



# TRANSCATHETER AORTIC VALVE REPLACEMENT (TAVR)

**MONUMENT HEALTH HEART AND VASCULAR INSTITUTE**

353 Fairmont Blvd., Rapid City, SD 57701 | 605-755-4300

# TABLE OF CONTENTS

## 3 | STRUCTURAL HEART PROGRAM INTRODUCTION

4 | ABOUT MONUMENT HEALTH

5 | ABOUT TRANSCATHETER AORTIC VALVE REPLACEMENT (TAVR)

6 | STRUCTURAL HEART CLINIC TEAM

## 8 | ANATOMY OF THE HEART

9 | AORTIC STENOSIS: HEALTHY VS. DISEASED VALVES

10 | AORTIC STENOSIS: SYMPTOMS AND DIAGNOSIS

## 12 | TRANSCATHETER AORTIC VALVE REPLACEMENT

13 | PROCEDURE QUALIFICATIONS

## 14 | PLANNING FOR AN EXCELLENT TAVR PROCEDURE: CHECKLIST

22 | WHAT HAPPENS DURING THE TAVR

24 | POTENTIAL RISKS

25 | AFTER-CARE AND FOLLOW-UP TESTING

26 | SKIN PREPARATION BEFORE SURGERY & SURGICAL SITE INFECTION PREVENTION

28 | RESOURCES: HOTEL DISCOUNTS

30 | NOTES





**Why am I receiving this packet?**

Your doctor has referred you to the Monument Health Structural Heart Team to help evaluate and manage your aortic valve stenosis.

**How can the Monument Health Structural Heart Team help me?**

The Monument Health Structural Heart Team focuses on repair of various structures of the heart. In your case, we are focusing on evaluation and management of your aortic heart valve.

**Our team is here to provide support, education, and expert medical care throughout the process.**





### About Monument Health

We provide care to patients in over 20 communities throughout South Dakota, North Dakota, Montana, Wyoming and Nebraska. Patients are able to receive care close to home with state-of-the-art practices to ensure you, or your loved one, receives the best there is to offer.

## The first transcatheter aortic valve replacement (TAVR) was performed at Monument Health in 2014. Since then, our team has performed over 500 procedures.

---

The Monument Health Structural Heart Program began in 2008 with implementation of a formal process to evaluate patients with structural heart disease, including atrial septal defect, patent foramen ovale, aortic stenosis, mitral stenosis, and pulmonic stenosis. At that time, catheter-based treatment of ASD and PFO was implemented and development of a balloon valvuloplasty program for the treatment of valvular heart disease was also initiated.

Our formal, multidisciplinary Structural Heart Clinic was started in February 2013 as a collaborative effort between cardiothoracic surgery and interventional cardiology. As we were conceptualizing the program, the development of transcatheter aortic valve replacement was progressing at a very rapid pace, with the initial clinical trials demonstrating outstanding patient outcomes. Later that year, Dr. Joseph Tuma received formal training on each of the available transcatheter aortic valve replacement devices at renowned centers in Italy, Germany and Phoenix, Arizona.

Our first transcatheter aortic valve replacement was successfully performed in 2014 and since then we have performed over 500 transcatheter aortic valve procedures. Left atrial appendage occlusion with the Watchman device was added to the Structural Heart Clinic in October 2016. The first Watchman implantation occurred in February 2017. This was followed by implementation of the transcatheter

mitral valve therapy program, including balloon mitral valvuloplasty and transcatheter edge-to-edge repair with the MitraClip device. The first MitraClip procedure was performed in September 2020. Additional procedures performed as part of the Monument Health Structural Heart Program include transcatheter mitral valve replacement, paravalvular leak closure, balloon mitral and pulmonic valvuloplasty, ASD/PFO closure, and ventricular septal defect repair. Additionally, we have been involved in several ground-breaking, multicenter clinical trials evaluating devices developed for the catheter-based treatment of structural heart disease over the years. Many transcatheter therapies are being researched and prepared for FDA approval, so our community will continue to have access to the latest technologies and procedures.

### The Monument Health Structural Heart Team includes:

**Joseph Tuma, M.D.**

Monument Health Structural Heart Clinic Director  
Interventional Cardiology

**Charan Mungara, M.D.**

Medical Director, Cardiothoracic Surgery

**Becky Sharp, CNP**

Structural Heart Advance Practice Provider

**Meghann Warnke, CNP**

Structural Heart Advance Practice Provider

**Jacey Peterson, RN**

Structural Heart Patient Navigator

## STRUCTURAL HEART CLINIC TEAM

---



**JOSEPH TUMA, M.D.**, is an interventional cardiologist and an expert in the field of coronary and structural interventional cardiology and peripheral vascular disease. Originally from Rushville, NE, he received his medical training at the University of Nebraska Medical Center and completed his Internal Medicine Residency at Creighton University Medical Center in Omaha, NE. He went on to complete fellowship training programs in Cardiology and Interventional Cardiology at Creighton University Medical Center in Omaha and The Iowa Heart Hospital at Mercy Medical Center in Des Moines, Iowa. Dr. Tuma then completed advanced Interventional fellowship training in Structural Heart Interventions and Endovascular Therapy, also at Creighton University and Mercy Medical Center.

As an interventional cardiologist, Dr. Tuma specializes in the catheter-based treatment of cardiac and vascular patients, with a focus on new device therapies, the treatment of valvular and structural heart conditions, acute myocardial infarction and the management and treatment of peripheral arterial disease. He is a recognized expert in the field of radial artery access and interventions and has lectured and directed training courses both nationally and internationally. He is a pioneer in the field of radial access for peripheral arterial interventions. He also co-chaired the inaugural World Radial Blitz in New Delhi, India, in September 2010. He has directed similar training courses in Italy, Germany, Ireland and across the United States.

