YOUR TRANSCATHETER AORTIC VALVE REPLACEMENT (TAVR): PREPARATION AND RECOVERY
HOW YOUR HEART WORKS
Your heart acts as a pump that delivers oxygen-rich blood to the rest of the body. The heart has four valves that regulate blood flow through the heart: tricuspid valve, pulmonary valve, mitral valve, and aortic valve.

AORTIC STENOSIS
The aortic valve directs blood flow from the heart to the rest of the body. In some people, the aortic valve becomes stiff and has trouble opening the way it should. This can cause your heart to work harder, causing symptoms such as shortness of breath, dizziness, feeling tired, irregular heartbeat, chest pain, or feeling faint.

HEALTHY AORTIC VALVE
- Open
- Closed

DISEASED AORTIC VALVE
- Open
- Closed

Source: Edwards
After being diagnosed with aortic stenosis, you will meet with your valve team; a cardiologist and a cardiac surgeon will discuss your treatment options. Your physicians will describe the TAVR procedure, including the risks and benefits, and other potential options.

Prior to your TAVR, you will undergo several diagnostic tests. Once you are scheduled for your procedure, you may begin receiving texts and/or emails from your physician to help guide you throughout your preparation and recovery.

### PREPROCEDURE TESTING

- Walk test
- Bloodwork
- Cardiac CT
- Carotid ultrasound
- Echocardiogram (echo)
- Kansas City Cardiomyopathy Questionnaire (KCCQ 12)
- Pulmonary function test (spirometry)
- Evaluation by a cardiac surgeon and a cardiologist
- Electrocardiogram (ECG)
- Possible heart catheterization
PLANNING YOUR PROCEDURE

Medications

• Before your procedure, it is critical that you notify your TAVR team of all medications, including over-the-counter medications and herbal supplements, that you take and their dosages. Your care team will tell you whether to stop taking some of your medications in order to prepare for your procedure.

• Bring a list of all of your home medications on the day of your procedure.

• Continue your antiplatelet medications, such as aspirin, clopidogrel (Plavix), prasugrel (Effient), and ticagrelor (Brilinta), UNLESS otherwise instructed. Your last dose should be the day before your procedure. Do not take these medications on the day of your procedure.

• Stop taking your anticoagulants, such as warfarin (Coumadin), apixaban (Eliquis), dabigatran (Pradaxa), and rivaroxaban (Xarelto), two days before your procedure UNLESS otherwise instructed. Your last dose should be three days prior to the procedure date (for example, if your procedure date is Wednesday, your last dose should be Sunday).

Stop Smoking

• Nonsmokers do better during and after the procedure.

• Smoking can slow your recovery time and contribute to a longer hospital stay.

• Contact your physician on how to stop smoking or using tobacco products. Tobacco Quit Line: 1.877.YES.QUIT (937.7848) | yesquit.org

Schedule a Dental Appointment

• See your dentist to ensure that you are not at risk for dental infections. Oral bacteria are a common cause of heart valve infections.

Begin Doing the Following

• Walk daily as tolerated to build up strength.

• Learn how to use your spirometer (breathing tool) to strengthen your breathing.

Medical Directives

• Appoint someone, such as a family member or friend, to make decisions about your care in the event that you are unable.

• Discuss what could happen if you have a complication during or after the procedure so that your wishes are known.

DAY BEFORE YOUR PROCEDURE

• Arrange for a family member or caregiver to transport you to and from the hospital and to assist with your recovery at home.

• Do not bring anything valuable to the hospital.

• Do not eat or drink after midnight prior to your procedure. This includes the morning of your procedure. Small sips of water to take any medications instructed by your physician are allowed.

• Bathe or shower the night before AND the morning of your procedure using the presurgical soap (i.e. Hibiclens) provided to you. Avoid the use of lotions, perfumes or colognes.

• Prepare a list of all of your home medications for the day of your procedure.

• Please contact the Valve Clinic for any questions or concerns related to your procedure.

DAY OF YOUR PROCEDURE

• Bathe or shower the morning of your procedure, using the presurgical soap. Avoid the use of lotions, perfumes, or colognes.

• You will be taken to the preprocedure holding area, where your care team will greet you. Family and friends will be asked to proceed to the waiting area during your procedure.

• An anesthesiologist will discuss the anesthesia and pain management plan that is appropriate for you.
Some patients may undergo general anesthesia for the procedure, which requires a breathing tube. Others may receive only moderate sedation. Your care team will decide which option is safest for you.

