

Patient Guide

Transcatheter Aortic Valve Replacement (TAVR)

MARCUS HEART VALVE CENTER

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How Your Heart Works

A healthy heart beats thousands of times per day. The heart's primary function is to pump oxygen-rich blood to your body.

The heart has four chambers: two upper chambers called atria and two lower chambers called ventricles. Blood is pumped through the four chambers with the help of four valves. The valves function as doorways between the chambers. The valves are made of a thin strong flap of tissue called leaflets.

The valves open in one direction to let blood pass from one chamber to the next, closing quickly between heartbeats so blood does not flow backwards. A one directional blood flow is important for a healthy heart.

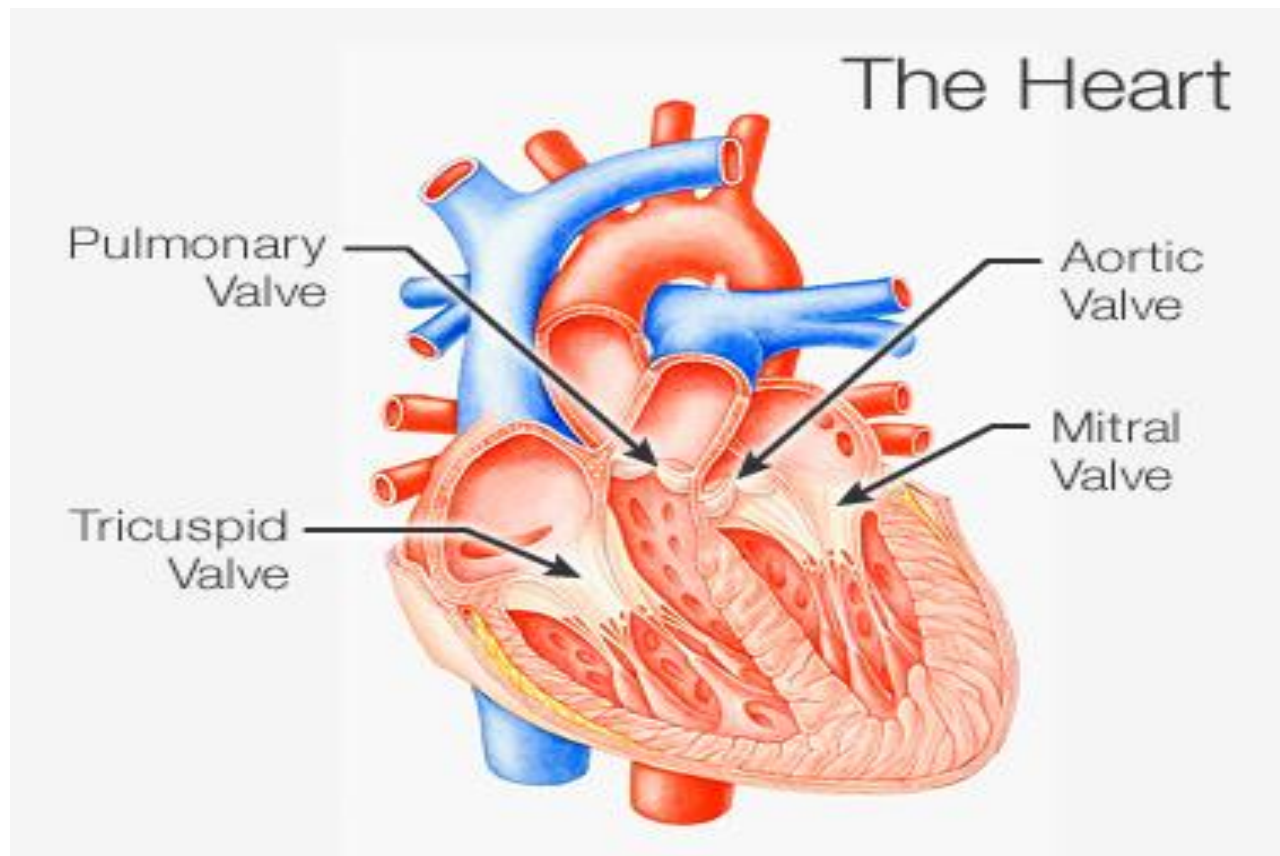


Image Source: <https://www.webmd.com/heart-disease/guide/heart-valve-disease#1>

Aortic Stenosis

The aorta is the main artery that carries blood from the heart to the rest of the body. Blood flows out of the heart and into the aorta through the aortic valve. Aortic stenosis is a narrowing of the aortic valve opening. This narrowing does not allow normal blood flow through the valve. Aortic stenosis can be caused by a birth defect, rheumatic fever, radiation therapy, and most commonly, by a build-up of calcium deposits on