Dr. Tuma has participated in the development of several cardiac and peripheral vascular interventional devices that are now commercially available and used for patient care on a routine basis. He has practiced in Rapid City, SD since 2007 and has introduced several new cardiac and vascular procedures to the patients of the Black Hills region. As the site principal investigator on multiple multicenter clinical trials, Dr. Tuma has participated in several important studies focusing on valvular and structural heart disease, coronary artery disease and interventional treatment of peripheral arterial disease.

**Focus areas:**

- Catheter-based device therapy for valvular and structural heart disease
- Vascular medicine and endovascular arterial therapy
- Acute myocardial infarction
- Catheter-based percutaneous ventricular assist devices

Dr. Tuma is dedicated to evaluating new therapies for patient use as well as the development of new device technologies and adapting them to patient care. Additionally, he participates in a variety of training and educational programs for cardiology fellows and practicing physicians as a way of expanding access to new therapies for patients around the country. Dr. Tuma is committed to promoting excellence and innovation with a focus on optimizing outcomes and motivating change in order to create a positive patient care experience.



**CHARAN MUNGARA, M.D.**, is a Cardiovascular Surgeon at Monument Health Heart and Vascular Institute. He received his medical degree from the University of Mysore in Karnataka, India. He completed his residency in General Surgery and his fellowship in Cardiothoracic Surgery at the University of Wisconsin Hospital & Clinics in Madison, WI.

Dr. Mungara was named a Top Doc in Milwaukee in 2020. He received the 2004 Scholarship Achievement Award during his General Surgery Residency and the Distinction in Anatomy, Internal Medicine, & Surgery in 2001 and 1995 from the University of Mysore in Karnataka, India. He is a member of the Society of Thoracic Surgeons. Dr. Mungara has published papers on Temporary Total Artificial Heart for Destination Therapy and the Impact of Long-Term Continuous Flow on Endothelial and Microvascular Function in Heart Failure Patients Treated with a Left Ventricular Assist Device. Dr. Mungara is especially interested in beating heart surgery, mitral valve repairs, atrial fibrillation surgery, complex aortic surgery, TAVR and lung cancer surgery. In his spare time he enjoys traveling with his family and spending time in nature.



**BECKY SHARP, CNP**, is the Nurse Practitioner for our Structural Heart Program. She earned her Bachelor of Science in nursing in 2010 from South Dakota State University. She worked in a telemetry/stepdown unit for several years, until she earned her Family Nurse Practitioner degree in 2016. Becky worked in general cardiology at Monument Heart and Vascular Institute, until her transition to the structural heart team.

---



**MEGHANN WARNKE, CNP**, is a Nurse Practitioner for the Structural Heart Program as well. She earned her Bachelor of Science in 2018 and worked as a nurse in the ICU before joining HVI. She was the Structural Heart Coordinator for nearly five years before obtaining her Family Nurse Practitioner degree in 2023. The program's patients and teamwork approach made it an easy decision for her to take a position as the second nurse practitioner for the Structural Heart Program.