IN THE PROCEDURE ROOM

- Once the procedure team is ready, you will be taken to the procedure room, where the anesthesiologist will administer your anesthetic medications.
- A temporary pacemaker will be placed to help regulate your heart rate during and after the procedure. Some patients may require the temporary pacemaker for one or two days following their procedure. It will be removed before leaving the hospital. In some patients, the temporary pacemaker may need to be replaced with a permanent pacemaker.
- The new valve is delivered through a catheter into your heart. The valve is collapsed so that it can fit through the artery. When it reaches the right place, the valve is expanded. Measurements and images are taken to make sure the new valve is working properly.
- Once the valve is placed, all catheters are removed. The insertion site is then closed.
- At the end of the procedure, your physicians will wake you up and transfer you to the Post Anesthesia Care Unit (PACU).

ESTIMATED RECOVERY TIME IN HOSPITAL AFTER YOUR PROCEDURE

Although everyone recovers differently from transcatheter procedures, you can expect to stay in the hospital for one to two days. Some patients may have to stay in the hospital longer than expected so that your doctor can monitor your heart rate and rhythm. Some patients may even require placement of a permanent pacemaker. Depending on your strength and condition, you may need to go to inpatient rehabilitation, skilled nursing or a long-term acute care facility before going home. You and your care team will work together on a safe discharge plan.

YOUR RECOVERY STAGES

At Houston Methodist, we understand that undergoing a transcatheter heart valve procedure can feel stressful. That is why we provide you with a road map of what most patients can expect during their hospital stay. Due to individual needs, the pathway may vary and your care may differ from the specified plan.

There are many health care professionals here to assist you in your journey to recovery. Please use this as a guideline and feel free to ask questions at any time.

RECOVERY STAGE 1 (Postprocedure 0-2 hours)

- Your cardiologist and/or your cardiac surgeon will speak to your family following your procedure.
- You will be moved to the PACU, where a few family members and friends can visit you.
- Once you are recovered, you will be moved to your room.
- You will receive pain medication, as needed. Minimal pain or discomfort can be expected. Our goal is to manage your discomfort so that you are able to participate in your recovery.
- You will lie flat in bed for several hours to make sure your incision does not bleed after the procedure.
- You may start with ice chips, then advance to drinking limited fluids once you are able to sit up in bed and your nurse determines it is safe.
- An electrocardiogram (ECG) will be performed after the procedure.
- Sequential compression devices will be placed on your calves while you are in bed. These inflatable cuffs help prevent blood clots from forming while you are inactive.
- Nurses will regularly check your incision(s).

**RECOVERY STAGE 2 (Postprocedure 2-6 hours)**
- Your care team will determine when you are able to sit (“dangle”) on the side of the bed.
- Your care team will assist you to walk short distances (e.g., to the bathroom) in your room.
- You may begin eating, starting with a light snack or meal.
- Start discussing discharge arrangements with your care team and family.
- Be sure to ask for help from your nurse, so that you may sit in a chair for every meal.
- Perform coughing, deep breathing exercises hourly. Use the breathing tool 10-20 times per hour, while awake.
- If you are using supplemental oxygen, decrease as tolerated.
- Sequential compression devices should be worn on calves and turned on while you are in bed.
- Nurses will regularly check your incision(s).

**RECOVERY STAGE 3 (Postprocedure 6-12 hours)**
- Continue discussing discharge arrangements with care team and family.
- Be sure to ask for help from your nurse, so that you may sit in a chair for every meal.
- Start a heart-healthy, low-sodium diet.
- Start walking in the hallway, as tolerated, with assistance from your nurse. Your goal is to walk in the hallway a minimum of four times a day. A therapist will offer walking assistance, if needed.
- Perform coughing and breathing exercises hourly. Use the breathing tool 10-20 times per hour, while awake.
- If you are using supplemental oxygen, decrease as tolerated.
- Sequential compression devices should be worn on calves and turned on while you are in bed.
- Nurses will regularly check your incision(s).

