Adam Pick: Dr. Berlacher, those are great tips. When we hear aortic stenosis we think about the calcium associated with aortic stenosis. We're going to go real time to a question that just came in from Dina in my inbox. She asked if calcium intake from calcium rich foods or calcium pills, should they be avoided? Could that result in negative impact on aortic stenosis?

Dr. Katie Berlacher: Dina, thanks for asking. That's a common question we get. We've not seen a clear cause and effect of increased calcium that causes increased calcifications. There's some signs, there's maybe some early signs that maybe it could slightly increase it, but it won't cause the severity of aortic stenosis that you're going to get for it to be replaced. I never tell people to decrease their calcium intake just to avoid aortic stenosis, because calcium is also really important to have strong bones and to avoid pelvic fractures or other fractures.

Tip #3: All Heart Teams Are Not The Same

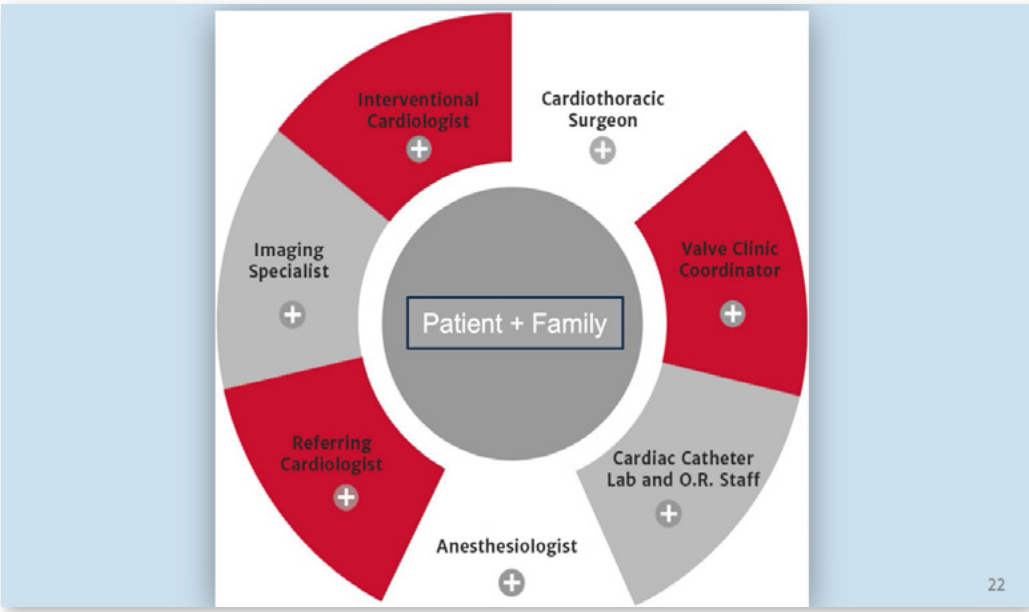


Adam Pick: Now, we're going to move on over to Marcus Burns who is the valve program coordinator specializing in interventional cardiology and structural heart disease. He provides modern and advanced therapies to patients with aortic stenosis that could include transcatheter aortic valve replacement. What Marcus really helps patients with is empowerment through advocacy. Marcus, thanks so much for being here today, and we'll let you continue on.

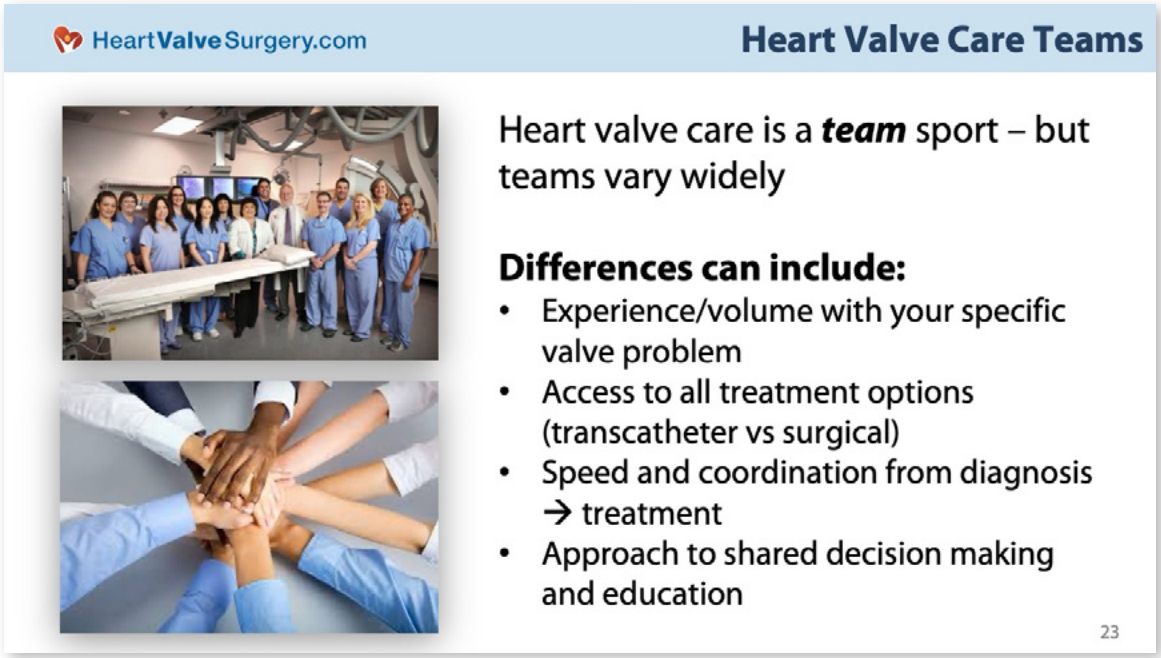


Marcus Burns, DNP: Katie did an amazing job of laying a super great foundation for this talk. I’m looking forward to expanding a little bit on the advanced practice and the valve coordinator role and how we serve at that intersection between nursing and medicine. I think that a lot of the things that we do behind the scenes really set the precedent for the care that patients receive.

I just want to say “Hi!” to everybody and thank you for tuning in as an audience member. If you or a loved one has ever been told that you have a valve problem, specifically aortic stenosis, I think the most important thing to know is that getting the right care isn’t just about the procedure, replacing the valve, it’s about the team and the pathway that gets you there. Today, I’m going to give you two practical tips that you can use immediately, plus a story why age alone should not make decisions for you.

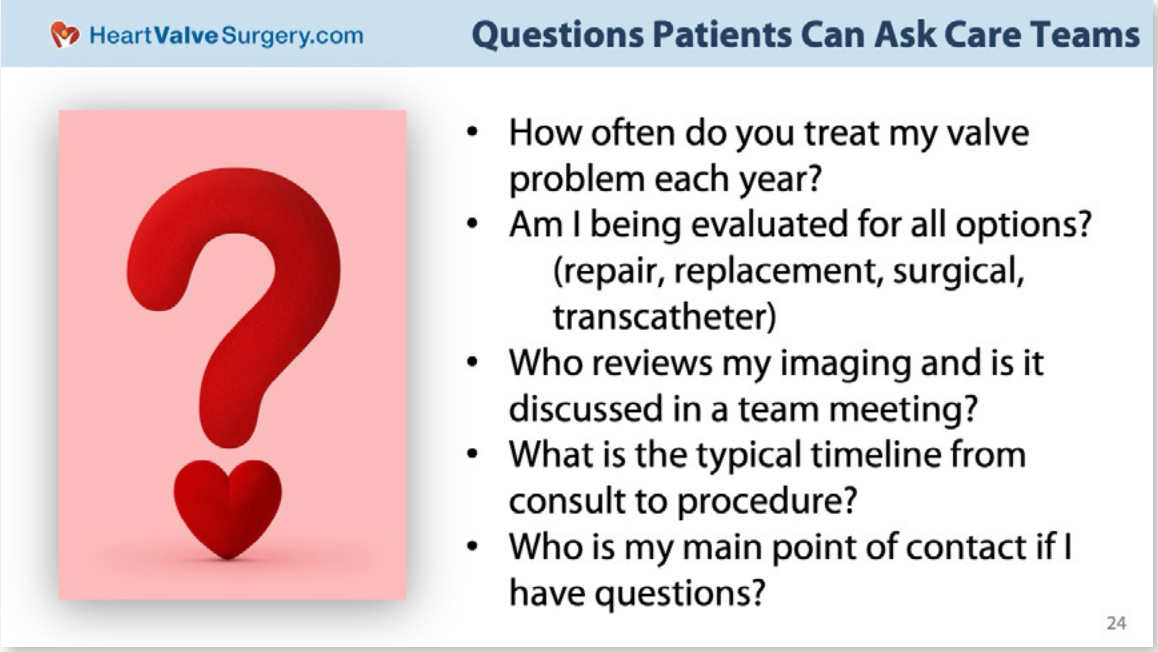


My most important tip is... Do not assume that all heart teams are built the same. This is a landmark graphic which shows a multidisciplinary heart valve team. This graphic shows you that valve care isn't handled just specifically by one doctor; it is a team sport and it's a heart team working together around the patient and family is integral. You have your referring cardiologist who identifies problems and connects you to the team. You have an imaging specialist who performs and interprets key heart scans to confirm exactly what's happening. You have the interventional cardiologist who focuses on less invasive procedures like transcatheter aortic valve replacement, and you have a heart surgeon that evaluates the surgical options and seeing if that is the safest or the best option for you. You have an anesthesiologist in the cath lab staff that support the procedure step-by-step. Importantly, you have a Valve Clinic Coordinator or an Advanced Practice Provider (APP), like myself, that serves as the air traffic controller. We work with scheduling, answering questions along the care pathway. We guide you through tests and procedure day and into follow up so your care feels coordinated.



