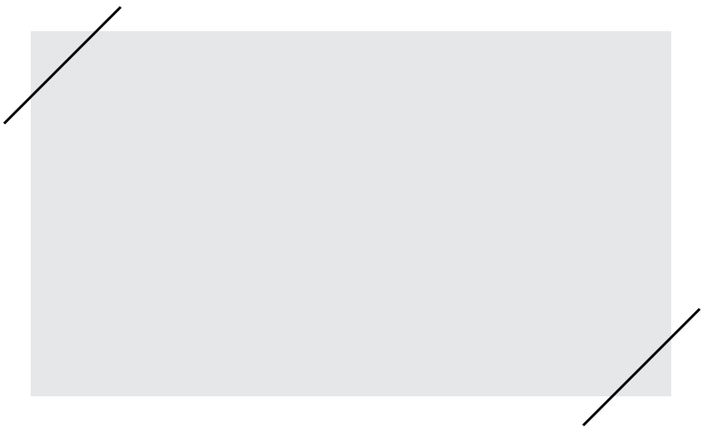
TRANSCATHETER AORTIC VALVE REPLACEMENT PATIENT GUIDE

INFORMATION FOR NEW PATIENTS AND THEIR FAMILIES

Mount Sinai Heart



PATIENT GUIDE

INFORMATION FOR NEW PATIENTS AND THEIR FAMILIES

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Transcatheter Aortic Valve Replacement Patient Admitting Guide

WELCOME

Welcome to Mount Sinai Heart at The Mount Sinai Hospital

For several years, Mount Sinai Heart's Cardiac Catheterization Laboratory has been the safest catheterization laboratory in the state, based on the annual New York State percutaneous coronary intervention (PCI) Report. We were the first to implant the Medtronic CoreValve ® transcatheter aortic valve replacement (TAVR) in the US, and have performed more than 500 TAVR procedures since then.

This booklet will help prepare you for your transcatheter aortic valve replacement (TAVR) procedure at Mount Sinai Heart. It will help you understand the procedure, guide you through your recovery and your subsequent follow-up, and provide you with some guidelines for a heart-healthy lifestyle.

Please take a moment to review this information carefully.

If you have any additional questions, please do not hesitate to call 212-241-5696 or speak to someone from our experienced Mount Sinai Heart health care team. We are more than happy to answer any questions you may have.

We wish you a very positive experience at The Mount Sinai Hospital, a smooth recovery and a healthy future. Please feel free to contact us with any questions.

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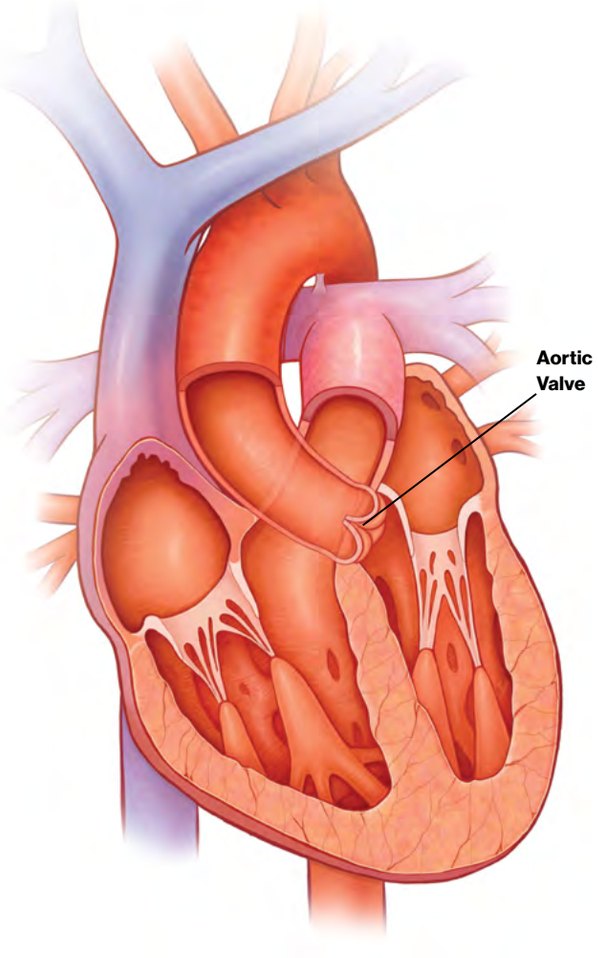
YOUR HEART

The Heart and Its Valves

A healthy heart, which beats about 100,000 times a day, supplies the body with oxygen-rich blood. The heart is a muscular organ that has four chambers. Blood is pumped through the four chambers with the help of four heart valves — the aortic valve, the pulmonic valve, the mitral valve, and the tricuspid valve. During an average lifetime, these valves will open and close over two billion times.