**RECOVERY STAGE 4 (Postprocedure 12-18 hours)**
- Continue discussing discharge arrangements with care team and family.
- Be sure to ask for help from your nurse, so that you may sit in a chair for every meal.
- Continue a heart-healthy, low-sodium diet.
- Continue to walk in the hallway four times daily, as tolerated.
- Perform coughing and breathing exercises hourly. Use the breathing tool 10-20 times every hour, while awake.
- If you are using supplemental oxygen, decrease as tolerated.
- Sequential compression devices should be worn on calves and turned on while you are in bed or the cardiac chair.
- Nurses will regularly check your incision(s).
RECOVERY STAGE 5 (Postprocedure 18-24 hours)
• Be sure to ask for help from your nurse, so that you may sit in a chair for every meal.
• Continue a heart-healthy, low-sodium diet.
• Continue to walk in the hallway four times daily, as tolerated.
• Work with your care team and your family to arrange transportation home for discharge the next day.
• Perform coughing and breathing exercises hourly. Use the breathing tool 10-20 times per hour, while awake.
• If you are using supplemental oxygen, decrease as tolerated.
• Sequential compression devices should be worn on calves and turned on while your are in bed.
• Nurses will regularly check your incision(s).

RECOVERY STAGE 6 (Postprocedure day 1 to 2)
• Prepare for discharge from hospital.
• Temporary pacing wires may be removed.
• You will have an electrocardiogram (ECG) and an echocardiogram (ECHO) prior to discharge.
• By now, you will either be able to perform personal care activities independently, or, work with your therapists and nurses to become more independent.

GOING HOME
You will have a 30-day and a one-year follow-up appointment scheduled with your surgeon or cardiologist. It is important to keep these follow-up appointments so that your physician can make sure your valve is working properly.

Everyone responds differently to transcatheter valve replacement. This is a generalized recovery pathway of what most can expect during their recovery at home.

Most people feel better right away and are up and walking the same day as their procedure. TAVR typically has a much shorter recovery time than traditional open heart surgery. Many patients have an improved quality of life and are able to return to their everyday activities and hobbies.

CARING FOR YOURSELF AT HOME
Showering
• You may feel weak the first few times you shower. Have someone nearby in case you need help.
• Use a shower stool, if needed.
• Avoid very hot water and tub baths, which can make you lightheaded.
Incision Care

• It is normal for the incision to be bruised, itchy, numb or sore for a few weeks.
• Always wash your hands before touching or caring for your incision. Hand washing is the best way to prevent infection.
• Clean your incision daily with water and a mild, fragrance-free soap, preferably in the shower, if you are so able. Do not scrub your incision. Simply let the soap and water run over it. Do not submerge in water for at least one week, or until your incision is fully healed.
• Gently pat the incision area dry with a freshly laundered towel.
• Do not use powders, lotions, oil or vitamin E on the incision without asking your physician.
• Check your incision daily. Notify your physician if you notice any of the following:
  – Increased tenderness
  – Increased redness or swelling
  – Drainage

Taking Medicines

• Take pain medications, blood thinners and any other medication exactly as you have been directed.
• You will likely need to take a combination of antiplatelet medications, commonly aspirin and clopidogrel (Plavix), which help reduce your risk of strokes and heart attacks.
• While taking antiplatelet medications, your blood does not clot the way it normally would. You might see an increase of bleeding or bruising, even with a minor cut. There is a minimal increased risk of major bleeding while you are taking these medications.
• In some cases, such as atrial fibrillation, an additional blood thinner may be required. Usually, aspirin is stopped in these cases.

Visiting Your Physician

You will have follow up visits at 30 days and one year with your cardiac surgeon or cardiologist following your procedure. During these visits, you will have the following:
• Blood tests to monitor the function of your heart and kidneys, and to check for anemia
• An echocardiogram (ECHO) to check how well your heart and new valve are working
• An electrocardiogram (ECG) to check your heart rate and rhythm
• A Kansas City Cardiomyopathy Questionnaire (KCCQ 12) to check how your quality of life has improved after TAVR

After your postprocedure period, you’ll return and have regular visits with your primary cardiologist or primary care physician to make sure you stay healthy. These visits will be needed for the rest of your life.

Preventing Infection

• Certain medical procedures and/or dental work can allow bacteria to enter into your bloodstream and cause damage to your new heart valve.
• Tell your dentist and other health care providers you see that you have a new heart valve.
• Your doctor may prescribe antibiotics before having any procedures. This will help prevent infection of your new valve.

Monitoring Your Weight

• Weigh yourself at the same time each morning. Use the same scale each day. This helps show whether you’re retaining fluid, which could be a sign of a serious heart problem.
• Notify your physician if you gain 2 pounds in a day, or more than 5 pounds in a week.