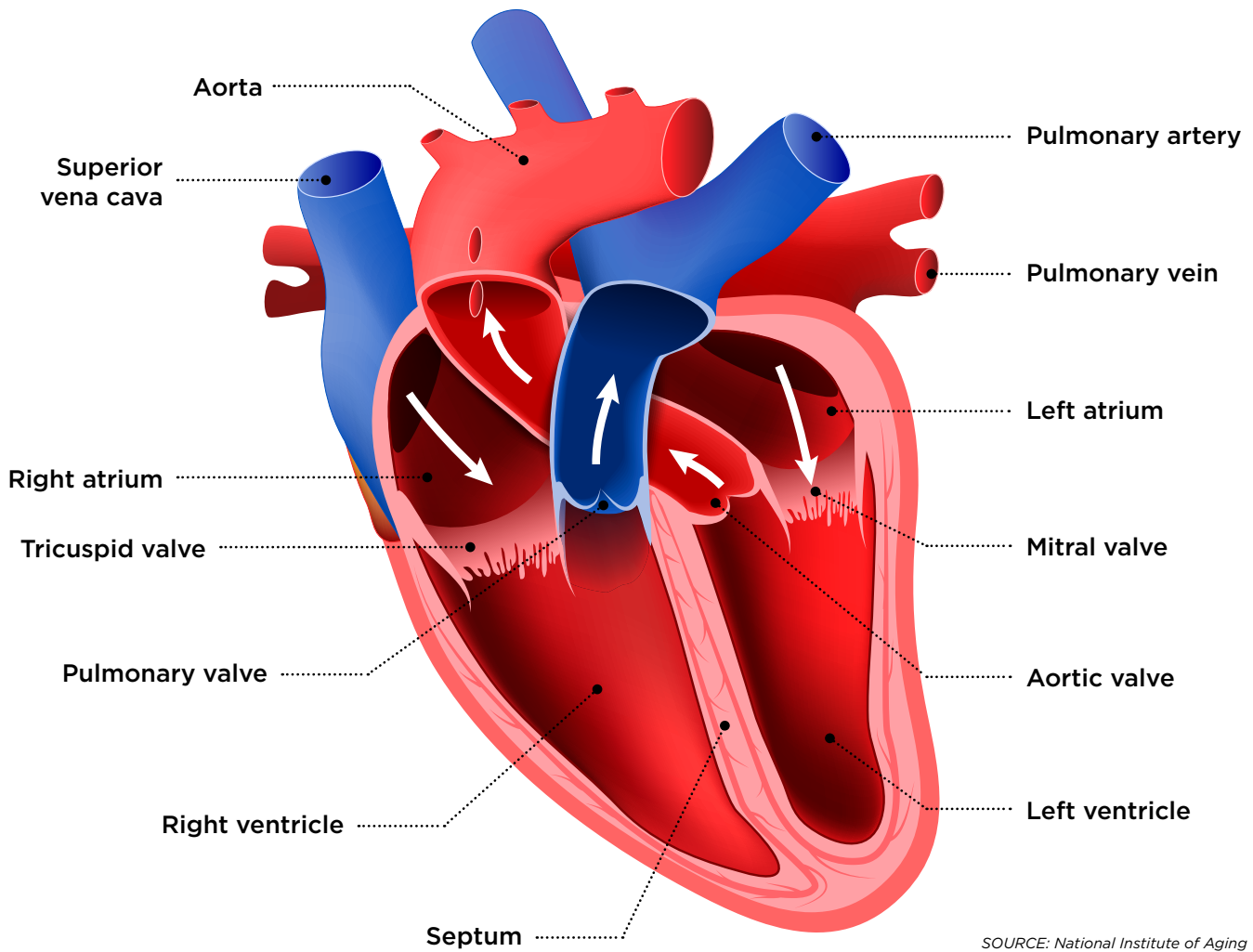
---



**JACEY PETERSON, RN**, is our Structural Heart Patient Navigator. She earned her Associate of Science in Nursing in 2014 from the University of South Dakota. After graduating she began her career working in home health until she transitioned to Good Samaritan Society to work with that patient population. She eventually pursued a job in oncology with Monument Health's Cancer Care Institute. There, she was a charge nurse for the nursing staff. After five years, she had the opportunity to work for our Structural Heart Team and has enjoyed learning more about cardiology.



# ANATOMY OF THE HEART



SOURCE: National Institute of Aging

**Your heart has 4 chambers:**

- Two on top: right atrium and left atrium
- Two on bottom: right ventricle and left ventricle

**Your heart has four valves:**

- Tricuspid valve
- Pulmonic valve
- Mitral valve
- Aortic valve

The job of the 4 heart valves is to keep the blood flowing through each chamber of the heart in one direction. The aortic valve keeps blood flowing from the left ventricle to the aorta and eventually the rest of the body.



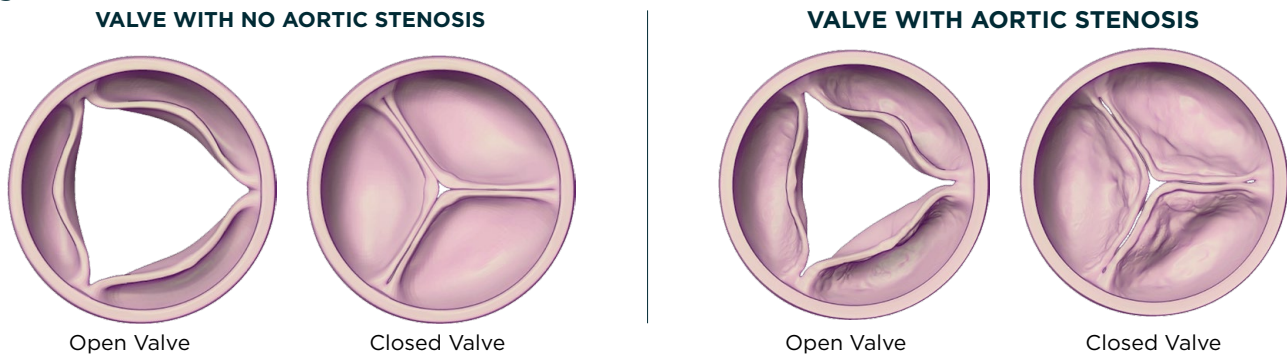
# AORTIC STENOSIS: HEALTHY VALVES VS. DISEASED VALVES

## What is Aortic Stenosis?

- Aortic stenosis is a common valve disease.
- Millions of adults in the United States have aortic stenosis.
- Stenosis means narrowing.
- **Fig. 1.** below shows the difference between a normal valve and a valve with aortic stenosis.
- **Fig 2.** aortic stenosis is not reversible. It will get worse over time. The only way to “fix” aortic stenosis is to replace the diseased valve. As the disease progresses the valve opening gets narrower and smaller. Our team will help you decide which approach is best for you.

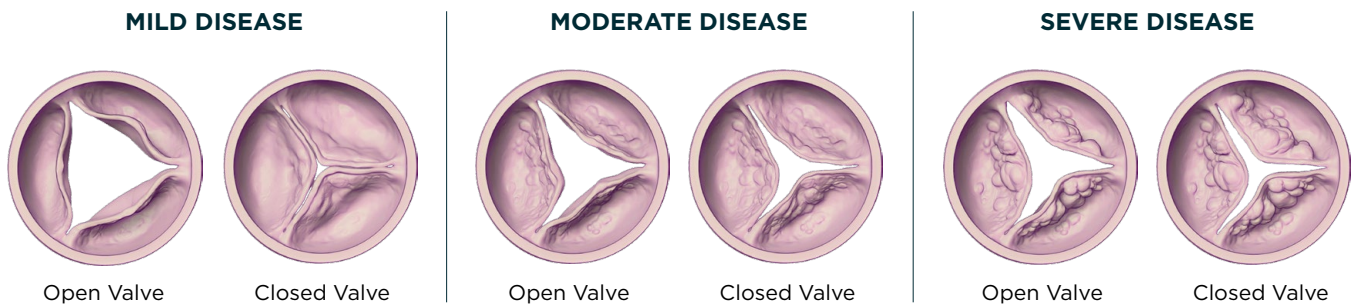
As the valve opening gets narrower and smaller, you may develop symptoms, which are discussed on the next page.

**Fig. 1**



**Fig. 2**

## HOW AORTIC STENOSIS CAN PROGRESS OVER TIME



# AORTIC STENOSIS: SYMPTOMS AND DIAGNOSIS

## Why did I get aortic stenosis?

There is an increased risk of developing aortic stenosis as you age. Also, certain risk factors put you at higher risk for developing aortic stenosis. These risk factors include:

- Being overweight
- High cholesterol levels
- Smoking
- High blood pressure
- Diabetes that is not well-controlled

## Other causes of aortic stenosis may include:

- Radiation to chest as part of cancer treatment
- History of rheumatic fever
- A congenital heart defect (Some people are born with an aortic valve that only has two cusps instead of three cusps. This is called a bicuspid aortic valve.)
- Calcium is a mineral found in your blood. As blood flows across your aortic valve, calcium can build up on the leaflets of the valve. This prevents your valve from opening and closing well.

