Scripps

Transcatheter Aortic Valve Replacement (TAVR)

KAISER PERMANENTE®

For Kaiser Permanente Patients

Welcome to Kaiser Permanente

We are pleased that you have chosen Kaiser Permanente for your heart care needs. For more than 30 years, Kaiser Permanente in San Diego has partnered with Scripps Health for interventional cardiology, electrophysiology and heart surgery at Scripps Memorial Hospital La Jolla. We are committed to providing you with the highest-quality professional care and look forward to making your stay with us as comfortable and safe as possible.

We know that your circumstances are unique and we will work closely with you to create an individualized care plan. We are dedicated to providing you the best care available so that you can lead the highest quality of life possible.

From the moment you call our office, you will find yourself in expert and caring hands. Members of your health care team will be there for you every step of the way.

Caring for You

If you have been diagnosed with severe aortic stenosis, you may need to have the aortic valve in your heart replaced. Your treatment options may include a minimally invasive procedure called Transcatheter Aortic Valve Replacement (TAVR). This booklet will help you learn more about the TAVR program at Scripps, one of the nation's leaders in developing and performing this procedure.

Throughout this booklet, you will find information about how your heart works and what it means to have severe aortic stenosis. You'll learn how your cardiologist or cardiac surgeon will help you determine if TAVR is right for you, and what to expect during and after your TAVR procedure.

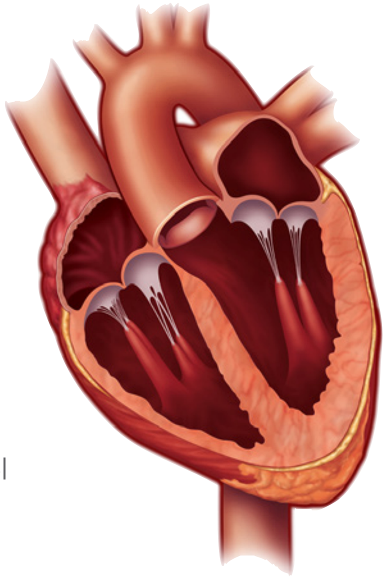
We know that you are an important member of your heart team, and we encourage you to take an active role in your care. This includes:

- Discussing your treatment options with your cardiologist.
- Asking questions about anything you do not understand.
- Participating in discussion and planning of your care.
- Understanding the risks and benefits of treatment.
- Following your heart care team's instructions.

Should you have questions or concerns not addressed in this booklet, please do not hesitate to ask any member of your heart team. Your health is most important to us, and we want to make sure you are completely comfortable with your care plan.

Thank you again for choosing Kaiser Permanente.

How Your Heart Works



A healthy heart

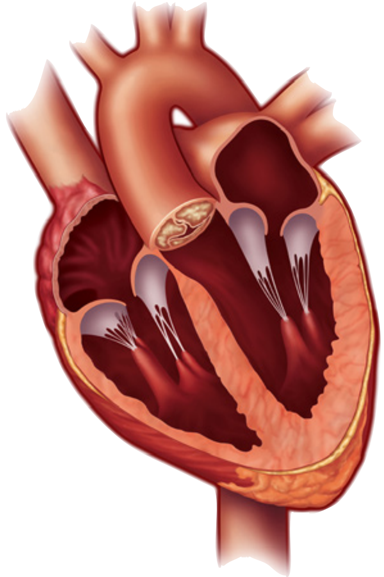
Your heart is a muscle about the size of your fist. It is located between your lungs, where it beats approximately 100,000 times a day to pump blood though your body. The right side of your heart pumps blood through your lungs, where it picks up oxygen. The left side of your heart receives this oxygen-rich blood and carries it to the rest of your body.

Your heart has four chambers. The two upper chambers are the left and right atrium, and the two lower chambers are the left and right ventricle. Four valves — pulmonary, tricuspid, mitral and aortic — direct blood through the chambers. Each valve has a number of structures, called leaflets, which open and close as needed to properly control blood flow through the heart. The valves open in one direction to allow blood through, and then close to ensure the blood does not back up and flow the wrong way.