Walking

• One of the best ways to get stronger is to walk. Start with short walks at home each day.
• Walk a little more each day. Take someone with you until you feel ready by yourself.
Other Activities

- After your recovery, you may be able to return to regular activities with a noticeable improvement in symptoms caused by your heart valve disease. Be sure to talk to your physician before starting any exercise program.
- Ask your physician when it is safe for you to resume driving. If traveling long distances, be sure to stop and walk around at least every hour to prevent blood clots from forming.
- Check with your physician before returning to work.

CREATING NEW HABITS

You may need to make changes in your lifestyle to protect your heart.

- **Exercising.** Make physical activity a part of your daily routine. Talk to your physician about what kinds of activities are best for you and when to resume after your TAVR.
- **Quitting smoking.** Smoking is very bad for your heart and lungs. If you smoke, talk with your physician about getting help with quitting.
- **Limiting salt (sodium).** Salt makes fluid build up in the body. That makes the heart work harder, which can lead to heart failure. Eat a heart-healthy, low-fat, no-added-salt diet.
- **Controlling weight.** If you’re overweight, ask your physician about a weight-loss plan. Your physician will recommend a heart-healthy diet.
- **Avoiding alcohol, if instructed.** Alcohol can be dangerous if you are taking certain medications. You will be told whether you need to avoid alcohol.

PREVENTING INFECTION

Incision site infections can be dangerous and make recovery slower and more difficult. As a caregiver, you can play a key role in preventing infection by following these rules:

- **Wash your hands.**
- **Visitors should be in good health with no symptoms of illness.** Visitors should also wash their hands before coming in contact with the patient.
- **Be sure to wash your hands after contact with your household pet(s).**
- **Maintain a clean environment.**
- **Stay up to date on vaccines, including the flu and pneumonia vaccines.**
- **Notify physician if you notice any of the following:**
  - Increased tenderness
  - Increased redness or swelling
  - Any drainage

PREPARING FOR DISCHARGE

Preparation will make it easier to transition a loved one from the hospital to home. Be sure to do the following before discharge:

**Prepare the home**

- Clean your home
- Clear walkways of clutter
- Wash bed sheets, towels, pajamas, and/or robe

**Have available in the home**

- Shower chair, if needed
- Antibacterial soap
- Hand sanitizer
- Thermometer
- Blood pressure monitor
- Remove area rugs or other tripping hazards
- Address pet care needs
- Scale for measuring daily body weight
- Heart-healthy foods
- Night light for dark areas of the home
OFFERING SUPPORT

Your loved one will need support to recover and heal after a TAVR procedure, and you will play a vital role in that recovery process. Help may be needed with the following activities upon returning home:

- Getting out of the chair or bed
- Showering
- Getting dressed
- Grocery shopping
- Preparing food
- Getting prescriptions filled
- Driving to physician appointments
- Paying bills
- Caring for pets
- House cleaning
- Yardwork
- Staying active

SELF CARE FOR CAREGIVERS

Being a caregiver can be mentally and physically challenging. Here are some ways to help reduce the stress of caregiving:

- It’s OK to ask others for help. You may be able to involve other family members or close friends.
- Take time for yourself. To avoid burnout and continue to provide care and support, it is important to save some time for activities that you enjoy.
- Seek emotional support if you are having trouble coping with your feelings. Advice and counseling from appropriate sources, such as other family members, trained mental health professionals or religious advisers, is recommended.

HELPFUL RESOURCES

- Ask the physician and nurses what your loved one will need and how you can help.
- Ask a social worker or case manager what facilities and services might be available to help facilitate your loved one’s recovery.
- Find a support group.

CALL YOUR PHYSICIAN IF YOU EXPERIENCE ANY OF THE FOLLOWING

- Temperature of 100.4 F (38 C) or higher
- Increased tenderness, redness, swelling, or drainage from your incision site
- Shortness of breath or chest pain
- Weight gain of 2 pounds in one day or more than 5 pounds in a week
- Leg pain or swelling
- Dizziness or fainting
- Uncontrollable pain
- Nausea or vomiting
- Fast, slow, or skipping heartbeats (palpitations)
- Reactions to medications (hives, swelling)
- Feelings of depression, hopelessness or severe anxiety

For emergencies, call 911 or go to the nearest emergency room.