Heart valve care is truly a team sport, but I think it's important to recognize that not all teams are built the same. Two different hospitals can both say that they have heart teams, but the experience can vary and the ways that you receive care can impact your outcomes as well as just stress level. The differences that I would like to highlight are the experience and volume -- especially when you look at specific valve conditions like aortic stenosis, mitral regurgitation, tricuspid valve regurgitation, you want to know if access to all treatment options are there, whether they have options for catheter-based or less-invasive therapies, versus surgical therapies when appropriate. An important thing to understand is the speed and coordination from your initial diagnosis to the treatment that you're going to receive, as well as how they educate you to include shared decision-making processes. A key takeaway here is that you are allowed to ask smart and direct questions because clarity and options are part of quality care.

Questions To Ask Your Care Team



Marcus Burns, DNP: Questions patients can ask... I would use this somewhat as a script. You don't always have to know all of the medical jargon. I think that you need to know just the right questions to ask. I've proposed a few of them here that you can read.

I would say how often do you treat my specific valve problem each year? I think procedural volume can bring with experience and it can be a quality measure. There's many publicly reported data measures that are available, and so patients can do their due diligence and their research.

I think a second question to ask is that I'm being evaluated for all treatment options, looking at repair options, looking at replacement options, looking at transcatheter versus surgical options. You want to be treated at a center that's

comprehensive, that really looks at all of the options and look at what is the best and safest option for the patient.

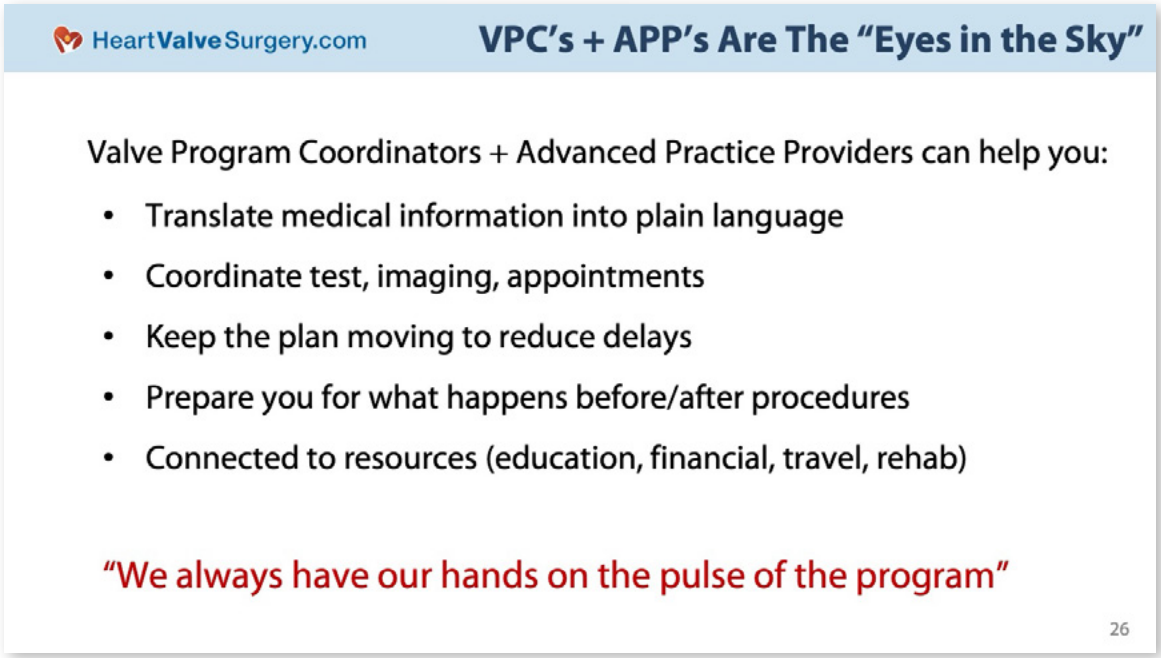
I think another great question is who is reviewing the imaging that's taking place, and is it discussed in a heart team meeting? I mean, these are mandated CMS measures that patients that need to be evaluated by a heart team need a comprehensive review, and that includes a heart team meeting to discuss all of the imaging and the patient's history to come up with the safest and best plan for them. I think something that really comes to the forefront for many patients, especially when they're increasingly symptomatic, is what is the typical timeline for treatment?

From my initial visit, from the consultation that we have performed, what is the expected time to treatment or to a procedure to get them treated? This is where myself and my care team comes into place is, who is my main point of contact. The doctors, the physicians are extremely busy, and so I think that myself and the valve clinic coordinators serve as a perfect surrogate to be a point person for patients to be able to understand where they are in the care pathway and where they can understand of what the next steps are being.

These questions, I don't think challenge the physicians that are involved in your care. I think they help your team help you, and they also review whether you are in a system that's coordinated and it's experienced and the care is transparent.

Tip #4: Use Valve Coordinators As Your "Air Traffic Control"

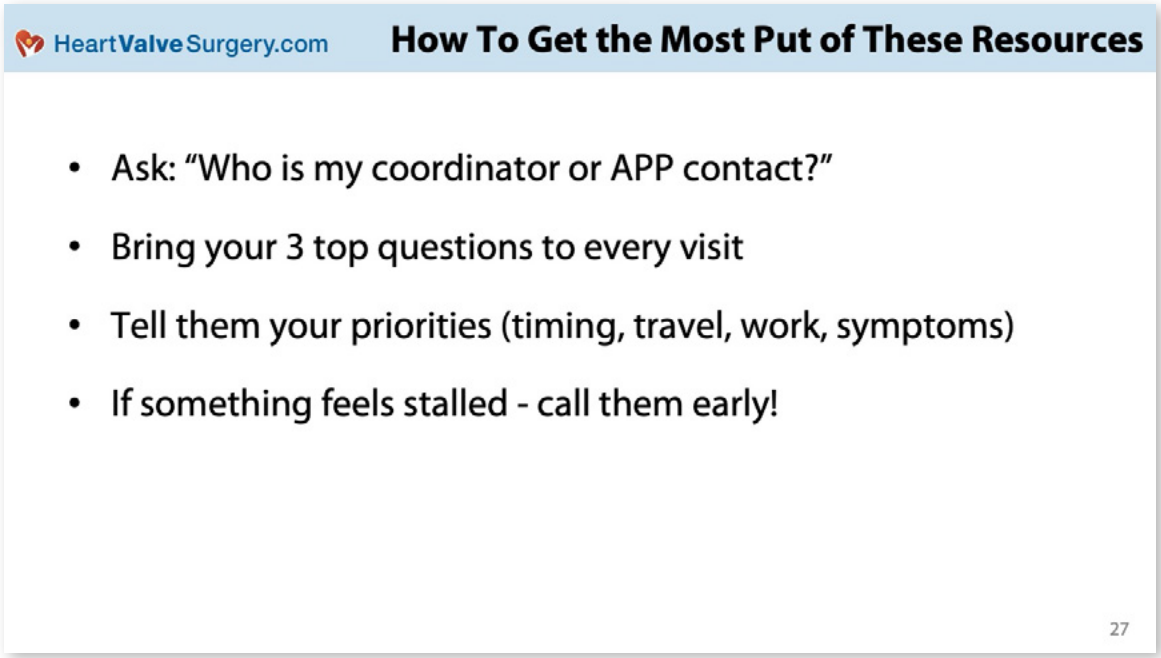
Marcus Burns, DNP: My second tip is that I would use the Valve Clinic Coordinators and Advanced Practice Providers, like myself, as your air traffic controllers. I think that we really have a greater understanding of where patients are within the care pathway. You often overlook that the biggest difference in your experience is where you're at in the care pathway and the care that you're receiving.