## What are the symptoms of aortic stenosis?

It is important to be aware of your symptoms. If left untreated, aortic stenosis has a poor prognosis. After the onset of symptoms, the average survival rate is 50% at two years and 20% at five years. Once you are symptomatic, it is time to discuss possible interventions. The following symptoms are often confused with the aging process, but should be discussed with your provider:

- Chest pain
- Rapid, fluttering heartbeat
- Dizziness

- Light-headedness
- Fainting
- Swollen ankles or feet
- Difficulty sleeping, or the need to sleep sitting up
- Needing to nap more frequently
- Inability to complete activities you once enjoyed





**I have symptoms and have been diagnosed with aortic stenosis. What is next?**

TAVR is an option for more patients than ever before. If you have been diagnosed with severe aortic stenosis and are experiencing symptoms, TAVR could be an option for you. To help decide the best treatment for your aortic stenosis, we will set up some tests, which are discussed later in this book.

**Depending on your medical history, symptoms, and the severity of your aortic stenosis, there are several treatment options:**

- Surgical aortic valve replacement (SAVR)
- If this is the best option for you, the cardiothoracic surgery team will assume your care.
- Transcatheter aortic valve replacement (TAVR)
- Any unfinished testing will be completed (discussed later in the book)
- The TAVR team will then determine how quickly your procedure should be scheduled.
- Medical management
- Balloon aortic valvuloplasty
- Continued monitoring of your symptoms and aortic stenosis, which will include routine echocardiograms.



# TRANSCATHETER AORTIC VALVE REPLACEMENT (TAVR)

## PATIENT QUALIFICATIONS

TAVR is an option for more patients than ever before. If you have been diagnosed with severe aortic stenosis and are having symptoms, you may qualify. We require several tests to help determine if TAVR is right for you, so we may ask that you complete some of the testing before being seen in our Structural Heart Clinic.

## Planning for an Excellent TAVR Experience: **YOUR TAVR PREPARATION CHECKLIST**

The Monument Health Structural Heart Team will work with you to get the following tests/procedures scheduled.

---

**Date of your echocardiogram:** \_\_\_\_\_

**Time:** \_\_\_\_\_ **Location:** \_\_\_\_\_

**What: Echocardiogram (Transthoracic Echocardiogram)**

**Why:** The ultrasound gives us the important numbers we need to diagnose the severity of your aortic stenosis. It allows the doctor to watch how blood flows through your heart's chambers, valves, and vessels.

---

**Date of your carotid ultrasound procedure:** \_\_\_\_\_

**What: carotid ultrasound**

**Why:** A carotid ultrasound uses sound waves to create images of the two biggest arteries in your neck. These arteries supply blood to your brain. The Structural Heart Team needs to make sure there is no significant narrowing or blockages of these arteries before your TAVR.





**Date of your TAVR CT Scan:** \_\_\_\_\_

**What: TAVR CT Scan**

A radiology technician will insert an IV so dye can be injected, which will produce images of your blood vessels and tissue. You will lie on a table that moves into a scanner. This scanner produces x-ray images of the structures in your chest, abdomen, and pelvis.

*Please note: the dye used during this scan can affect your kidney function. If you do not have blood work on file within 60 days prior to your scan, you will have to complete labs so we can evaluate your kidney function.*

**Why:** This scan helps the Structural Heart Team determine the size and shape of your heart/artery system. This helps the team choose the right sized valve for your heart.

**How:** Work with the Structural Heart Patient Navigator and keep your appointments scheduled. Also, please note that if your kidney function is poor, you may need intravenous fluids (IV Fluids) both before and after your TAVR CT scan. Fluids are given for one hour before the scan and three hours after. You also need to stop eating and drinking four hours prior to your scan.

---

**Date of your coronary angiogram:** \_\_\_\_\_

**What: coronary angiogram**

During a coronary angiogram, you are given light sedation and pain medication through an IV. The doctor then inserts a thin, flexible tube (catheter) through your radial (on your wrist) or femoral (in your groin) artery. Dye will be injected into the catheter, which will “light up” the arteries that supply blood to your heart.

**Why:** This test will identify if there is narrowing or blockages in the coronary arteries. Some narrowing/blockages can be fixed during the procedure or treated with medications. Major blockages may require us to come up with a new plan.

**How:** the team will reach out to you with dates, times, and specific instructions regarding your medications and when to stop eating/drinking.

---

**30 days before your TAVR**

Date: \_\_\_\_\_

Discussing the following information with your support team will help you feel prepared for the procedure and help as you recover from your procedure.

---

**Planning and flexibility**

We work hard to come up with a plan that works for you but it is important to be flexible. You and your support person should ensure your schedule is clear the day prior, day of, and day after your procedure.

**Planning for day of surgery**

Plan to have a responsible person drive you to and from your procedure.

**Planning to ensure your wishes are known**

Complete your advance care plan with your family advocate. Share your plan with your family advocates and surgical team.

**Planning in your home and with your family**

Prepare your home for your return after your procedure. Meal planning, preparing meals, refilling medicines, cleaning house, and making plans for pet care etc. well ahead of your procedure date may help you relax once you are back home.

Review information from your health care team with your support team. Make sure a support person can be with you at discharge to listen to post-procedural instructions and follow up information.