If any of these valves become diseased or damaged, blood cannot flow properly through the heart. As a result, the heart has to work harder to pump blood, and your body may not get enough oxygen-rich blood. More than 5 million Americans are diagnosed with heart valve disease every year.

What is Aortic Stenosis?

The aortic valve controls blood flow from the left ventricle to the aorta, a major blood vessel that delivers blood to the rest of the body. In severe aortic stenosis, the opening of the aortic valve becomes narrowed, preventing the leaflets from opening and closing properly. This restricts the flow of blood though the valve and forces the heart to work harder.



Severe aortic stenosis is a narrowing of your aortic valve opening that does not allow normal blood flow. It can be caused by a birth defect, rhuematic fever or radiation therapy, or can be related to age.

Symptoms of aortic stenosis include:

- Chest pain or tightness
- Feeling faint or lightheaded
- Dizziness
- Fatigue, especially with activity
- Shortness of breath
- Irregular heartbeat
- Swelling of the feet and ankles

As aortic stenosis worsens, the heart becomes increasingly weaker. This increases the risk of heart failure, a very serious disease which occurs when your heart cannot pump enough blood to the body. If severe aortic stenosis is not diagnosed and treated, about half of the people who have it will die within an average of two years.

What Causes Aortic Stenosis?

Severe aortic stenosis may be related to a number of factors:

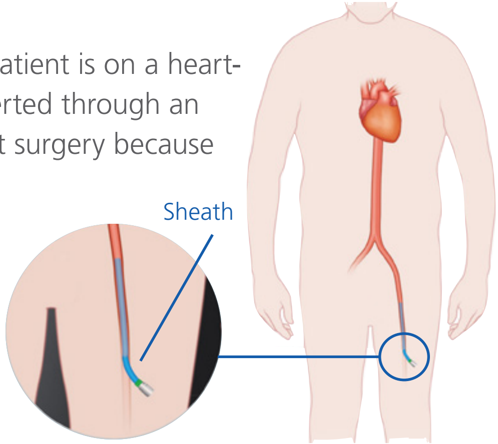
- Radiation therapy
- Bacterial infection of the heart (rheumatic fever)
- Age-related calcium degeneration
- High cholesterol that increases deposits of fat
- A build-up of calcium (mineral deposits) on the leaflets
- Birth defect
- Age

Severe aortic stenosis is not preventable, but it is treatable.

How is Aortic Stenosis Treated?

Treatment depends on the severity of the aortic stenosis. Most patients remain symptom free with mild or moderate aortic stenosis, but as the disease progresses, your cardiologist may recommend replacement of the damaged valve. Several types of surgical procedures are performed to treat aortic stenosis:

Open heart surgery to replace the aortic valve is one treatment option. While the patient is on a heart-lung bypass machine, the damaged valve is surgically removed and a new valve is inserted through an incision in the middle of the chest. Some patients may not be able to have open heart surgery because they are too ill or have other conditions that put them at high risk.



Minimally invasive open heart surgery is similar to open heart surgery, but is performed through a small incision in the chest. The surgeon uses a tiny camera and slender tools inserted through the incision to replace the damaged valve. This may be an option for some patients who cannot have traditional open heart surgery.

Transcatheter Aortic Valve Replacement (TAVR) is an alternative treatment for patients who qualify. TAVR allows a new valve to be inserted into the heart while it is still beating, so the patient usually does not have to be on a heart-lung bypass machine. The new valve is inserted via a thin, flexible tube called a catheter, so it is less invasive than valve replacement surgery.

Transcatheter Aortic Valve Replacement

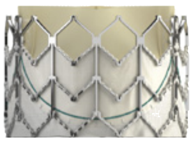
Like open heart surgery, TAVR has been shown to lengthen life and significantly improve quality of life for appropriate patients with severe aortic stenosis. Because TAVR is a minimally invasive procedure, patients may have a shorter recovery time. In clinical studies, some patients began feeling better immediately after their TAVR procedure, and experienced significant improvements in symptoms and activity level. The entire TAVR procedure generally takes two to three hours.

