



## **Transcatheter Aortic Valve Replacement (TAVR)**

**SANFORD**<sup>®</sup>  
HEALTH

Welcome to the Sanford Health Heart Clinic. It is a privilege to care for you. Your doctor has told you that you may need to have a TAVR procedure. TAVR stands for Transcatheter Aortic Valve Replacement procedure. We hope this information is helpful as you learn about the procedure, how to prepare for the procedure, and how to care for yourself after.

If you have any questions, please ask any of the heart team members.

*Sanford Health Cardiovascular (Heart) Team*

# Table of Contents

Checklist .....	4
Tests .....	5-6
Echocardiogram .....	5-6
Angiogram .....	5-6
Transesophageal Echocardiogram .....	5-6
CT Scan .....	5-6
Pulmonary Function Test (PFT) .....	5-6
Carotid Ultrasound .....	5-6
Aortic Valve Stenosis .....	7
Having a TAVR Procedure .....	7-9
Before the Procedure .....	7-9
During the Procedure .....	7-9
After the Procedure .....	7-9
After You Are Discharged .....	10-12
Heart Rate, Blood Pressure, and Weight Log .....	13
Questions .....	14-15

# TAVR Checklist

Echocardiogram – Date: \_\_\_\_\_

Valve Clinic Appointment at Sanford – Date: \_\_\_\_\_

Angiogram – Date: \_\_\_\_\_

Transesophageal echocardiogram – Date: \_\_\_\_\_

CT scans of your chest, abdomen, and pelvis: Date: \_\_\_\_\_

Pulmonary Function Test – Date: \_\_\_\_\_

Carotid Ultrasound – Date: \_\_\_\_\_

Consultation with Heart surgeon – Date: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Referrals: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Testing

Before you have the TAVR procedure, you will need to have some tests done. These include:

## Echocardiogram

This test looks at your heart valves, heart muscle, and evaluates your heart function. It involves a non-invasive ultrasound (sound waves) over parts of your chest and upper abdomen. The echo probe (looks like a microphone) is pressed against areas of your chest. This is usually the first place your doctor learns about your Aortic Stenosis.

**My results:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Angiogram

This is a minimally invasive test to see if there are any blockages in your coronary arteries. This test is done by a cardiologist (heart doctor). A small poke hole is made in either your leg or wrist. The doctor inserts a small catheter up into your heart and inject contrast dye to see your arteries. If your doctor sees a blockage that needs to have a stent (a small device to keep the vessel open) placed, it may be done at that time. This is to make sure your heart has good blood flow before the TAVR procedure.

**My results:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Transesophageal Echocardiogram (TEE)

This is a test to see your heart valve size, how well your heart functions, and the walls of your heart. A cardiologist inserts a flexible tube into your esophagus (throat) after making sure you are comfortable and somewhat sleepy.

**My results:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## CT Scans of Chest, Abdomen, and Pelvis

This non-invasive test combines X-rays and computer scans. A CT (computed tomography) scan takes a picture of the inside of your body with the use of contrast dye and a CT scanner. These tests are done to make sure the new TAVR valve is the right size for you. It also shows a “road map” of your blood vessels that will be used during the TAVR procedure. The radiology tech will ask you to hold your breath at different times during the scan. This is very important for an accurate scan. Pay close attention, so you are able to hold your breath when needed and complete the scan.

**My results:**

---

---

---

---

## Pulmonary Function Test (PFT)

This test is also called a lung function test. It will measure how well your lungs are working. This test:

- Measures how well you move air in and out of your lungs.
- Measures how well oxygen enters your lungs.
- Will show us if your lungs are ready for the TAVR procedure.
- Is done by you doing breathing exercises with a respiratory therapist.

---

---

---

---

**My results:**

## Carotid Ultrasound

This is an ultrasound done on your neck area looking specifically at your carotid arteries.

---

---

---

---

**My results:**

## Other Tests

Your doctor may want you to have other tests before your TAVR procedure.

**Name of Test:**

1. 

---

---

2.

## Aortic Valve Stenosis

The aortic valve controls blood flow from the heart to the body. In some people, the valve becomes scarred and stiff and has trouble opening. This is a condition called aortic stenosis. The heart then has to work harder to push blood through the narrowed heart valve to the rest of the body. Over time, the extra work can cause the heart muscle to weaken and lead to heart failure.

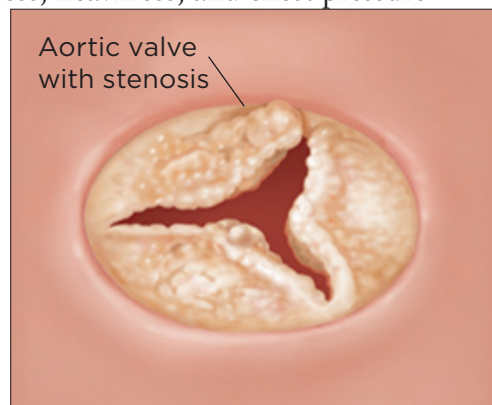
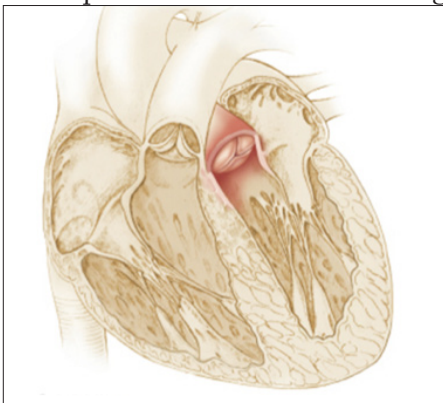
### Causes