the valve leaflets. Because of the narrowing valve, the heart's left ventricle must work harder to pump blood through the aortic valve to the body. Over time, this weakens the heart muscle and decreases the amount of blood the heart can pump. Symptoms of aortic stenosis can include chest pain, shortness of breath when exercising, fatigue, palpitations, and fainting.

Severe aortic stenosis is a serious problem. If left untreated, approximately half the people diagnosed with aortic stenosis, and who experienced symptoms from the disease, die within an average of two years.

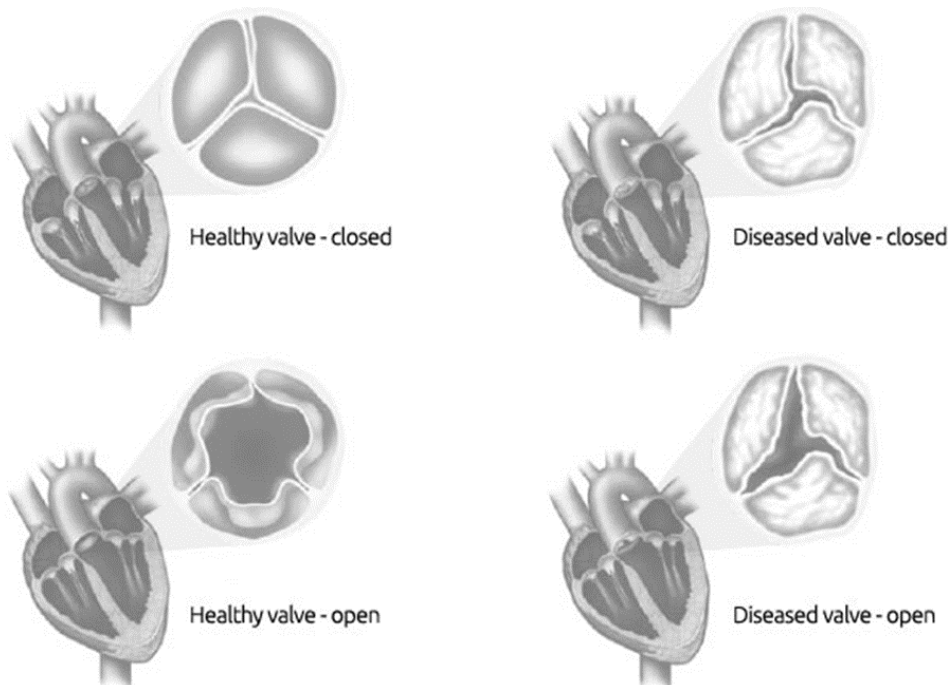


Image Source: www.threeroses.us/heart-valve-diagram/valvular-heart-valve-disease-cardiovascular#

What is Transcatheter Aortic Valve Replacement?

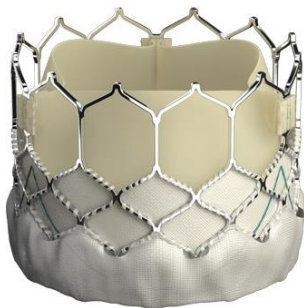
Transcatheter Aortic Valve Replacement (TAVR) is a percutaneous (needle puncture of the skin) minimally invasive procedure for patients diagnosed with symptomatic aortic stenosis who are not candidates for traditional open chest aortic valve replacement surgery. In a TAVR procedure, a physician team inserts a new aortic valve within the diseased aortic valve while the heart is still beating. Once the new valve is expanded, it pushes the existing valve leaflets out of the way and the replacement valve's leaflets take over the job of regulating blood flow.