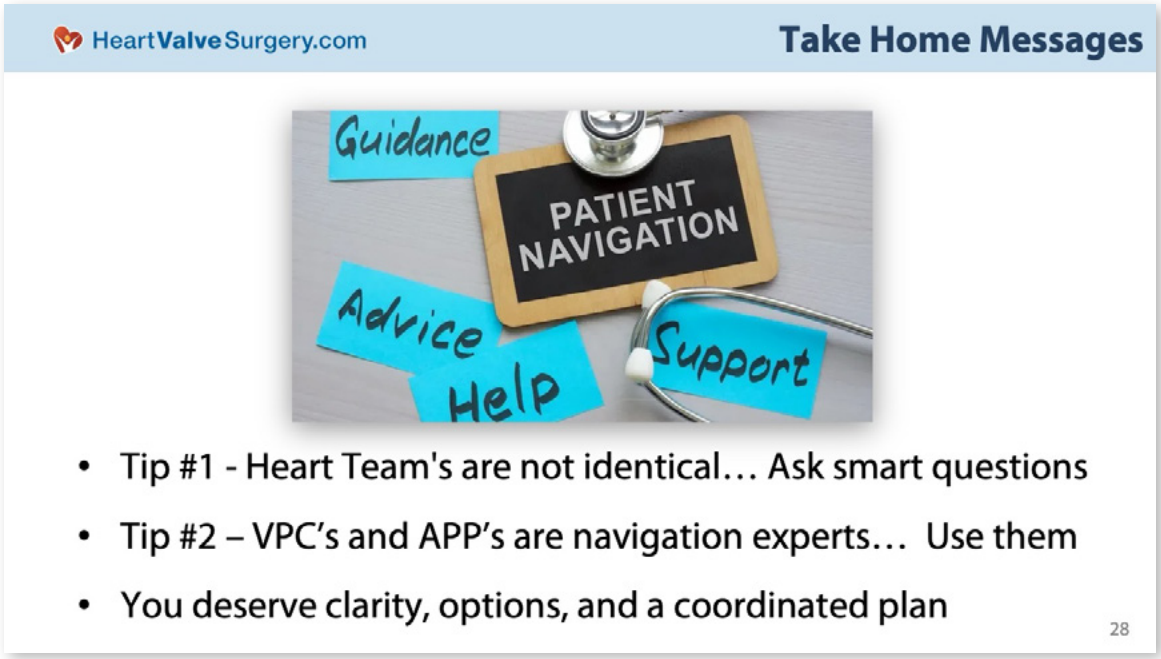
We really keep things moving safely and on time. I've written down a few key tips here. I think that Valve Program Coordinators and Advanced Practice Providers being the "eyes in the sky". We really can help you translate medical information into plain language. We are the ones that are coordinating the testing, the imaging, and the future appointments that are taking place. We keep the plan of care moving and reduce delays, and we also prepare you for what happens before and after your procedure and help to connect you with resources, whether those be education in nature, travel planning with cardiac rehabilitation after the procedure, and even sometimes financial navigation because everybody has different payers and different means as far as insurance goes, and so these can be very difficult pathways.

We can help with a lot of these things, but if we can't help with them individually, we're going to put you into resources that we feel that are helpful for understanding that.

In many valve programs, these 10 members really have our hand on the pulse. I pride myself on that. If a patient calls our valve clinic or they're coming into the clinic and they want to know where they are within the care pathway, we really can identify where they're at and help steer them accordingly. When we don't know or when the patients don't know, I think that we should be their first call, because we're the ones that can help instruct them and help them get the resources that they need.

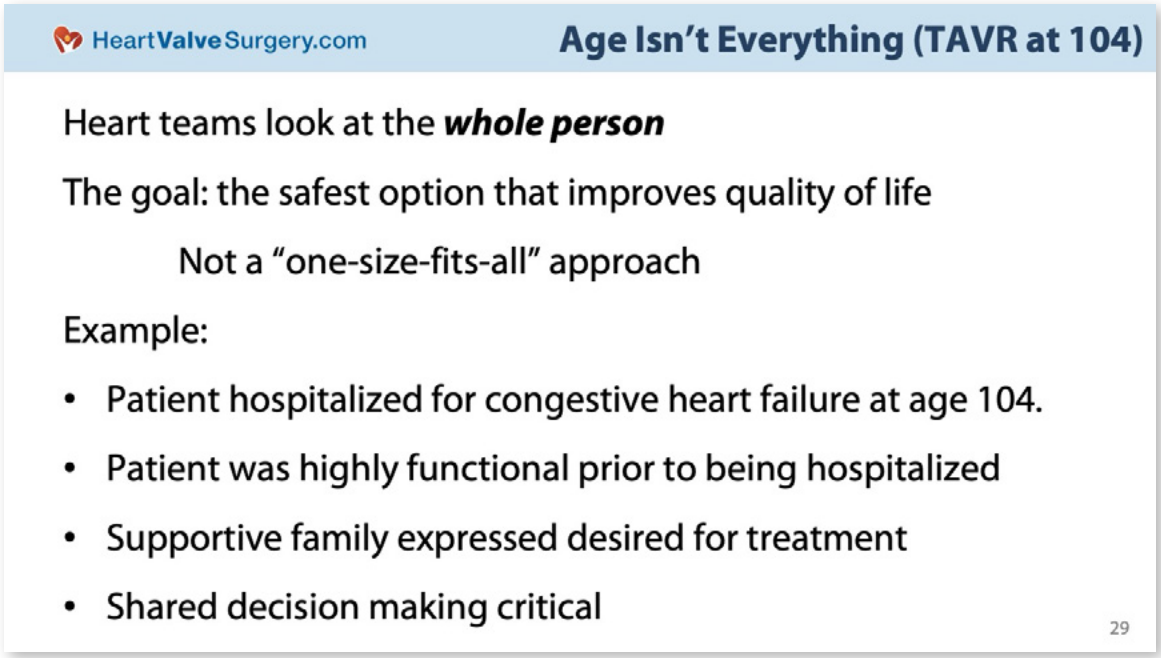


I would ask these couple key questions when you're seeking care. Who is my Valve Program Coordinator and/or my Advanced Practice Provider? As far as a central point of contact, I always encourage patients when I see them in clinic, bring at least a couple questions that you really want to have answered. Top three questions for every visit, and write those down so you don't forget this information. I would tell them about your priorities. I mean, sometimes I live in Minnesota; we live in the bold north; there's many patients that travel to Florida or Arizona for the winter months, and so they want to know about therapies and treatment and follow up and those kind of things. How much time off work am I going to need and what symptoms should I be looking for, as far as concerning areas. If something really feels stalled as far as the care goes, I always stress, call early, don't wait until you're frustrated or there's increasing symptoms, whether those are shortness of breath or otherwise. This is not being difficult for the patient. Understand, this is not being a difficult patient; this is being a prepared and proactive patient.



In closing, some take home points; I want to leave you with these three messages. All heart teams are not identical. Ask smart questions so you understand the experience, the options, and the timelines with your care plan. I would say secondly, use your Valve Program Coordinator or your Advanced Practice Provider. They're your navigation expert and/or, for lack of a better term, air traffic control. Thirdly, you deserve clarity options and a coordinated plan and your voice brings or your voice belongs in every decision. If you remember nothing else from what I've said today, I would say ask, connect and advocate and don't go through the process alone.

104-Year-Old TAVR Patient Success Story



Marcus Burns, DNP: I do have a patient story that I would like to add. Katie's story was great about her grandmother. A quick take home again for this is, again, every patient is different and our heart team looks at the whole person.

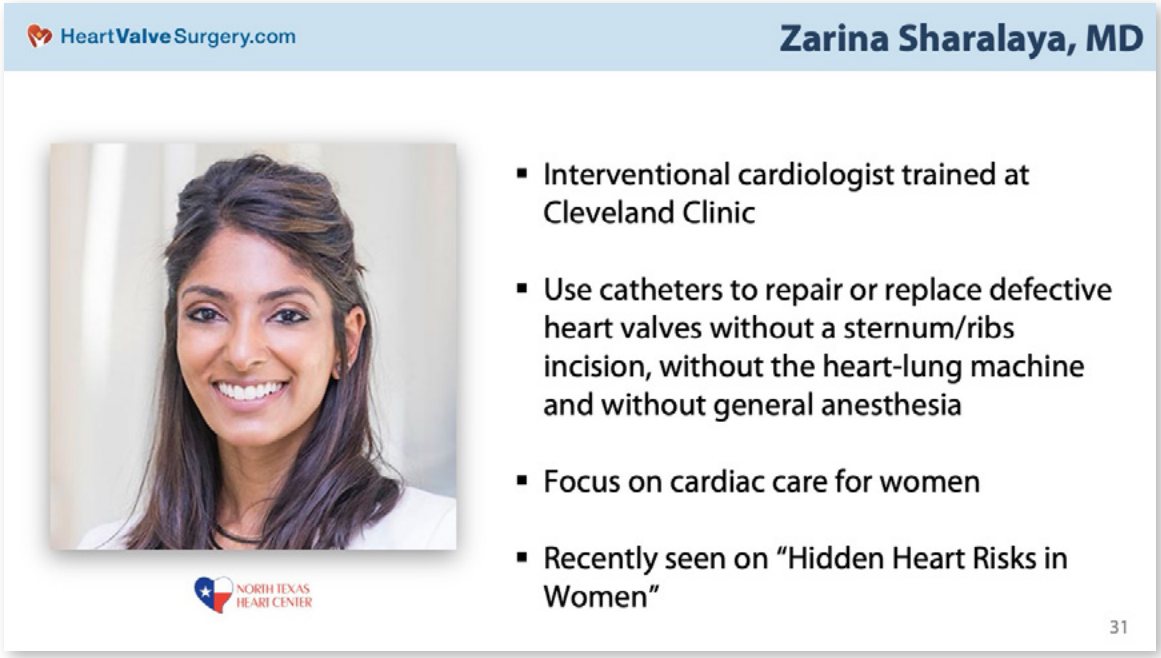
I will never forget. I was on service and I received a consultation for a patient with severe and symptomatic aortic stenosis. This patient was 104 years old and I was in awe when I saw the date of birth come across on the initial consultation page. Asit turns out, this was a very viable, vibrant 104-year-old patient.