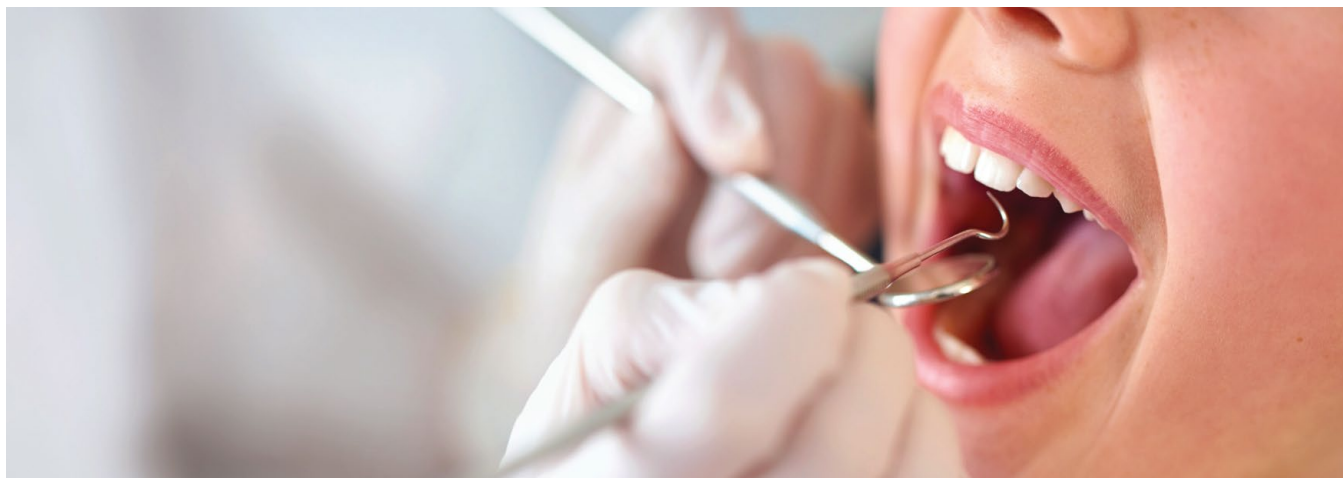
**Planning for work/activity limits**

Discuss returning to work, activity, and work limits with your health care team.

**Planning for better health/recovery**

- Avoid tobacco and alcohol prior to your procedure.
- Discuss heart healthy dietary options with your health care team.
- Plan to enroll in cardiac rehabilitation following your procedure.
- Ensure you know what medication changes are made after your procedure, and why. Becky Sharp, CNP, will review this upon discharge.
- If you develop a fever, chills, diarrhea, or vomiting in the days leading up to your procedure, contact our clinic at 605-755-4031.





**14-30 days before your TAVR**

**Date Range:** \_\_\_\_\_

**DATE OF YOUR TAVR:** \_\_\_\_\_

**What: Dental Clearance**

Your dentist will help identify any potential risk for infection.

**Why:** Bacteria and other germs can collect in your mouth and cause life-threatening infections that attack the valves of your heart (this infection is called endocarditis).

**How:** Set up an appointment with your dentist and let them know you are undergoing TAVR and need to be cleared for any potential infections.

*\*Our team will call with specific instructions regarding appointment dates, times, review when to stop eating/drinking, which medications are safe to take, and which medications to hold.*

**14 days before your TAVR**

**Date:** \_\_\_\_\_

**What: Urinalysis lab test**

You will need to provide a urine sample about two weeks prior to your procedure. The order will be placed for you to go to your Monument Health Lab to complete this.

**Why:** Your urine is tested to rule out a urinary tract infection. Depending upon your results, you may need to start on an antibiotic before your TAVR.

**How:** We will place the order for the test. If you have access to a Monument Health facility, set up an appointment about 14 days before your TAVR. If you live in an outlying community, we can fax orders to your local lab so you can set up your appointment.



**7-10 days before your TAVR**

Date Range: \_\_\_\_\_

**Skin Preparation and Medication Review**

- Review the pre-surgery skin care instructions that are towards the end of this booklet.
- Stop shaving the area where your surgical incision will be 5-7 days before your procedure.
- Remove artificial (fake) fingernails at least 7 days before your scheduled procedure.
- Review the medication instructions given to you by the Structural Heart Team and be sure that you are holding any medications that you have been told to stop. If you are on warfarin (Coumadin) and require bridging with Lovenox, you will be provided specific instructions along with a prescription.

---

**2 days before your TAVR**

- We advise you to drink 2-3 extra glasses of water starting two days before your TAVR. This will help you stay hydrated. Being hydrated before your TAVR can help:
  - The team start your IVs easier
  - Protect your kidneys
  - Make recovery better
- Wash your bedding/towels/clothes that you will need the night before and day of your TAVR. Clean linens/clothes will help decrease your chance of infection. You will need clean clothes to go home in after your hospital stay.
- Finalize surgery plans with your family/friends.
- Review your medications. Make sure you follow the directions given to you to you. Depending upon your current medications, you may be asked to hold certain medications before your TAVR.



**1-2 days before your TAVR**

**Pre-admission appointment:** \_\_\_\_\_

**Location of pre-admission area:** \_\_\_\_\_

**The following tests will be completed during your pre-admission appointment:**

**Chest x-ray:** This is a standard x-ray of your chest that will allow our team to see the structures of the chest.

**Electrocardiogram (EKG):** This test gives the team a snapshot of the electrical activity of your heart. 12 gel stickers are placed on your chest and abdominal area to record the electrical impulses of your heart.

**Frailty testing:** These tests help the team establish pre-and post-hospitalization care based on your current health status. Testing includes a 5-meter walk test in which you will walk five meters while being timed. Your handgrip strength will also be assessed.

**Labs:** You do not need to fast before these labs. We will need a complete blood count, chemistry panel, blood type and screen, and coagulation studies. We want to ensure your electrolytes are normal, your kidney function is stable, you do not have a current infection, and you are not experiencing and bleeding or clotting issues.

**Medications:** Bring all of your medications, vitamins, and supplements (in their bottles) so the nurses can ensure our records are up to date.

**The day before your TAVR**

- Review and follow your medication instructions for the day before your procedure.
- Continue drinking plenty of healthy liquids

**The night before your TAVR**

- Place clean linens on your bed to sleep with. Make sure you have clean clothes to sleep in and to wear to your procedure. Wash your hair and take a shower the night before your procedure. Use the skin cleaning products you were given in pre-admissions as directed.
- Do not use deodorants, lotions, powders, make-up, perfumes, or hair products the night before. Remove ALL jewelry, body piercings, and nail polish before going to bed.
- Prepare your bag for the hospital and only include the following:
  - Photo Identification
  - Insurance Cards
  - Driver's License
  - Dentures/Case
  - Glasses/Case
  - Hearing aids/Case
  - CPAP mask if you use this at home
  - Other equipment or supplies needed
- Stop eating after midnight the night before your procedure (including mints/gum). You may have sips of water and ice chips up until two hours before arriving at the hospital the morning of your procedure.