Aortic stenosis can happen when your aortic valve becomes diseased or damaged. Some causes of this may be:

- Age
- Heart Infection
- Rheumatic Fever
- Calcification – calcium deposits form on the aortic valve as you get older
- Other factors

### Symptoms

- Feeling tired
- Shortness of breath with activity
- Dizziness
- Fainting
- Swelling in your legs, ankles, or feet
- Increase in your weight of either:
  - 2 to 3 pounds in a day
  - 5 pounds in a week
- Heart palpitations
- Chest pain – this includes chest tightness, heaviness, and chest pressure



Open aortic valve with stenosis.  
(viewed from above)



# Having a TAVR Procedure

Your doctor recommends that you have a Transcatheter Aortic Valve replacement (TAVR). This is a surgery to replace a diseased aortic valve with a new bioprosthetic (bi o pros-thet ik) valve. This is a valve made of both metal and tissue. TAVR is done by putting a thin, flexible tube called a catheter through a blood vessel in your groin, or through a small incision in your chest. The catheter is used to deliver an artificial valve to your heart. The TAVR procedure has been recommended to you as an alternative to open heart surgery.

Be sure to talk with your healthcare provider about any questions or concerns you have before the surgery. The surgery most often takes 1 to 2 hours. You may be in the hospital for 1 to 2 days. Here's what to expect before, during, and after the procedure.

## Before the Procedure

Before the day of surgery, you will have a physical exam and tests. These tests include X-rays, CT scans, lung tests, and blood tests. You will have an echocardiogram to check your aortic valve. You may also have a cardiac catheterization.

## Before the Surgery

Tell your healthcare provider about all medicines you take. This includes over-the-counter medicines, vitamins, herbs, and other supplements. It also includes any blood thinners, such as warfarin or daily aspirin. You may need to stop taking some or all of them before your surgery.

- Tell your healthcare provider if you are allergic to any medicines, have had a reaction to anesthesia, or have a bleeding disorder.
- Stop smoking. Ask your healthcare provider how soon before surgery you need to quit.
- Not eat or drink for a certain number of hours before the surgery. Your heart team will give you specific instructions.
- Shower with special soap before the surgery if advised.
- Follow all other instructions that you are given.

## During the procedure

Even though the TAVR procedure uses a less invasive approach than traditional aortic valve replacement surgery, the procedure is done with anesthesia. Your doctor will talk to you about the type of anesthesia that will be used. The procedure will be performed in an operating room or specially equipped catheterization lab.

- An intravenous (IV) line is put in your arm or hand. This supplies fluids and medicine. To keep you free of pain during the surgery, you are given anesthesia.
- A catheter may be placed into your bladder to drain urine.
- A monitor called an arterial line is put into the artery in your wrist to monitor blood pressure and take blood samples.
- An echocardiogram is done during the procedure.
- Antibiotics are given before the procedure to protect you from infection.



- A catheter is put in the femoral artery in the groin. It is then guided through the artery up into your heart and to your aortic valve. Other catheters, from the neck, wrist, or the other leg, are put in your heart to take measurements and X-ray pictures during the procedure.
- The new valve is delivered through the catheter to the heart.
- Measurements and images are taken to make sure your new valve works properly. Then the catheters are removed.
- The catheter in your leg is removed and your incision is closed.

If your groin artery is too small or calcified, your doctor may put the catheter through an incision in your chest instead.

## **Pacemaker**

Every patient receives a temporary pacemaker during the TAVR procedure. A pacemaker is a device that uses electrical impulses to regulate your heart rhythm. This is a small wire through your vein in your leg into your heart that is most often taken out right after the procedure. Sometimes a permanent pacemaker is needed after a TAVR procedure.

If a permanent pacemaker is needed, this will likely be placed while you are in the hospital the day after your TAVR procedure.

## **After the Procedure**

You will be moved to the cardiac care unit to start your recovery.

When you first wake up, you may feel groggy, thirsty, or cold. These feelings will not last long. You will likely have some thin tubes in your body. These are to give you medicines and nutrition, and to measure your heart function. You will need to lay flat for a while right after the procedure. This is done to lower your risk of bleeding from your incision or poke hole in your groin.

Things your nurse may be checking:

- Your incision or poke hole used for the procedure
- Check the pulses in your feet
- Monitor your temperature, heart rate, breathing rate, and blood pressure

If you had the surgery done through your chest, you may also have a drainage tube coming out of your chest. The tubes will be removed when they are no longer needed. Medical staff members will carefully watch you. You may have a breathing tube in your throat after the procedure. It is usually removed when you are able to wake up.