She was super highly functional. She had a supportive family. I remember going into the room and there was probably six or seven different family members that were there, which showed their level of care and support. She was volunteering at a senior center three days a week, helping with the care of patients and/or patients that were – I shouldn't say patients, but attendees in the care center that were probably 30 years younger, and she was helping to run circles around these patients. You have to look at the whole person, not just the birth date. For us, looking at this patient individually, the goal was the safest option that improved her daily life, her quality of life, and there is no one size fits all for this patient.

The outcome after the treatment was that we treated this patient while she was awake with transcatheter aortic valve replacement. She was sitting in a chair four hours after having the procedure.

The picture that you see on your other screen is that this was her enjoying a kayak ride with her son 30 days after her procedure. We really made an impact with her. She lived a long and fruitful life, and so it just goes to show that her family is a win; isn't living forever, but breathing easier, walking farther, being able to spend time with your family and getting back to what really matters the most is super important for patients and super impactful for us. Age isn't everything; it's just a number. You have to look at the individual patient and it was a pleasure to participate in the care that she received.

Tip #5: Surgical vs. Transcatheter Aortic Valve Replacement



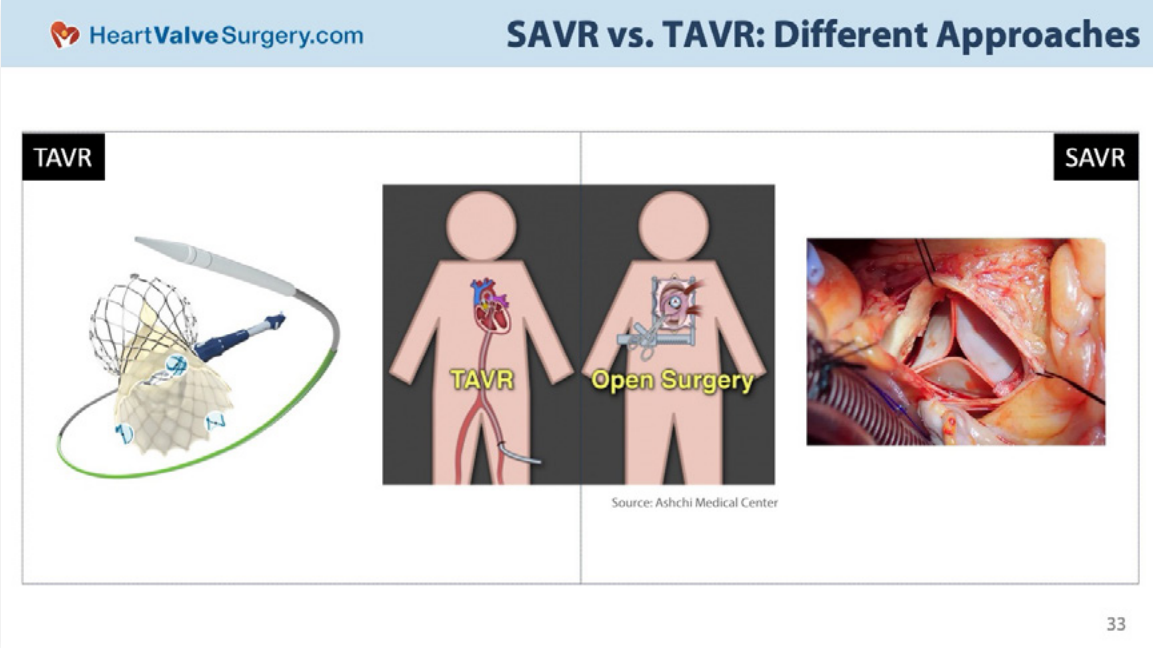
Adam Pick: Dr. Zarina Sharalaya, who is an interventional cardiologist trained at the Cleveland Clinic. What's interesting about what she does is, Dr. Sharalaya uses very small catheters to repair or replace defective heart valves without injuring or causing trauma to the sternum or ribs, and doesn't use the heart lung machine, and oftentimes, doesn't need general anesthesia. She focuses on cardiac care for women. You may have recently seen her on "Hidden Heart Risks in Women".

Dr. Zarina Sharalaya: I'm very excited to be here with you all. As Adam said, I'm an interventional cardiologist, so I help in both the diagnosis and the treatment of aortic stenosis. I actually do the TAVR procedures. I will have to say that it is one of the most fulfilling procedures that I get to do because you are quite literally giving back years of life to somebody that wouldn't be there otherwise.

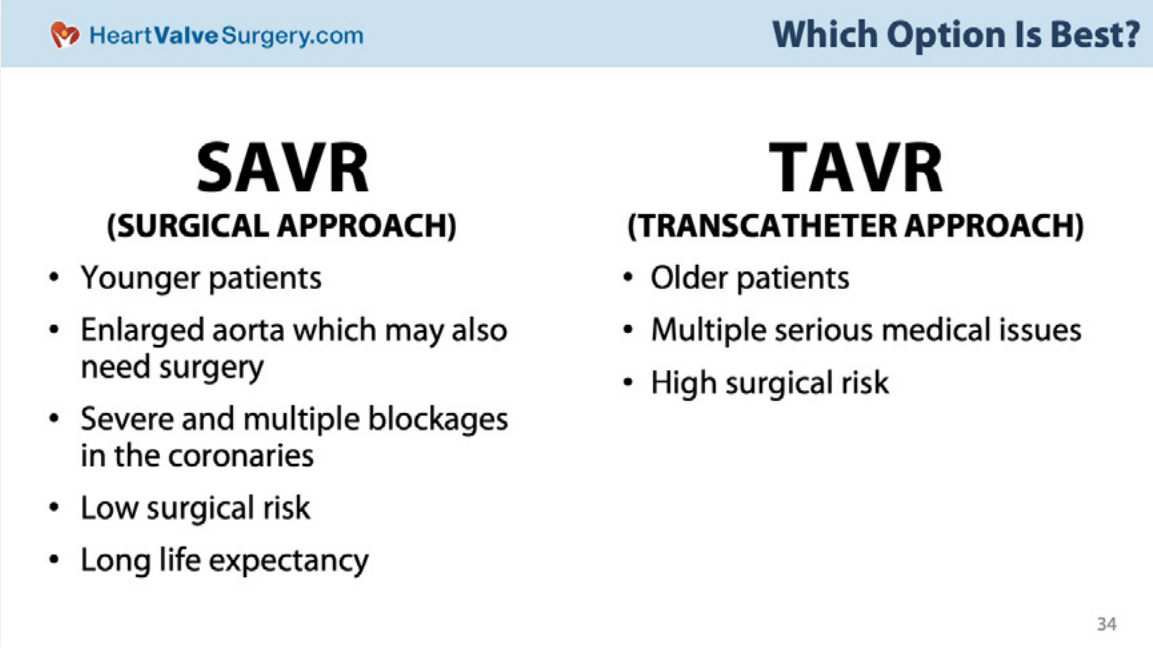
Just so everybody knows, the mortality rate, and I don't put this out there to scare people, but just to understand the gravity of this condition, is that 50% of people have passed at a year if you are symptomatic with aortic stenosis, if you're not treated. That mortality rate goes up to 90% at five years, and these are absolutely devastating statistics.

I can't tell you how many times I've seen women just brushed off with their symptoms. They come in with some fatigue. They have aortic valve disease, and for some reason, it's not being connected. If you take away anything from tonight, make sure that you are seeing a provider who takes your symptoms seriously so that you can get to the bottom of what's happening and get treated properly.

Tip number five... Ask your heart team to walk you through their thought process between a surgical aortic valve replacement (SAVR), that's what we traditionally call it, and transcatheter aortic valve replacement (TAVR). There are a lot of different considerations when you think about replacing a heart valve. Namely, what is the best approach for you, specifically based on your age, your gender, the other medical conditions that you have, and ultimately what's your overall preference at the end of the day?



This is just a comparison between the two operations. Transcatheter approach or TAVR is one option on the left side. It is less invasive. It does not require open heart surgery. Basically, the new heart valve is inserted through the femoral artery, which is the big artery at the top of your leg. This is contrasted to SAVR, which is the surgical open heart procedure, that requires the surgeon to actually open-up the chest cavity and then replace the valve with either a mechanical valve or a tissue valve. In TAVR, we are only able to implant tissue valves.



Which option is best? On the left hand side, the surgical approach, and these are just general guidelines, the surgical approach is usually reserved for younger patients. If you do have an enlarged aorta, which is that big blood vessel that runs down the body to supply your body with blood, if that aorta is enlarged, you might also need surgery for that.

If you have two conditions, a surgery is probably a better option. If you have severe and numerous blockages in your coronary arteries, that is often best fixed with a bypass surgery along with the aortic valve replacement from a surgical standpoint. Overall, if you have longer life expectancy and you're at lower surgical risk, you are probably potentially a better option for surgery.