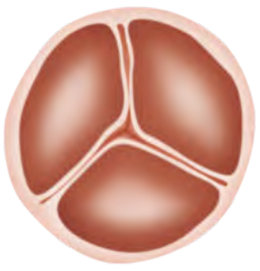
Heart valves open when the heart pumps to allow blood to flow. They close quickly between heartbeats to make sure the blood does not flow backward. Any trouble with this normal flow will make it hard for the heart to pump the blood where it needs to go.

The aortic valve controls the flow of blood as it exits the heart and is pumped to the rest of the body.

Valve Disorders

Sometimes, these hardworking valves can run into problems that can cause issues with blood flow and threaten overall health.

Stenosis, more specifically aortic stenosis (AS), is a narrowing of the aortic valve opening. It can be caused by age, genetic predisposition, rheumatic fever, radiation and/or buildup on the leaflets of calcium, cholesterol (fat), etc. This results in stiff valve leaflets that don't move easily or open fully. This reduces the pumping ability of the heart to push blood through the aortic valve to your body. Left untreated, severe AS can lead to heart failure or even sudden death.



Healthy Aortic Valve (closed)

Healthy Aortic Valve (open)

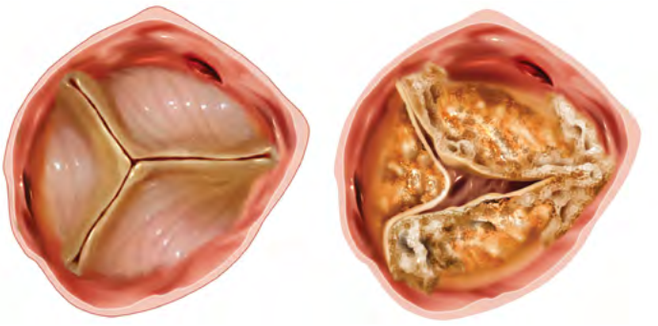
Regurgitation happens when the valve has become damaged or worn out and blood is able to leak backwards. This makes the heart work harder to circulate the blood, and, if left untreated, can result in heart failure.

Symptoms of Aortic Stenosis

- Shortness of breath
- Dizziness or fainting
- Chest pain
- Feeling tired or fatigued
- Swelling in your legs

Causes of Aortic Stenosis

- Age
- Genetic Predisposition
- Rheumatic Heart Disease
- Radiation Exposure



Healthy Valve Valve with Stenosis

Treatment for Severe Aortic Stenosis

Unfortunately, though there are many medications available to treat other heart conditions, there is no drug therapy to cure aortic stenosis.

For severe aortic stenosis, your doctor may prescribe medicine to make you feel better in the short term, but ultimately you will require intervention.

Surgical Aortic Valve Replacement (SAVR)

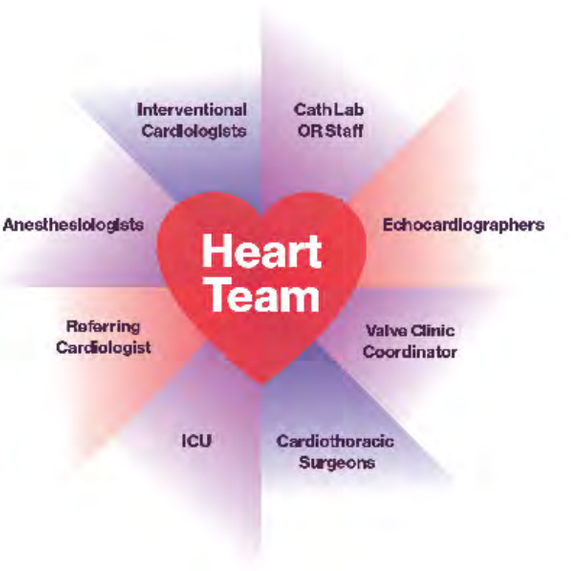
- Surgical aortic valve replacement has been the standard of treatment for aortic stenosis for many years.
- The procedure may be performed through an open surgery or a minimally invasive approach done using a smaller cut.
- The patient's breathing and circulation are transferred to a heart-lung machine during the surgery.
- Once the site is accessed, the surgeon will remove the diseased valve and implant an artificial valve. There are many valves available on the market. These artificial valves are man-made from synthetic materials (mechanical), constructed from animal tissue (biological), or some combination of the two.
- You may be in the hospital for more than a week.

Transcatheter Aortic Valve Replacement (TAVR)

Transcatheter aortic valve replacement is a relatively new procedure that delivers a replacement valve in much the same way that a cardiac stent is implanted. This procedure does not require stopping the heart or opening the chest cavity. These revolutionary valves, constructed from a combination of metal mesh and animal tissue, are delivered via a thin wire (catheter) and expanded in place over the existing valve. Once in place, the valve immediately begins functioning.

Heart Team Approach

A group of doctors called the "Heart Team" are involved in making a determination if you are a candidate for a TAVR procedure. This includes interventional cardiologists, cardiothoracic surgeons, echocardiographers, anesthesiologists, and valve clinic coordinators.



Candidates for the TAVR Procedure

A series of tests and consultations will be done to see if you can have this procedure. Patients can be admitted to the hospital for the tests or patients can schedule the tests as an outpatient. If the tests show this procedure is right for you, you will return at a later date for the TAVR procedure.