## The Day of Your TAVR Procedure

- Shower only if directed to on day of procedure.
- Dress in comfortable, clean and warm clothes, including clean underwear.
- Check your packed bag and bring it with you.
- Do not use deodorants, lotions, powders, make-up, perfumes or hair products.
- Remove all jewelry, body piercings and nail polish.
- Remove contacts and leave them at home. Wear your glasses.
- Refrain from tobacco use (including smoking and chewing).
- Review your medication instructions and take your morning pills with a few sips of water.
- Clear liquids - *Unless otherwise instructed, you must stop drinking all liquids at least 4 hours before your procedure time.*



## What to expect once you have arrived for your TAVR:

You will arrive 2 hours prior to your scheduled procedure for preparation which will include:

### IV insertion

Two IVs will be inserted to give medications and anesthesia.

### Arterial line placement

A member of the anesthesia team will insert a small catheter (hollow tube) in an artery in your wrist. This will allow us to monitor your blood pressure during the procedure.

### Medications

We administer IV antibiotics, medication to prevent blood clots, and anything as needed for nausea, anxiety, high blood pressure, etc.

### Shaving

We shave all patients from chest to groin.

### Consent

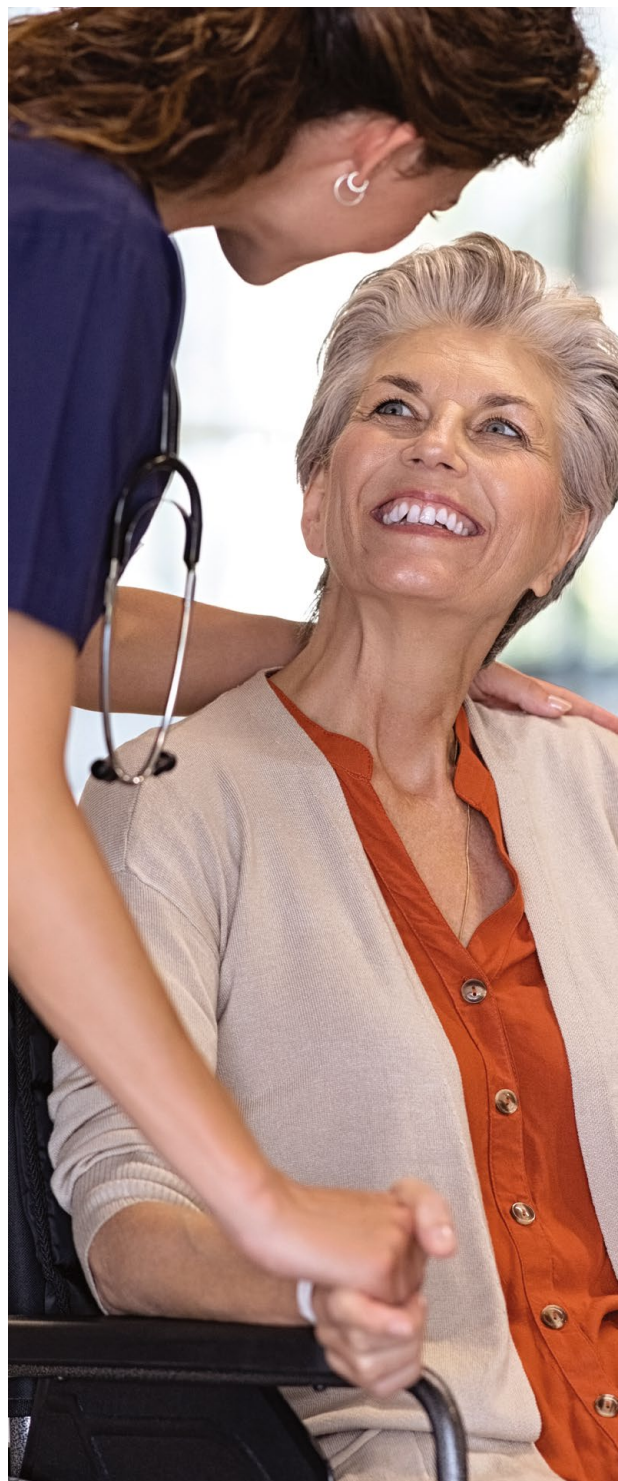
Our nurse practitioner, anesthesia team, and possibly surgery team will check and make sure you have no further questions.

---

## What to expect the morning after the TAVR:

The next morning, you will have another echocardiogram (ultrasound of your heart), EKG (electrical tracing of your heart), labs, and will work with cardiac rehab. Most patients go home the afternoon after their TAVR.