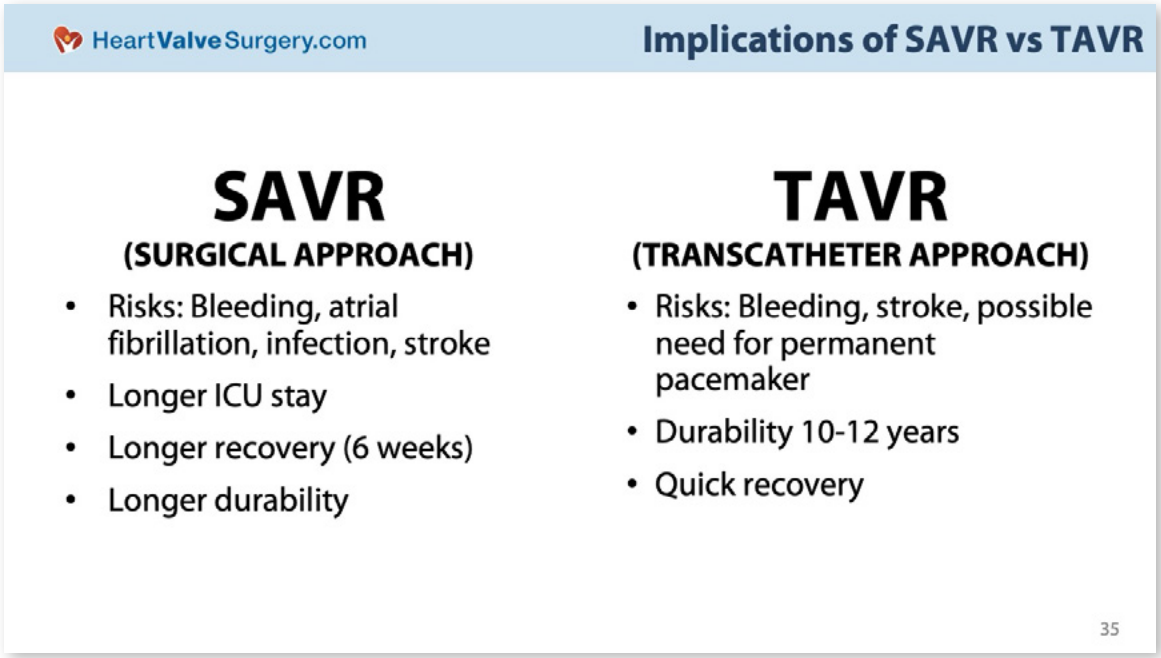
On the right-hand side, you have just general guidelines for who would be best suited for TAVR; older patients who are at much higher surgical risk, who have multiple serious medical issues.

Like I said, this is not to say that younger patients can't have TAVR or that an older patient might not do just fine with an open heart surgery, but it's best to discuss this at length with your heart team.

Adam Pick: Dr. Sharalaya, maybe we can put this in context real quick for Karen Souza who submitted a question? She says, "Hi Adam, I'm 70 years old, severe aortic stenosis, three blocked arteries, but I have no symptoms. I'm asymptomatic, but I also have potential issues with my tricuspid valve. She says, is it possible for me to get a TAVR?"

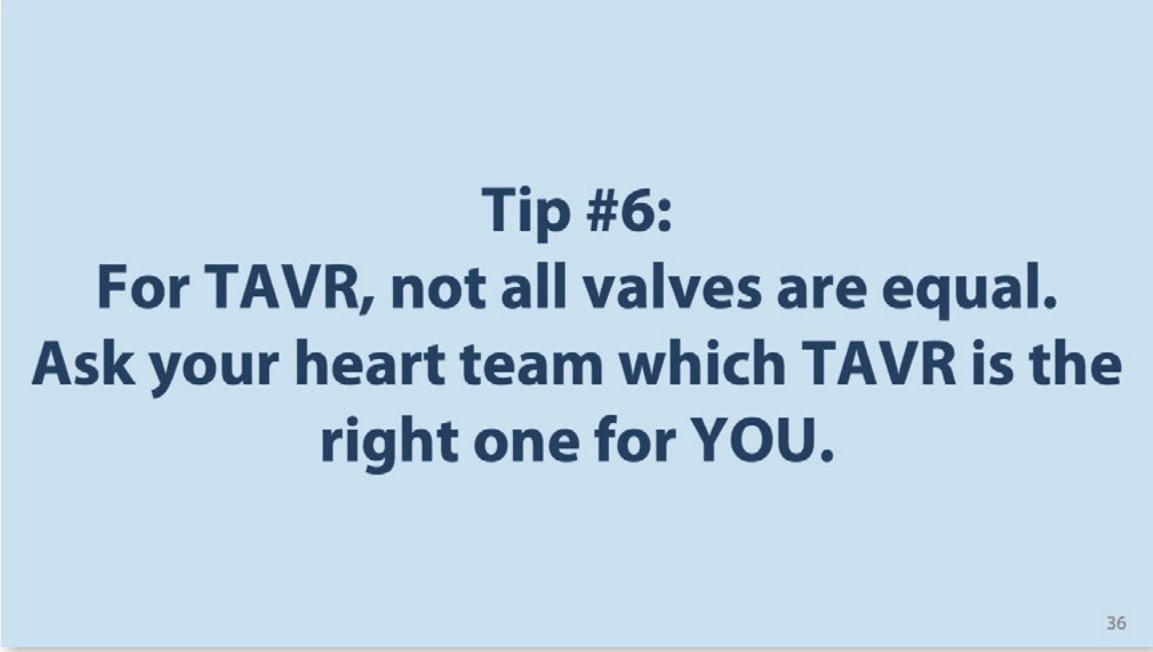
Dr. Zarina Sharalaya: Absolutely, it is absolutely possible despite having multiple blockages. I think it also just depends on your overall functional status too. Are you going to be at acceptable risk to undergo surgery, because a surgeon is not going to take you for a complex procedure involving bypasses and replacing valves and things if they don't think that you're going to do well afterwards with recovery? Absolutely, TAVR is definitely an option and you can get stents potentially. These are things to just discuss with your cardiologist and your heart team.

Adam Pick: Great, thank you.

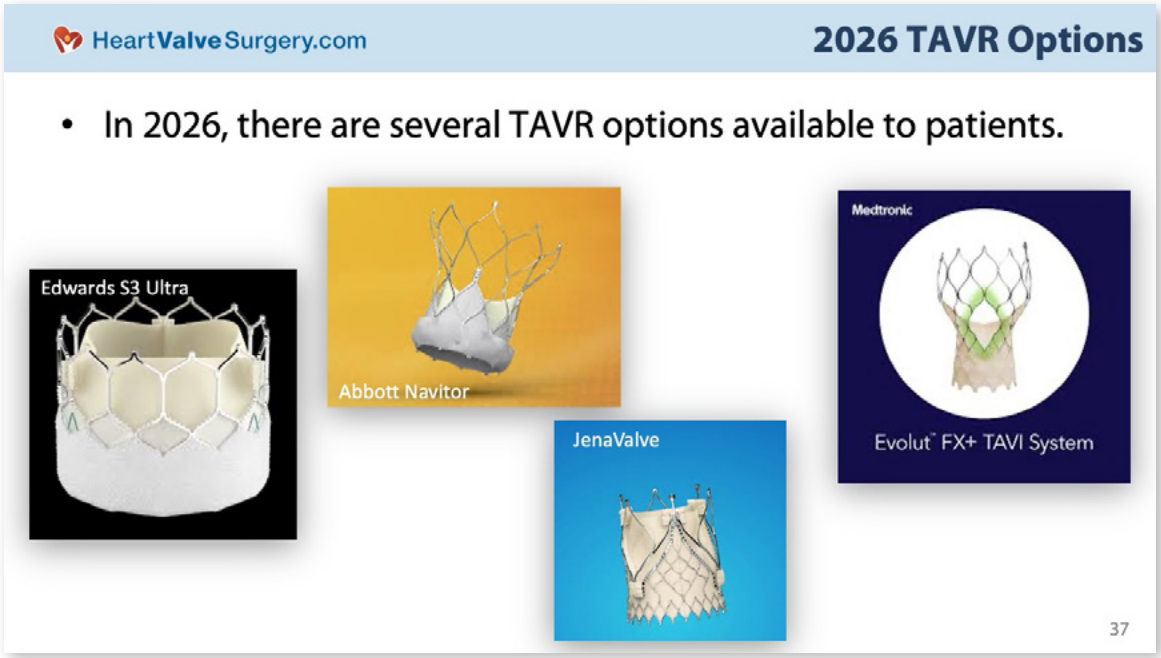


Dr. Zarina Sharalaya: In terms of pros and cons... With any cardiac surgery, there is always going to be a risk of bleeding; atrial fibrillation, which is an abnormal heart rhythm afterwards, infection and stroke. With the surgical approach, there's going to be a longer ICU stay, overall longer hospital stay. On average, it's roughly five to seven days depending on how you do. Recovery time is going to be a bit longer, of course. It's six weeks and that includes cardiac rehab usually. Potentially the heart valve with a surgical approach can last longer, especially if you get a mechanical valve implanted, those can last like decades. On the other side you have TAVR, the risks of TAVR are pretty similar. The one notable difference is that there is a possible need for a permanent pacemaker because that aortic valve actually sits very close to your electrical system. Sometimes when we implant, it can impinge on that electrical system, and in a minority of cases, you might need a permanent pacemaker. On average, these valves can last about 10 to 12 years. But, the big benefit is that the recovery is very quick. Sometimes we're sending patients home on the same day, sometimes the next day, if everything is predictable and an easy procedure.

Tip #6: Determine Which Valve Is Right For You



Dr. Zarina Sharalaya: If TAVR is the option that's chosen, there are a number of things to be aware of when it comes to the type of heart valve. That is something that if you're going down the TAVR route, you need to ask your heart team which TAVR valve is the right one for you.