Your recovery will depend on how invasive your procedure is for your valve replacement. Your doctor will let you know how long you will be in the hospital. If you had the surgery done through your chest, you may spend more time in the hospital than if you had the surgery done through your groin.

You will be encouraged to stand and walk, even if you feel tired. Walking helps your muscle strength, blood flow, and breathing. Your healthcare provider will let you know when you can go home. Have a family member or friend drive you home.

# After You Are Discharged

When you are discharged after your procedure, it is important that you follow **all** the instructions given to you. Also, it is important that you go to **all** your follow-up appointments. You should feel better after your surgery. A complete recovery may take many weeks. The length of time for your healing depends on if your surgery was done through your groin or an incision in your chest.

## Recovering at home after your TAVR procedure

It is important to follow all your doctor's instructions after you are discharged to home. It may take many weeks to get back to your normal activities.

### Activity

Patients who stay active, heal the best.

### Walking and exercise

- Follow the specific instructions you received from cardiac rehab or physical therapy.
- Take planned rest periods during the day.
- Set a daily routine.
- Do not stay in bed, even if you feel tired.

### Stairs

- Go slow.
- Take one step at a time. Pause and rest with each step.
- If you have trouble breathing or become dizzy, sit down and rest.

### Sex

- If you are able to climb 1-2 flights of steps without having trouble breathing, you may resume sex when you are ready.
- Do not have sex after a heavy meal.
- Make sure you are well rested.

Things you **cannot** do after your surgery

### The first week

- Lifting, pulling, or pushing more than 10 pounds
- Lawn mowing
- Raking
- Shoveling
- Bearing down or straining more than normal when you are having a bowel movement

### Pain

- If an activity causes you pain, do **not** do that activity.

## Driving

- No driving while taking a narcotic pain medication
- If you live more than 1 hour away, stop the car at least one time each hour on your way home so you can get up and walk around.

## Smoking

People who use tobacco may **not** heal as fast from surgery or illness as those who do not use tobacco. Tobacco use may increase your risk of infection. Do not smoke or use tobacco after you go home. If you need or want help to quit, ask your doctor.

## Quit line

- **North Dakota** – (800) – QUIT NOW
- **South Dakota** – (866) – 737-8487
- **Minnesota** – (888) – 254-PLAN (7526)

## Dental Work

You **may** need to take antibiotics before future surgeries, dental work, and invasive procedures. You **must** tell all of your doctors and dentists that you have had a heart valve before you have **any** procedure or testing.

You will be given a card to show your dentist before you have any dental work done. The reason for this is so you can receive antibiotics before your dental work to prevent infection.

## Medication

It is important that you take your blood thinner medication as your doctor prescribed it. Do **not** stop taking this medication suddenly unless your cardiologist (heart doctor) has told you to. This type of medication is used to keep blood clots from attaching to your new heart valve.

## Diet

You may continue on your normal heart healthy diet unless you are told differently. Some patients may experience a loss of appetite. If you have a loss of appetite, try choosing your favorite foods. Drinking a supplement like Ensure is a good choice too.

- Eat a low sodium diet. This should be 2000-3000 mg each day.

## Self-Care

- You may shower.
- Do **not** scrub your incision site. Pat the incision site dry, do not rub.
- Do **not** use ointments or perfumes.
- **No** bath tubs, hot tubs, or pools for **one** week after surgery.
- Cough and deep breathe using your incentive spirometer 5 to 10 times each hour while you are awake.
- Weigh yourself at the same time each day. Write your weight down.

- Call the Valve Coordinator if you:
  - Gain more than 3 pounds in 1 day or 5 pounds in 1 week.
  - Have increased shortness of breath (trouble breathing)
  - Have swelling in your arms or legs

## Follow-up Appointments

You will have follow-up appointments with either your primary care doctor or a cardiology nurse practitioner after your TAVR procedure. This is to make sure your new valve is working well.

- Within one week
- One month – you will have an echocardiogram before you see your cardiologist.  
**This appointment will take about 2 hours.** You may have other testing as needed.
- One year – you will have an echocardiogram before you see your cardiologist.  
**This appointment will take about 2 hours.** You may have other testing as needed.

You will receive a follow-up phone call in 1 to 3 days to see how you are doing.

## When to Call Your Doctor

**Call 911 if you feel your symptoms need immediate attention**

- Puncture site – watch for signs of excess bleeding. This is described as slow oozing that saturates the dressing completely or bright red bleeding. Hold pressure for at least 10 minutes. Bruising that is **not** painful is normal and can be expected.
  - If you develop a firm lump under your incision (larger than a golf ball), hold pressure **and** go to the Emergency Room **right away**.
- If your incision is any of the following:
  - Red
  - Swollen
  - Warm to touch
  - Draining
  - Opened up
- Temperature is 101 degrees or higher
- Severe or increased pain in your incision
- Abdominal (belly) pain with a firm abdomen
- Not able to pass gas
- Not able to have a bowel movement (poop)
- Change of color or temperature in your foot or hand
- Numbness
- Trouble breathing
- Unusual pain in legs
- Swelling in legs
- Back pain
- If you have **any** questions or concerns