Your TAVR Heart Team

Every hospital that offers TAVR is required to have a specially trained heart team. Your heart care team will include a cardiac surgeon, an interventional cardiologist, imaging specialists, nurse practitioners or physician assistants, coordinators and other specialty services deemed appropriate for your optimal care. Together, your team will evaluate your condition and determine the best procedure for you.

What will happen during the TAVR procedure?

1. Depending on what the heart team decides is best for your care, you will either be sedated or placed under general anesthesia.
2. Your interventional cardiologist or cardiac surgeon will make a small needle stick in your leg artery or an incision in your chest and guide a sheath — a long, hollow tube about the width of your forefinger — through the blood vessel.
3. While viewing your heart with special imaging equipment, the physician will thread a catheter with a valve on the end through the sheath and into your heart.
4. When the valve is positioned appropriately inside your aortic valve, it will be deployed from the catheter into your heart and the team will test it to make sure it is opening and closing properly.
5. Once the valve is in place and working, your team will remove the catheter and close your incision.



The transcatheter heart valve is a biological valve (made from animal tissue) that replaces your aortic valve.

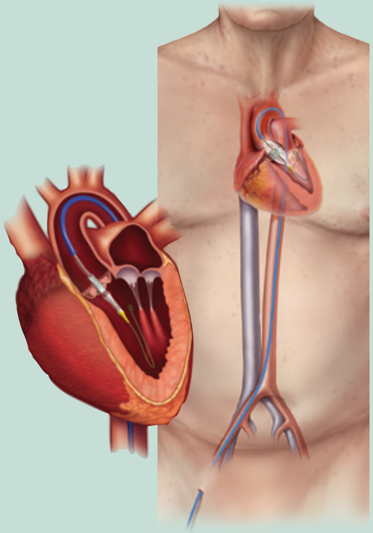
Differences in TAVR Procedures

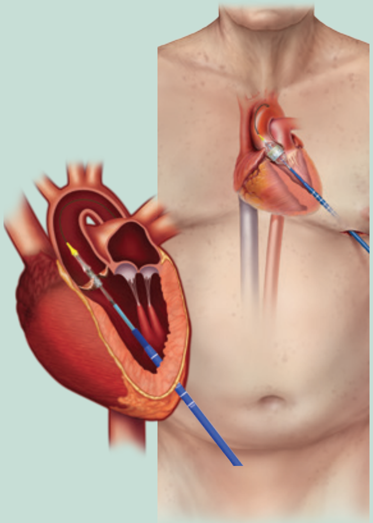
Transfemoral
In this approach, the valve is delivered through an incision in your leg.

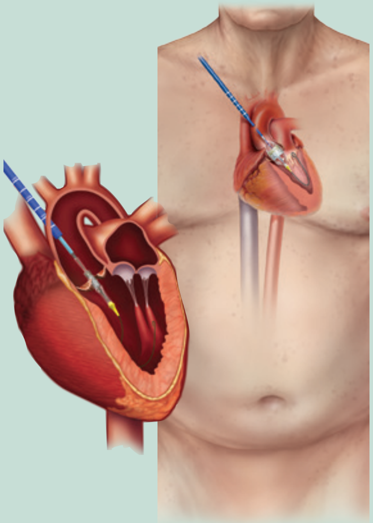
Transapical
In this approach, the valve is delivered through an incision in the left side of your chest.

Transaortic
In this approach, the valve is delivered through an incision in the front of your chest between your ribs.

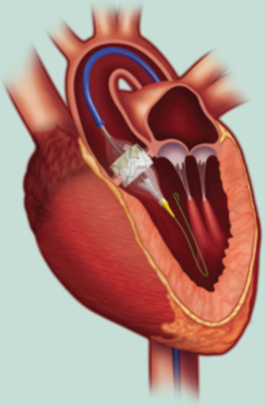
Step 1
The delivery system carrying the valve will be placed through the sheath and pushed to your aortic valve, guided by a type of X-ray.