These are some of the valves that are available in 2026 for implantation. Some valves expand with a balloon inflated inside of it and others expand on their own as you release it into the patient. The valve choice is usually made by the interventional cardiologist based on several factors.

Women are particularly special in that they have smaller heart valves in general. In certain cases they do much better with having a specific kind of valve implanted, and we're just now finding out more about this.

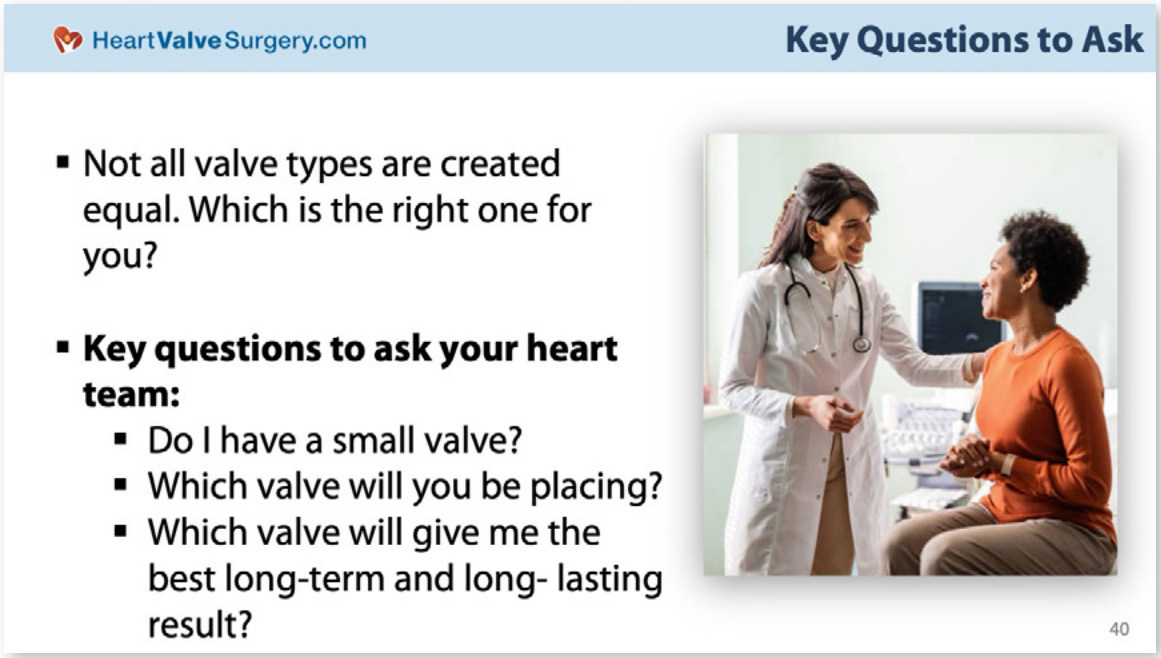
The SMART Clinical Trial Findings for Women

Dr. Zarina Sharalaya: A lot of the data about this came from a trial called the SMART Clinical Trial. Just to preface it, most trials in cardiology are very heavily focused on men. As a result we don't really know the best way to manage heart disease across a lot of different conditions in women.

Here comes the SMART trial, which actually looked at the specific question, which valve is better in patients who have small valves like women? Is it a valve that expands with a balloon or is it one that expands on its own as you release it?

It was so refreshing to see that this trial actually had 87% women enrolled in the study. We can actually see what is the best way to treat the female gender. Without getting too technical on the data, the broad findings are women have smaller valves and they end up feeling better with an Evolut valve or a self-expanding TAVR valve.

Because of the design of the valve, an Evolut is more likely to last longer just because there's better flow across that valve in a smaller size valve as in women. There is strong data. We have a year of follow-up, but we need to see longer term data, which will be coming in the future to see how these valves hold up over time.

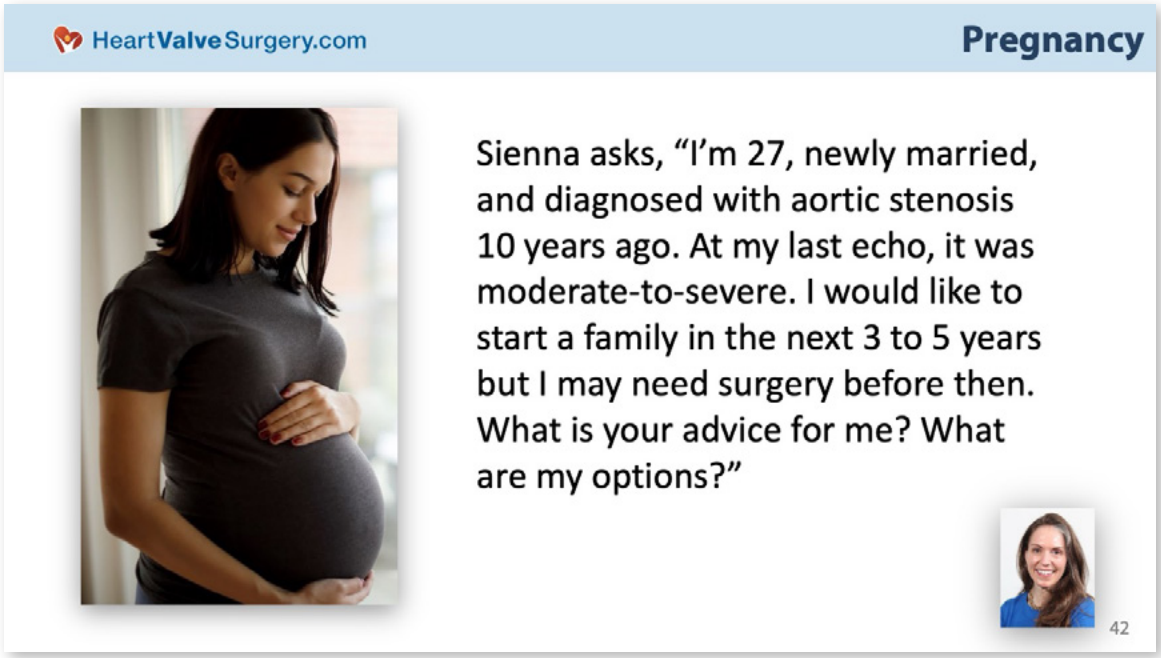


At the end of the day, I would say not all valves are created equal and you just need to understand what's the right one for you. Key questions from a more technical standpoint; do I have a small heart valve? They'll be able to look at your CAT scan and give you an answer based on that. Which valve will you be placing and which valve is going to give me the best long-term and long lasting results? These are a couple questions that I recommend.

Adam Pick: Great, well thank you so much for those tips, Dr. Sharalaya. Real quick question about that the SMART clinical trial; it seemed very unique in that 87% of the participants were women. Do you think this could start a trend that more clinical trials are being done gender specific so that we get better understandings about how these devices work for patients?

Dr. Zarina Sharalaya: I certainly hope so. I think it's only with big organizations like ACC, AHA, that are going to be pushing more for trials to be done. I think nowadays there's just a lot more light being shed on this issue and that there is such a disparity in terms of how women compare in terms of their outcomes compared to men that women do worse across a whole broad spectrum of diseases. It's because we just don't have appropriate data focused on women. I think that more research will be done just on women, I hope, in the future.

Questions and Answers



Adam Pick: Great, let's start the "Q&A" section. Let's go to the first question. This is from Sienna. She asks, "I'm 27, newly married and diagnosed with aortic stenosis 10 years ago. At my last echo, it was moderate-to-severe. I would like to start a family in the next three to five years, but I may need surgery before them. What is your advice for me? What are my options?"

Dr. Katie Berlacher: Thanks, Adam. I think I'll take this one as I see lots of pregnant patients all of the time. This is definitely a patient that I've seen in the past and this is a really great time for us to think about a really unique population. I think it's fairly uncommon to have aortic stenosis at such a young age. For this type of management, it's exactly what Zarina and Marcus were talking about, you need to find the right team. Just like the aortic valve and aortic stenosis teams are not the best everywhere or not the same everywhere, same thing for treatment of heart disease in patients who are pregnant or thinking about pregnancy with heart conditions. I would advise first and foremost that you find a team that specializes in what we call either cardio obstetrics or high risk pregnancy within cardiology, as well as a maternal fetal medicine team. That's the special type of OBGYNs that think about pregnancy from the OB standpoint, and then you need the cardiology team that thinks about it from a cardiology team.