Currently, there are two commercially available aortic replacement valves that are used for TAVR procedures, the *Medtronic Corevalve™/Evolute™* and the *Edwards Sapien™*. Because Piedmont participates in ongoing TAVR research trials, your physician team may suggest another valve that is currently in a research study. Our goal is to provide the best treatment option for each individual patient. After careful consideration, your physician team will determine which aortic replacement valve is most appropriate for you.

Commercially Approved Aortic Valves

Medtronic CoreValve™: The *CoreValve™/Evolute™* →

transcatheter aortic valve is made of natural tissue obtained from pig heart. The leaflets are secured to a flexible, self-expanding nickel-titanium frame for support. Image Source: www.medtronic.com



← **Edwards Sapien™:** The *Sapien™* transcatheter aortic valve is made of natural tissue obtained from cow heart. The leaflets are secured with a cobalt-chromium frame for support.

Image Source: www.Edwards.com

TAVR Diagnostic Testing

Prior to the TAVR procedure, you will complete several diagnostic tests to assess your cardiovascular system. This helps your physician team decide on the type of aortic replacement valve and procedure approach that is best for you. Diagnostic tests that help the physician team create the best plan of care include:

- Cardiovascular CT
- Left & Right Heart Catheterization
- Pulmonary Function Test
- Carotid Duplex Study
- Echocardiogram
- Transesophageal Echocardiogram

Please refer to your Marcus Heart Valve Center Educational Binder for more information on the different types of diagnostic testing, directions to testing locations, and preparation requirements. Please note the preparation requirements for each diagnostic test scheduled for you. Not following these instructions could result in a delay, or cancellation of your testing.

Medicare guidelines require that you see two cardiovascular surgeons, who will determine your suitability for open chest aortic valve surgery. Both must agree that the TAVR procedure is the best option for you.



Image Source: Image created by Lily Ha using wordart.com

Procedure Approaches

The new aortic valve in a TAVR procedure can be inserted through a catheter via multiple delivery approaches including transfemoral, transapical, and subclavian. Your physician team will determine which approach is best for you.

- **Transfemoral Approach**

An incision is made at your femoral artery (large artery in your upper leg - groin) and a catheter carrying the replacement valve is guided to your heart. This is the most common approach used for the TAVR procedure. The advantage of using this approach is your physician team will administer conscious sedation using minimal amounts of anesthesia for sedation. The level of sedation relieves anxiety but preserves consciousness. You will be relaxed and readily respond to verbal communication. This approach helps avoid complications from prolonged ventilation and less time spent in the intensive care unit.

- **Transapical Approach**

A four inch incision is made in your chest between your ribs to access the apex (lowest part) of the heart and a catheter carrying the replacement valve is guided to your heart

- **Subclavian Approach**

An incision is made in your upper chest just below the collarbone and a catheter carrying the replacement valve is guided to your heart.

If the **transapical** or the **subclavian** approach is used for your procedure, you will receive general anesthesia during the procedure. You are unconscious, and unresponsive to verbal communication. A tube is inserted in your throat to assist with breathing. The breathing tube is usually removed once the procedure is complete.

Pre-TAVR Instructions

Below is your TAVR pre-procedure checklist.

Please read each item carefully. Failure to follow this checklist may result in delay, rescheduling, or cancellation of your procedure.

- Do not eat or drink after 12 midnight before the day of your procedure, including water, chewing gum, or mints, except as directed. Do not drink any alcoholic beverages within 24 hours of your procedure.
- Stop taking Coumadin, Warfarin, Pradaxa, Xarelto, and Eliquis as directed by your physician team.
- Do not take Ace Inhibitors and Angiotensin Receptor Blockers (ARB) the morning of your procedure unless otherwise directed by your physician team.
- Stop taking Glucophage/Metformin or any medications containing Glucophage/Metformin 2 days prior to the procedure unless otherwise directed by your physician team.
- Do not take your Beta Blocker the morning of your procedure (or take as directed by your physician team).
- Do not take a diuretic (water pill) the day of your procedure.
- Unless otherwise directed, it is OK to continue baby aspirin and clopidogrel (Plavix) on the day of your procedure.
- If you have an allergy to shellfish, iodine, or contrast dye, please call the office to inform your physician team at least 5 days prior to your procedure.
- If you use a CPAP or BIPAP machine at home, please bring it to the hospital with you. The machine maybe used during your procedure or during your hospital stay.
- **If you currently use a walker or cane to assist with ambulation, please bring it with you to the hospital.**