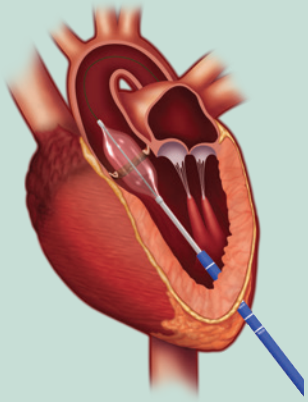


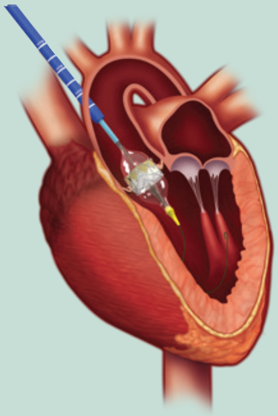




Step 2
The valve is expanded into place and the delivery catheter is ready to be removed.







Step 3
The valve is designed to function immediately in place of the diseased native valve.

The new valve sits within the same area as the native valve.

Images courtesy of Edwards Lifesciences LLC, and Medtronic, Inc.

What to Expect After TAVR

After your TAVR procedure is complete, you will be moved to the intensive care unit (ICU), where you will be monitored to make sure your recovery is going smoothly. You will then be moved to a regular hospital room until your physician determines you are ready to leave the hospital — usually within a few days.

Most patients are able, and encouraged, to be up and walking within 24 hours. While you are in the hospital, your care team will conduct several follow-up procedures to ensure everything is functioning properly:

- Physical exam
- Chest X-ray
- Blood tests
- Electrocardiography (EKG or ECG)
- Heart ultrasound

Before you go home, your heart team will talk with you about caring for yourself, including diet, exercise and medications. You may need to take blood-thinning medication for a period of time following your procedure. Follow your heart team's instructions exactly, and don't make any changes to your medications without consulting them.

After you are discharged from the hospital, you'll need to have regular check-ups with your primary physician and the heart team as necessary. These check-ups are important to ensure all is going well with your new valve and identify any potential problems early.

We're Here to Help
Any time you have a question about your health, call or visit your physician. If you experience any problems such as bleeding, discomfort or unusual changes, call your physician right away.

Be sure to tell any other physicians or health care professionals — including your dentist — about your artificial valve before you have any procedures done.

Frequently Asked Questions

What are the risks of TAVR?
Every surgical procedure has potential risks. With TAVR, these include risk of stroke, major blood vessel complications and major bleeding. Talk with your heart team about potential risks.

What do I need to do before the procedure?
Discuss any medications you are taking and allergies you may have with your heart team. Be sure to follow all of your team's instructions carefully before the procedure.

How long has TAVR been available?
TAVR has been available in clinical trials in the U.S. since 2007 and FDA-approved for certain patient populations since 2011.

Does Medicare cover TAVR?
Medicare will cover TAVR when certain conditions are met. Talk with your Medicare representative to determine if TAVR will be covered.

Will my insurance cover TAVR?
Contact your insurance carrier directly before your first appointment with your heart team and ask about TAVR coverage and requirements.

San Diego's Leader in Heart Care

BEST HOSPITALS
U.S.News & WORLD REPORT
CARDIOLOGY & HEART SURGERY
2015-16

Scripps is recognized as the region's heart care leader for our innovative care and unparalleled commitment to quality. We are consistently named one of America's Best Hospitals for cardiology and heart surgery by U.S. News & World Report.

TAVR Innovations

At the forefront of cardiovascular care, Scripps' comprehensive program is led by cardiovascular experts who treat some of the most complex heart conditions by using the latest technology and landmark research, including Transcatheter Aortic Valve Replacement (TAVR) — a new, rapidly developing therapy.

To offer our patients the best possible TAVR technology, Scripps maintains an active clinical research program that provides patients with access to the latest, leading-edge technology. Examples of newer, investigational technologies include TAVR valves that are smaller in diameter, valves with improved sealing and valves that can be repositioned for more precise placement. Scripps heart doctors were among the first nationally to test TAVR in clinical trials before the procedure received FDA approval in 2011. As a result, hundreds of Scripps patients have benefited from TAVR as a treatment for heart valve disease.

For more information on cardiovascular care at Scripps call **1-800-SCRIPPS (727-4777)** or visit **scripps.org/heart**.

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