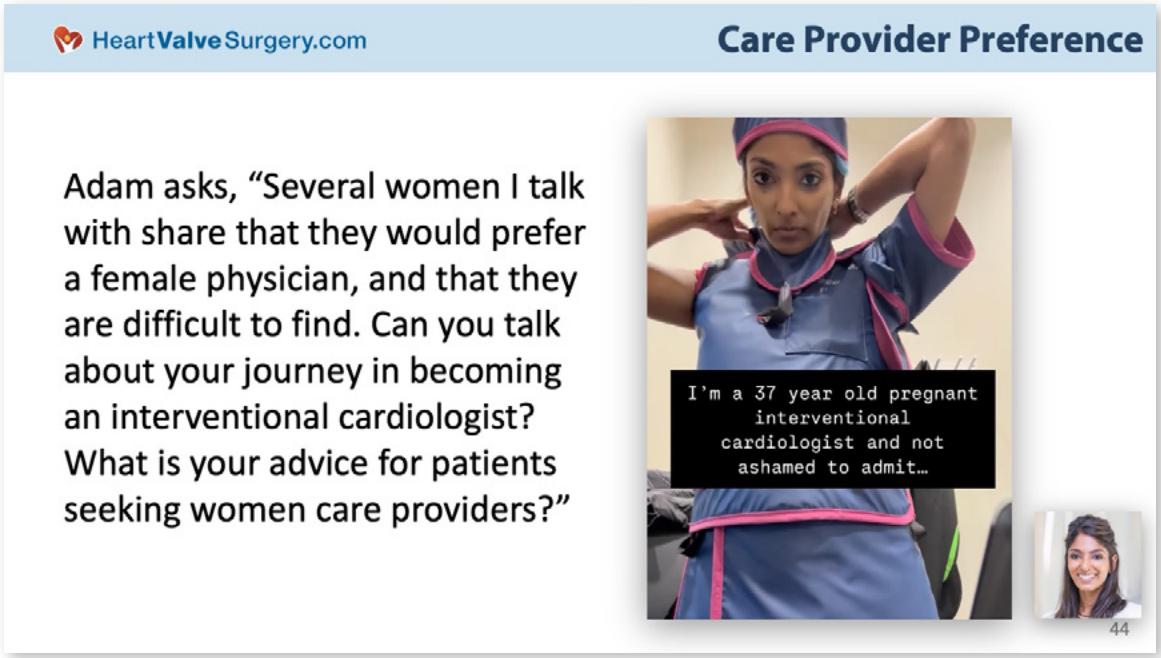
Those two teams with other people like anesthesiologists and nurses and whatnot, will really come together to make their best recommendation for you. Sometimes, in a patient like you, I might recommend, "Why don't we do this in the next one to two years instead of waiting three to five and you can have potentially a pregnancy before getting your valve fixed?" Sometimes I say, "You know what? I actually think we need to do the valve now and then we can do pregnancy after the valve replacement." Those sorts of things are really best discussed when you are talking also with a surgeon at those times. Think about cardiologists who see pregnant patients a lot. Think about the OBGYN team that does maternal fetal medicine, which is the high risk pregnancies, and then if you are thinking about any sort of surgery, see a surgeon with your cardiologist and your OBGYN.

Adam Pick: Let’s now move over to Marcus. We’re going to ask you this question that came in from Kim who says, “What does the panel think is the number one challenge for women going through aortic stenosis treatment?”

Marcus Burns, DNP: I think that the biggest challenge in aortic stenosis in women is often that it's recognized later than it should be, and that's really because symptoms look differently than male patients that present with this disease process.

I would add that symptoms can be subtle or atypical instead of classic shortness of breath, chest discomfort, fatigue, those kind of things. Patients often report, "I just don't feel like myself". They're understanding something is different. It can be mistaken for something else, whether that's aging, stress, anemia, lung issues, being out of shape; so I think that's where getting an echo and seeing a qualified heart provider really is the most important step; looking at the heart function, looking at the echo, and confirming the severity to guide timing for treatment.

I would say our job as clinicians is to take your symptoms seriously, to connect you to the valve clinic, and to make sure that you're evaluated and treated in a timely fashion before the valve problem limits your life and strains your heart.



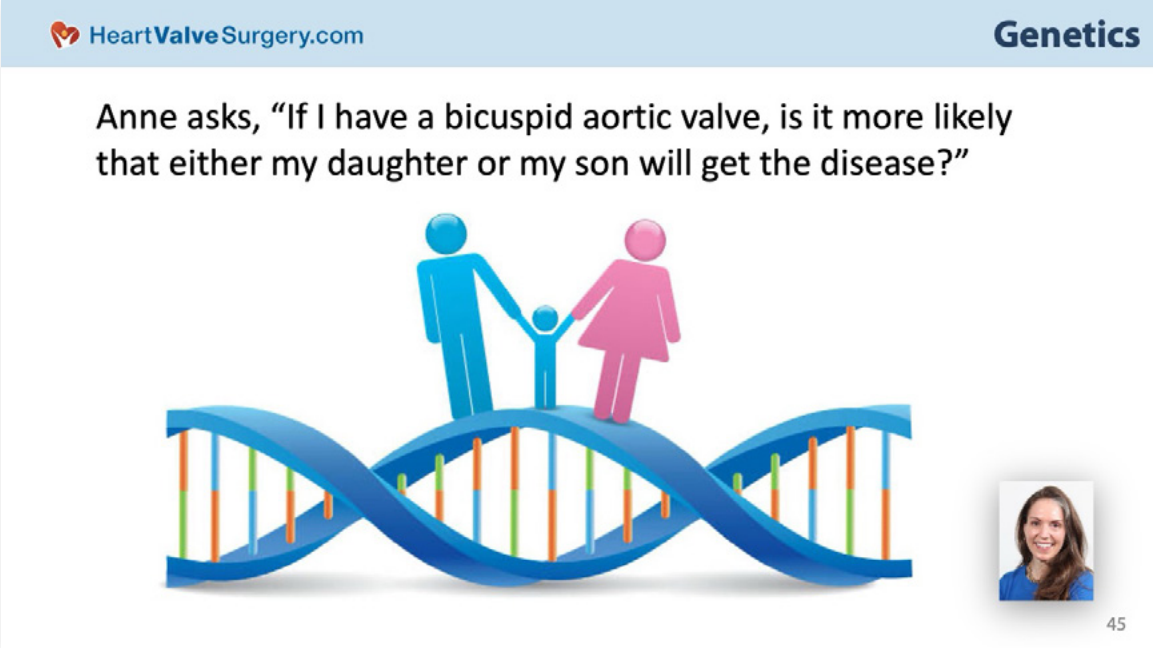
Adam Pick: Dr. Sharalaya, this is a really interesting question because I've had several conversations with patients over the years where several women suggest they would prefer to see a female physician, but at the same time, it's difficult to find.

I know that you have been on this journey becoming an interventional cardiologist. I know that when I look at all the cardiologists that I talk with, there are not as many women doing these procedures. I was just curious to know, can you share a little bit about what your journey has been like and what is your advice for patients seeking women care providers?

Dr. Zarina Sharalaya: This picture is actually taken from my Instagram account, which if anybody's interested, it's FromTheHeartMD. The Instagrm covers a lot of my journey as a female interventional cardiologist. In the US, only 4% of interventional cardiologists are women. A lot of that stems from concerns about being able to have a family and work in the cath lab around radiation, so that's why fixing arteries and fixing heart valves doesn't happen without being exposed to radiation to some extent. Obviously that's quite a deterrent for a lot of women. I myself have two kids while working in the cath lab, and overall, it's very safe if you protect yourself appropriately. That's been my mission, part of why I started the Instagram account is because I'm wanting to try to inspire more women to join this field because it is so important that females try to seek out female providers in certain cases and especially if their concerns are not being heard by another provider.

I would say that at least two to three times a week I run into a female patient that has had her concerns dismissed multiple times by multiple medical providers and is seeking another opinion about what could be going on.

My advice, if you are struggling with any particular symptom, whether it's cardiac or not, or feel that something's wrong, please just get a second opinion and strongly consider seeing a female provider because I feel that, and there are studies actually that show this, that women do better if they are actually seen by a female provider at times.



Adam Pick: This question has come up several times. There's been some questions. This one from Ann. She asks, "If I have a bicuspid aortic valve, is it more likely that either my daughter or my son will get the disease?"

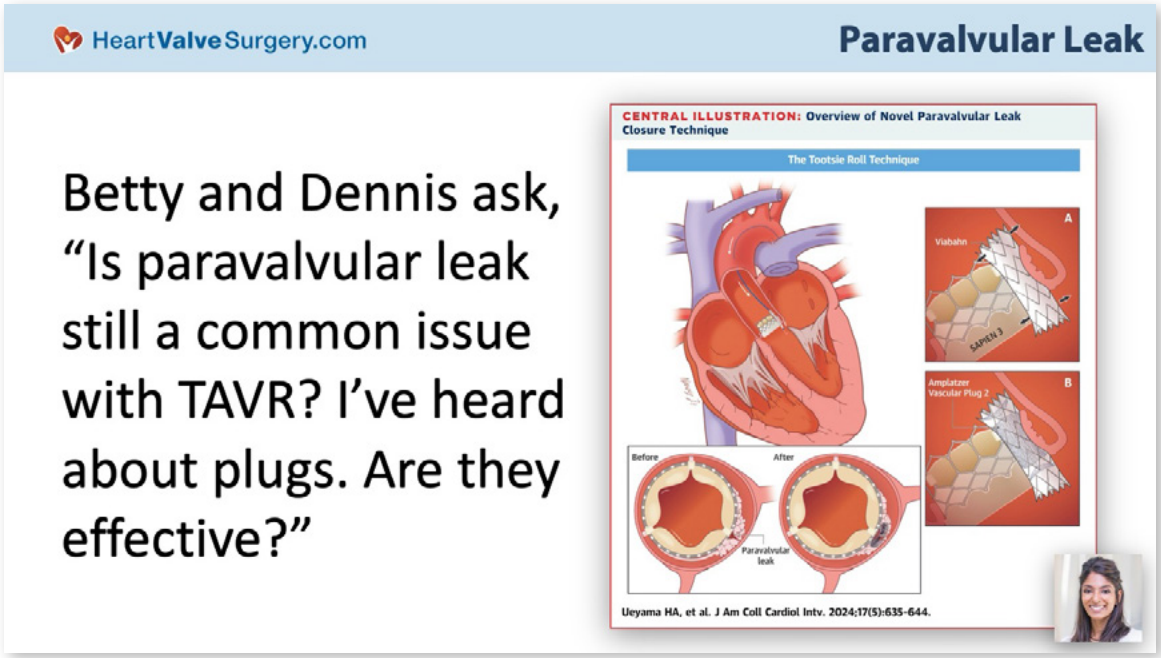
Dr. Katie Berlacher: The quick answer is yes. It's not highly likely, but it is more likely than somebody who does not have a first relative who has bicuspid aortic valve. If you have a bicuspid aortic valve, anybody, that is your children, should all get tested for that. If one of your parents has an aortic valve, you should get it. Primary relatives of anybody with bicuspid aortic valve should all get screened with an echo, ultrasound of the heart to just look at the aortic valve and see how many leaflets there are.