Day of Your Procedure

You will be admitted to the hospital on the day of the TAVR procedure. Please leave any valuables at home or with a loved one/caregiver. Prior to your procedure, you will receive TAVR instructions from your physician team; in addition, you will be given the arrival time and location of where to report on the day of your procedure. You will report to one of two locations. The following details will help you to locate each destination.

- **Main Surgical Waiting Room**

Park in the North parking deck. Take the elevator to BR (bridge level) and then follow the long hallway to the front entrance (passing the information desk). The main surgical waiting room is on the right.

- **Fuqua Heart Center**

Park in the South parking deck. Take the elevator to the orange level and walk across the breezeway. The Fuqua Heart Center is located on your right.

After checking in, you will be called to the pre-procedure area 1-2 hours prior to the scheduled procedure time. In the pre-procedure area, staff will prepare you for the procedure by inserting IV lines, applying EKG electrodes to your chest, assessing your vital signs, and answering any questions, you may have. TAVR procedures can vary in time and in some cases may run longer than expected, causing a delaying your start time. We will keep you and your loved one/caregiver informed of any delays that may occur. You will be admitted to the hospital the day of your TAVR procedure. Please leave any valuables at home or with a loved one/caregiver.

Keeping You Informed

A Piedmont Atlanta Hospital patient representative will be present in the OR waiting room area. Patient representative coverage is available from 7 a.m. to 7 p.m., Monday through Friday. The patient representatives keep your loved one/caregiver informed of your status throughout the procedure. Should your loved one/caregiver leave the waiting area, please instruct them to give a contact number to the patient representative. The patient

representatives will also arrange for consultation between the physician and your loved one/caregiver as necessary.

Following your TAVR procedure, you are transferred to the Coronary Care Unit (CCU). A patient representative will notify your loved one/caregiver once your procedure is complete and you have received a CCU room Assignment.

After your TAVR

Discharge planning begins when you enter the hospital. Because of the less invasive percutaneous approach to your valve replacement, your hospital recovery time will be much shorter than traditional surgical valve replacement. Please prepare your loved one/caregiver for you to return home within 1-3 days following your procedure. Our goal is to get you home and back to your normal routine as quick as possible.

For the first 12-24 hours you will recover in the CCU so your heart can be monitored closely. On day 2, you may go home or move to a regular hospital room on the cardiology or surgical floor. You should anticipate discharge within in 1 – 2 days.

On the designated day of your discharge, please notify your caregivers that you will be discharged at approximately 12 noon.

Upon discharge, you should not need home care or rehab unless you were receiving these services prior to your procedure. This is a guideline and does not replace clinical judgment. If your care team feels that you are an appropriate candidate for these services, they will notify you.

Goals: 0-4 Hours

- You will be out of the bed in a chair approximately 4 hours after your procedure.
- If you had TAVR by an apical approach it is very important that you use your incentive spirometry every hour to help reduce the need for oxygen and to prevent lung infection.

Goals: 4-12 Hours

- Begin walking 6 hours after your procedure. Please walk with a nurse your first time out of the bed so he/she can assess your vital signs.
- After your first successful walk, please encourage your loved one/caregiver to help you walk as much as possible.

Goals: Post-Procedure Day 1

- Walk in the hall a minimum of 6 times a day.
- Sit up in chair for all meals.
- Prepare for discharge.

Common Complication following the TAVR procedure

Complete Heart Block (CHB) is a common complication following the TAVR procedure. With each heartbeat, an electrical impulse travels along a nerve pathway in the heart from the upper chamber (atria) to the lower chamber (ventricle) of the heart. This electrical impulse causes the heart to contract and pump blood out to your body.