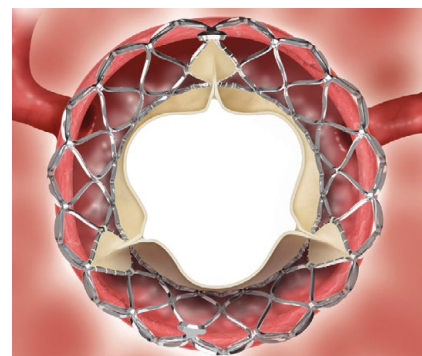
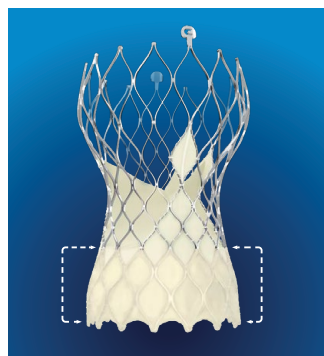
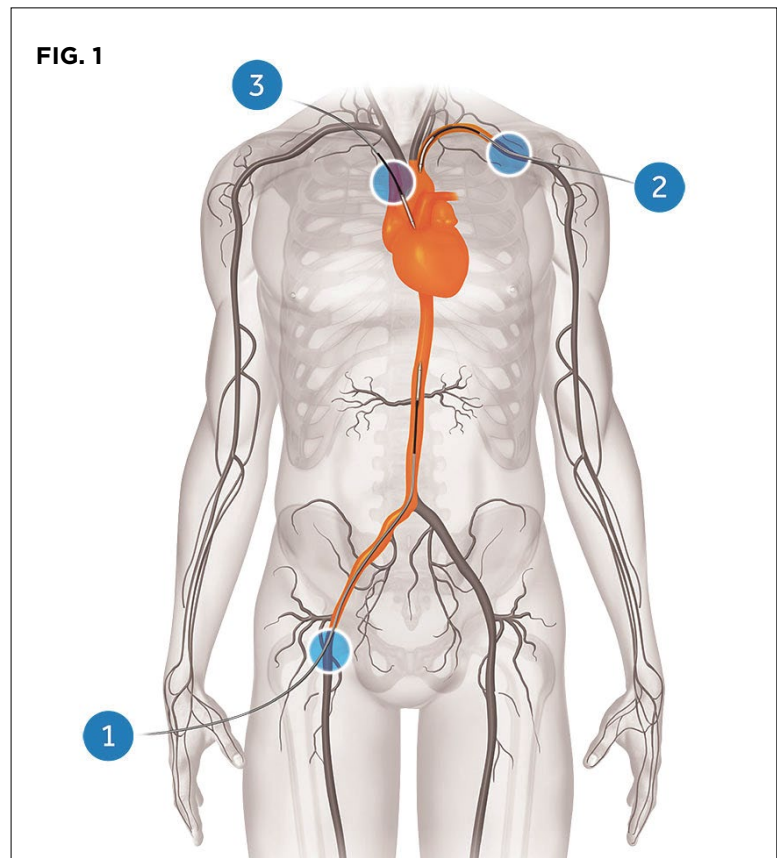
Some patients may need to stay another night in the hospital, so please plan accordingly.





## WHAT HAPPENS DURING THE TAVR?

1. The anesthesia provider will administer anesthesia and insert a temporary device to keep your airway open. This device will be removed at the end of the procedure.
2. The doctor will insert a temporary pacemaker to regulate your heart rate.
3. A Sentinel device is inserted in the wrist or arm. This device acts as a filter to catch any debris that may dislodge from the valve during the procedure, lowering the risk of stroke.
4. The doctor will access the pre-determined site (see figure 1) to initiate the procedure. Most of the time this will include accessing an artery in your right groin.
5. The doctor will insert the new valve, and with the use of ultrasound and blood flow measurements, make sure it is working properly.
6. At the end of the procedure, wires are removed and access sites are closed.
7. The anesthesia provider will begin to wake you up and you will be moved to a recovery unit.





To view a video about TAVR as a treatment option, scan this QR code with your phone or visit [bit.ly/3jx2HXZ](https://bit.ly/3jx2HXZ)



To view a video about the TAVR procedure, scan this QR code with your phone or visit [bit.ly/3fQTeZj](https://bit.ly/3fQTeZj)



## POTENTIAL RISKS

### **STROKE**

*(1% Risk)*

Patients that require TAVR often have a buildup of calcium or plaque on their aortic valve. Calcium deposits can become dislodged during the insertion of the new valve, which has the potential to cause a stroke.

To lower the risk of stroke, we complete a carotid ultrasound as part of the TAVR work up. The carotid arteries are vessels in your neck that provide blood to the brain. Severe blockages in these vessels increase the risk of stroke. If the ultrasound shows severe blockages, we may have to treat the blockages.

### **THE NEED FOR A PERMANENT PACEMAKER**

*(3-7% Risk)*

Your aortic valve and the “electrical” system of your heart sit very close to each other. Because of this proximity, there is a chance that your electrical system could be affected by the insertion of the new valve. To prevent complications from the onset of an abnormal heart rhythm, the doctor will place a temporary pacemaker.

The temporary pacemaker is inserted through a sheath in your left groin and guided through your veins to the right ventricle of your heart.

After the procedure, if your heart is in an abnormal rhythm called complete heart block, placing a permanent pacemaker may be necessary. If this happens, a permanent pacemaker will be placed during the same hospital stay. Usually, the recovery time for placement of a permanent pacemaker is minimal.

### **BLEEDING**

*(1% Risk)*

There is a risk of bleeding after the procedure because we insert large sheaths in the arteries in your groin. To lower this risk the doctor places internal sutures to close the small holes in the arteries.

Upon arrival to the recovery unit, all sites and pulses are checked frequently to monitor for bleeding. You will be on flat bedrest after the procedure to prevent any bleeding. After a few hours, the staff will determine if it is safe to sit in a recliner.

## AFTER CARE AND FOLLOW-UP TESTING

**Medications:** You will be prescribed (or continued on) medication to prevent clots from developing on your new valve. We will put you on 81mg Aspirin if you are not already on it, and typically clopidogrel (Plavix) or another type of antiplatelet medication. If you are on blood thinning medications, this may be different.

**Activity:** After the TAVR you will not be allowed to lift more than 10 pounds for one week. You can walk and participate in moderate physical activity as directed by your doctor.

**Minimum Follow Up:**

**One week:** After leaving the hospital, you will be set

up with a telephone appointment with Becky Sharp, CNP. This is a very important appointment to keep, as she will review how you are feeling, check for any potential complications, and discuss any concerns or questions you may have.

**One month:** You will be scheduled for a one month appointment to make sure your new valve is working as it should. During this appointment, you will have a follow-up echocardiogram, ECG and non-fasting labs.

**One year:** At one year, we will repeat an echocardiogram, ECG, and labs.





# SKIN PREPARATION BEFORE SURGERY & SURGICAL SITE INFECTION PREVENTION

We all have natural bacteria that lives on our skin, which is why it is important to shower the night before your procedure, and follow the instructions on the wipes provided to you in pre-admissions in order to prevent post-procedural infections.