Adam Pick: I know Marcus, with what you do, you see a lot of new research, new technology coming at you. I’m guessing a line of health participates in that research as well. Sandra asks, “Are there any medications that prevent the narrowing of the aortic valve?”

Marcus Burns, DNP: As much as I would like to think that there's a magic pill that you can take that can prevent this disease, right now, there are no medications that can reliably prevent the reverse narrowing of the aortic valve or aortic stenosis once it starts. This is a progressive disease that happens over the course of time and it's wear-and-tear on the valve, progressive calcification and the mineral buildup that causes stiffening.

There are no pills really that can reduce or reverse that process. With that being said, I think there still are very important medications. I think that there's medications that help your heart cope and help you feel better. We often treat things like high blood pressure, heart failure symptoms, fluid retention, irregular heart rhythms, and all of these things help reduce the heart or the strain on the heart. I think in order to lower your overall risk factor for progression from heart disease, treating cholesterol, diabetes, smoking and staying active and doing regular exercise really helps protect your arteries and your heart muscle, even if it doesn't directly stop the valve from narrowing.

I think that the big message here is that medications can't prevent the valve from narrowing, but they can support your heart, they can improve symptoms, and they can help you with a healthier lifestyle overall.

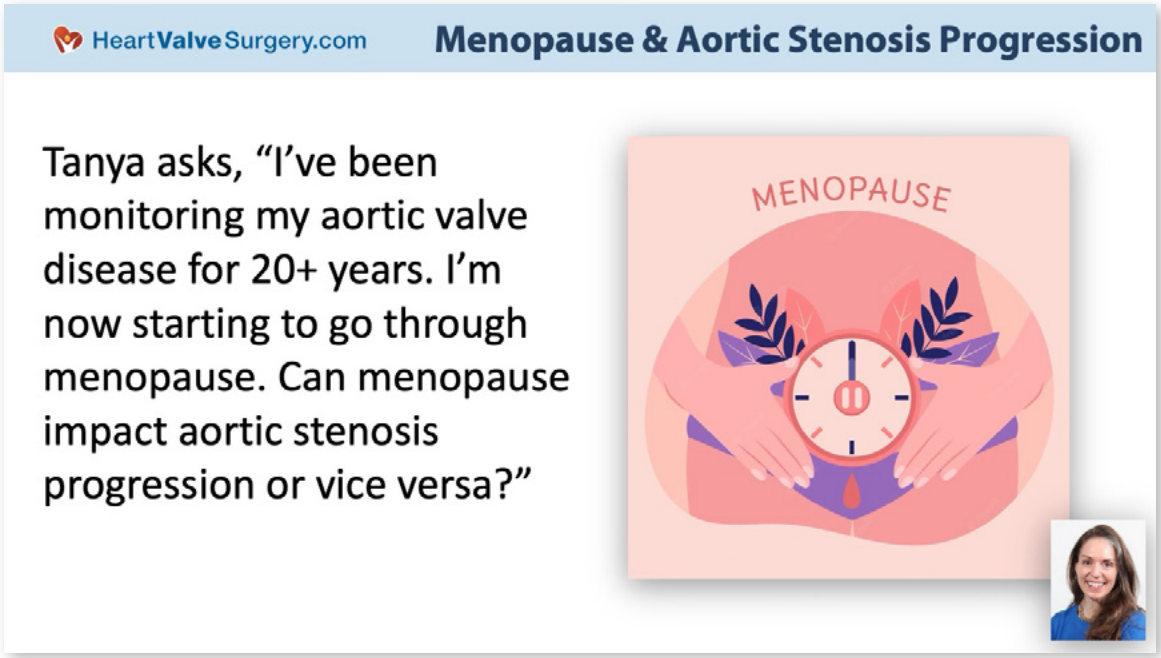


Adam Pick: This is a fascinating question. Some of the other folks have mentioned it here about paravalvular leak. Betty and Dennis say, "Is paravalvular leak still a common issue with TAVR? I've heard about plugs. Are they effective?"

Dr. Zarina Sharalaya: Paravalvular leak can happen after TAVR. It's more common if you have a very large valve and we put in a very large transcatheter valve. I would say that if there is a leak that happens, it can be plugged, but the reality is that aortic regurgitation is a much better valve issue to have than aortic stenosis in that aortic regurgitation takes many, many, many years to progress. A lot of times if there is a leak, usually it's mild and it's something that you can just keep an eye on, but it can happen and plugs can be effective.

Adam Pick: Quick follow up question I saw earlier. It was about the risk of stroke following TAVR. Is that still an ongoing concern and what, if anything, has been done over the years to minimize that risk?

Dr. Zarina Sharalaya: It is a rare thing that happens, but obviously it is a devastating complication that can happen. It's usually rare, I would say less than 2% of the time or so. There are a lot of different research trials out there. There is a device that we can sometimes place called a Sentinel device, which is something that protects the carotid arteries from debris that might be released when we actually go in and do the valve. There is some evidence that shows that, that does reduce the risk of stroke and it's just dependent. That's another question you can ask for your heart team is, "Are you going to be using one of these stroke prevention devices?" Stroke is rare but it can be devastating.



Adam Pick: Tanya asks, "I've been monitoring my aortic valve disease for 20 plus years. I'm now starting to go through menopause. Can menopause impact aortic stenosis progression or vice versa?"

Dr. Katie Berlacher: Such a great question and menopause is so hot and trendy right now. I love that we've gotten to a point in our lives where on Instagram and every other social media app that menopause is cool to talk about. It's awesome.

I will say that we need a lot more research. We don't have a ton of research on this, but what we know is that when you go through menopause, you lose estrogen. We know that your levels of estrogen go low. When you have low levels of estrogen, your arteries are less protected with regards to stiffness.

Estrogen really helps them be nice and pliable. We think that we see slight progression of the stenosis after menopause as compared to before. The vice versa question though, good one, menopause, the aortic stenosis does not have any effect on your menopause timing or anything like that. That is unrelated.

The menopause might affect the stenosis – there are some studies that are actually looking at whether or not taking hormone replacement therapy after or around the time of perimenopause could help decrease the progression of aortic stenosis, but we don't have good answers for that quite yet. We do not recommend at this point to go on HRT for your aortic stenosis.

Adam Pick: Today, we have had some incredible patient stories. We've had some incredible tips shared with us. We've had a great question and answer session. What I would like to do – we're just now getting it to four o'clock. I want to really respect everybody's time, but I would like to – please don't hang up just yet. I've been asking you to do the survey, but I want to thank our expert panel, Dr. Berlacher, Dr. Sharalaya,and Marcus, thank you so much.

On behalf of the HeartValveSurgery.com community, I want to thank all the participants on the line. I want to thank Medtronic for supporting this effort and in advance, I want to thank you for the survey that's going to be coming up on your screen. If you have any questions, again, you can email me at adam@HeartValveSurgery.com or you can go to TreatAorticStenosis.com to learn more.

Patient Resources

Since 2006, HeartValveSurgery.com has developed several resources to help you better understand your diagnosis, your treatment options and your recovery.

Listed below, please find resources created exclusively for patients and caregivers. We hope they educate and empower you.

- TreatAorticStenosis.com - Access new medical insights about the treatment of aortic stenosis and find leading heart teams that specialize in TAVR.
- Women's Heart Health Alert: The SMART Clinical Trial - Learn important new findings about the treatment of aortic stenosis for women from the SMART Clinical Trial.
- Adam's Free Patient eBooks - Download 10+ free eBooks about heart valve disease and treatment options for aortic, mitral, pulmonary and tricuspid valves.
- Heart Valve Learning Center - Visit the Heart Valve Learning Center to access over 1,000 pages of educational information about valvular disorders.
- Patient Community - Meet people just like you in our patient community. There's nothing better than connecting and learning from patients who are sharing their stories in our community.
- Surgeon Finder - Find and research patient-recommended heart surgeons that specialize in heart valve repair and heart valve replacement procedures.
- Heart Hospitals - Learn about medical centers that have dedicated teams and resources that specialize in heart valve therapy.