This nerve pathway is located very close to the aortic valve. When the physician team deploys the valve in your heart, there is a 6-18% chance that the nerve pathway will be blocked. Due to patient specific anatomy (how close your nerve pathway is to your aortic valve), a physician is unable to determine your risk for this complication prior to the procedure.

If CHB occurs, you will go home with a permanent pacemaker. The pacemaker is usually inserted on the day after your TAVR. The procedure is a minimally invasive procedure that is performed under local anesthesia in the electrophysiology or catheterization lab.

Marcus Heart Valve Center 30 Day Follow-up Appointments

Follow-up Appointment

Physician: _____

Date/Time: _____

Location: _____

Echocardiogram Appointment

Date/Time: _____

Location: _____

Home Care Following Your TAVR Procedure

Complete recovery can take several weeks and depends, in part, on the procedure approach used for your procedure. Below are some general guidelines to follow as you heal.

- **Care for your incision.** It is normal for your incision to be bruised, itchy, or sore while it is healing. Your incision may take a week or more to heal. A surgery site between your ribs will take longer to heal than one in your groin. Care for the bandage and incision as advised by your physician team. Wash the incision site every day with warm water and soap. Gently pat it dry and do not put powder, lotion, or ointment on the incision until healed.
- **Shower with care.** Unless your physician team tells you otherwise, you can shower when you get home. Use warm water and a mild soap. Do not scrub or apply pressure to the incision. Pat the site dry with a towel and do not rub. Use caution with hot water because it can make you feel lightheaded. Do not take a bath until your incision is completely healed. Do not submerge your incision in a swimming pool or hot tub until completely healed.

- **Wear loose fitting clothing** over the incision site until healed.
- **Avoid strenuous activity or exercise for at least 1 week** or as instructed by your physician team. Do not lift anything heavier than 10 pounds and take care not to put strain on your abdominal muscles when coughing, sneezing, or moving your bowels.
- **Walk.** One of the best ways to get stronger after your TAVR procedure is to walk. If your physician team agrees, start with short walks at home. Walk a little more each day. Take someone with you until you feel OK to walk alone.
- **You may resume sexual activity within 7 to 10 days**, unless your physician team instructs you differently.
- **Drive.** You may drive 1 week after your procedure or as directed by your physician team.
- **Dental Procedures:** Antibiotic prophylaxis is recommended with all dental procedures following your TAVR procedure. Please inform your dentist of your TAVR valve prior to any dental work.

When to Seek Medical Attention

Seek immediate medical help by calling 911 or go to your nearest Emergency Department if you experience any of the following:

- Chest pain or trouble breathing
- Sudden numbness or weakness in your face, arms, or legs
- Bowel movement that is dark black or bright red
- Dizziness or fainting
- Increased swelling in your hands, feet, or ankles
- Shortness of breath that doesn't get better when you rest
- Heart rate faster than 120 beats per minute with shortness of breath
- Heart rate lower than 50 beats per minute or a new irregular heart rate

Call the Marcus Heart Valve Center (numbers listed below) for the following urgent problems:

- Chills or fever of 100.4°F (38°C) or higher
- Weight gain of more than 2 pounds in 24 hours or more than 5 pounds in 1 week
- Extreme fatigue
- Redness, swelling, bleeding, warmth, or fluid draining at the incision site

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Home Monitoring

For 2 weeks following your TAVR procedure, monitor your heart rate, blood pressure, and weight using the Transcatheter Post Procedure Daily Log on the following page. Weigh yourself at the same time each day wearing similar clothing.



Image Source: https://www.clipartmax.com/download/m2i8K9N4m2K9i8N4_ribbon-heart-cliparts-ribbon-heart/

While every effort is made to provide accurate and current information, the information contained in this booklet is intended to be used for general TAVR health care information purposes only, and should not be considered complete or used in place of a visit, call, consultation or advice from a physician and/or healthcare provider. Should you have any questions about the information found in this booklet, please call the Marcus Heart Valve Center Local or Toll Free line provided in this booklet and ask to speak with Dawn Pittman, RN.

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