## Help prevent surgical site infections

*The DOs/DO NOTs and WHYS*

**DO:** make sure you understand the pre-surgery skin care and cleansing instructions.

**DO NOT:** shave around surgical area within 5 to 7 days.

**WHY:** Shaving can lead to small cuts that can lead to infection after your procedure.

---

**DO:** Shower the night before.

- Wash your hair with your normal shampoo. Wash your hair before you wash your body.
- Use a clean washcloth.
- Use a new bar of soap.
- Use a clean towel and be sure to dry off completely after your shower.
- Be sure to put on freshly-washed clothing.
- Make sure your bed sheets, pillowcase, and blankets are freshly washed and clean.

**WHY:** Ensuring clean skin will decrease the amount of bacteria on your skin and help prevent infection.

---

**DO NOT:** use any sort of skincare products (including deodorant, lotion, creams, hair products, and make up) after you shower or in the morning.

**WHY:** These products can create a barrier that traps bacteria on the skin and increase your risk of infection.

---

**DO:** dress warmly with freshly washed, loose-fitting clothes on the morning of your procedure.

**WHY:** Keeping warm before surgery can help decrease the risk of infection.

---

## How to use Theraworx Protect Cloths

- The cloths provided are safe to use on all body parts including face, urinary area, penis, and vagina.
- Following directions below, use all 8 cloths. Use both sides of the cloth. Cloths may still be wet when finished. Throw away after the site is cleaned. Do not reuse cloths. The cleaning will take at least 10 minutes.
- Discard cloths and packaging in normal trash can.

Cloth Number	Where to Use Theraworx Cloths
<b>Cloth 1</b> Scrub for 1 minute	Entire <b>face, neck, chest, and upper belly area down to your belly button.</b> Start with your face and move down. Clean entire face. Clean all parts of the ears. Clean entire neck including back of neck. Clean belly just down to belly button. Discard Cloth 1 in trash.
<b>Cloth 2</b> Scrub for 1 minute	Entire <b>right arm, hand, fingers, and armpit.</b> Start at top of arm, moving down to hand/fingers and end by cleaning your armpit. Discard Cloth 2 in trash.
<b>Cloth 3</b> Scrub for 1 minute	Entire <b>left arm, hand, fingers, and armpit.</b> Start at top of arm moving down to hand/fingers and end by cleaning your armpit. Discard Cloth 3 in trash.
<b>Cloth 4</b> Scrub for 1 minute	Entire <b>right leg.</b> Start at hip and move down, ending with the toes. Include behind the knee, foot, in-between toes and toenails. Discard Cloth 4 in trash.
<b>Cloth 5</b> Scrub for 1 minute	Entire <b>left leg.</b> Start at hip and move down ending with the toes. Include behind the knee, foot, between your toes and toenails. Discard Cloth 5 in trash.
<b>Cloth 6</b> Scrub for 1 minute	Entire <b>back area - stopping at buttocks.</b> You may need a helper for this area. Discard Cloth 6 in trash.
<b>Cloth 7</b> Scrub for 1 minute	<b>Both buttocks</b> & end with the <b>rectal area.</b> Discard Cloth 7 in trash.
<b>Cloth 8</b> Scrub for 1 minute	<b>Start at lower belly (starting at the belly button) going down to the mid-thighs (groin area) on both sides. Using other side of cloth, clean the area where you pee (your genital area) well with cloth.</b> Discard Cloth 8 in trash.

## RESOURCES: HOTEL DISCOUNTS



Below is a listing of hotels in the area. Ask about discounted rates for Monument Health patients. The numbers correspond with the map on the previous page.

HOTEL NAME	STARS	MINUTES TO HOSPITAL	SHUTTLE SERVICE	MEDICAL RATE (SUBJECT TO AVAILABILITY)
<b>1   SUPER 8 BY WYNDHAM RAPID CITY RUSHMORE RD</b> 2520 Tower Road, Rapid City, SD 57701 <b>605-679-6655</b>	★★	3	NO	<b>YES</b> 10% off total cost of stay
<b>2   QUALITY INN</b> 750 Cathedral Drive Rapid City, SD 57701 <b>605-341-9300</b>	★★	3	NO	<b>YES</b> 5% off total cost of stay
<b>3   COMFORT INN &amp; SUITES</b> 915 Fairmont Boulevard Rapid City, SD 57701 <b>605-718-4444</b>	★★	3	NO	<b>YES</b> 10% off total cost of stay
<b>4   TRAVELODGE</b> 2505 Mount Rushmore Road Rapid City, SD 57701 <b>605-389-3792</b>	★★	4	YES	<b>YES</b> Discount varies, call to confirm
<b>5   HOTEL ALEX JOHNSON</b> 523 6th Street Rapid City, SD 57701 <b>605-342-1210</b>	★★★	7	NO	<b>YES</b> 5% off total room rate
<b>6   RUSHMORE HOTEL</b> 445 Mount Rushmore Road Rapid City, SD 57701 <b>605-348-8300</b>	★★★	7	YES	<b>YES</b> \$169 + tax/night
<b>7   RUSHMORE PLAZA HOLIDAY INN</b> 505 North 5th Street Rapid City, SD 57701 <b>605-348-4000</b>	★★★	8	YES	<b>YES</b> Call for details
<b>8   HOLIDAY INN EXPRESS &amp; SUITES</b> 1611 Caregiver Circle Rapid City, SD 57702 <b>605-718-0772</b>	★★	8	NO	<b>YES</b> \$64 + tax/night (10/16 - 5/14) \$149 + tax/night (5/15 - 10/15)
<b>9   MY PLACE HOTEL</b> 1612 Discovery Circle Rapid City, SD 57701 <b>605-791-5800</b>	★★	15	NO	<b>YES</b> 15% off total room rate









**MONUMENT HEALTH HEART AND VASCULAR INSTITUTE**  
353 Fairmont Boulevard, Rapid City, SD 57701 | 605.755.4031