Workup tests include:

Echocardiogram – an ultrasound of your heart chambers and valves.

Chest/Abdomen/Pelvis CT with contrast dye – a view of the size and shape of your blood vessels and aortic valve.

Right and Left Heart Catheterization – a check of the blood flow in your arteries around the heart and the blood pressures in your heart.

Pulmonary Function Test – a measure of how your lungs are functioning.

Carotid Doppler Ultrasound – a test to see the blood flow of the carotid artery in your neck.

Consultation with an Interventional Cardiologist and a Cardiac Surgeon – You will meet with an interventional cardiologist and a cardiac surgeon. They will explain more about the TAVR procedure and review your treatment options. The test results will be reviewed by the TAVR Heart Team to determine if you are a candidate. You will then be contacted with the results.

Available TAVR Devices

If you are reading this guide, chances are you've been recommended for a transcatheter aortic valve replacement (TAVR) procedure at Mount Sinai Heart. TAVR, also sometimes called TAVI for transcatheter aortic valve implantation, offers options for patients who may not be candidates for surgery due to their overall health, age, or other medical conditions. Mount Sinai Heart is a leader in this emerging treatment, and we were one of the first hospitals in the New York metropolitan area to offer both TAVR treatment options available in the United States: the Edwards SAPIEN® Valve and the Medtronic CoreValve ® System. Both devices have been thoroughly researched and tested, and each offers advantages for certain cases. The TAVR Heart Team (interventional cardiologists, cardiothoracic surgeons and echocardiography) will determine the device that is appropriate for you.

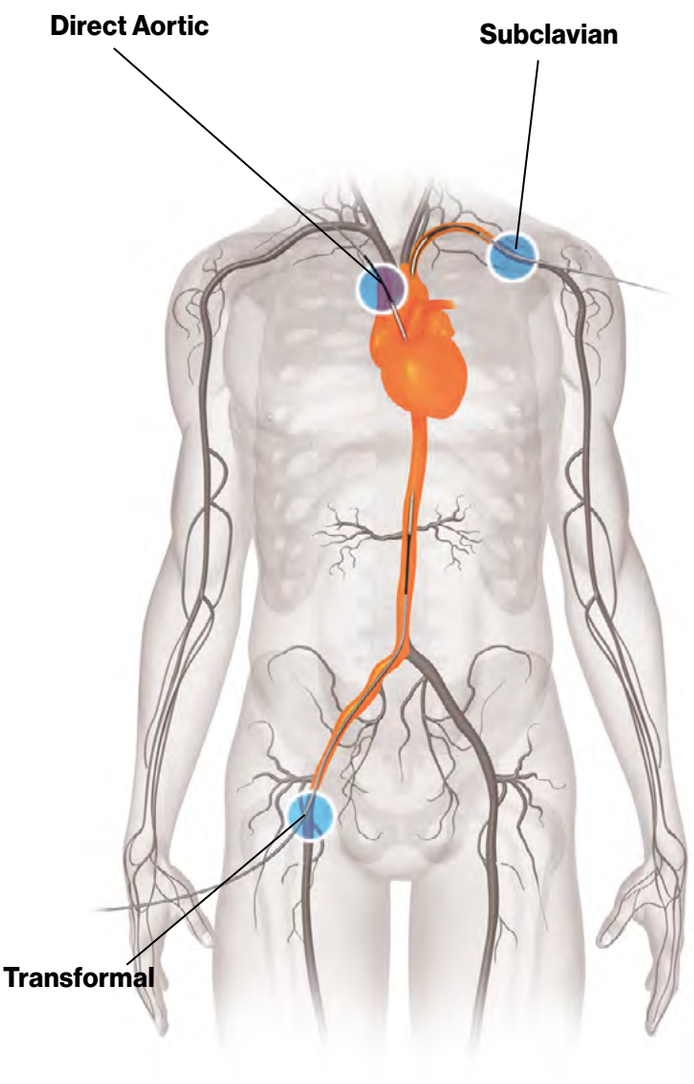
Regardless of which device your doctor chooses for your case, you will be treated by an experienced multidisciplinary team that includes interventional cardiologists, cardiac surgeons, an echocardiographer, anesthesia, intensivists, nurse practitioners, clinical nurses, research coordinators, and other support staff.

Delivery of the TAVR Device

The arteries in the body are like a system of roads that branch out from the heart. There are different "routes" to get to the heart to deliver the valve. These include:

- An artery in your leg (femoral)—this is the most common approach.
- An artery near your collarbone (subclavian)
- A space between your ribs (direct aortic)

Access Points for TAVR



Medtronic © 2014

Medtronic CoreValve®

The CoreValve transcatheter aortic heart valve consists of a frame made from a flexible nickel-titanium alloy and a valve made of porcine (pig) heart tissue. The CoreValve aortic heart valve is available in four sizes with different diameters. The TAVR team will choose one that's best for you.

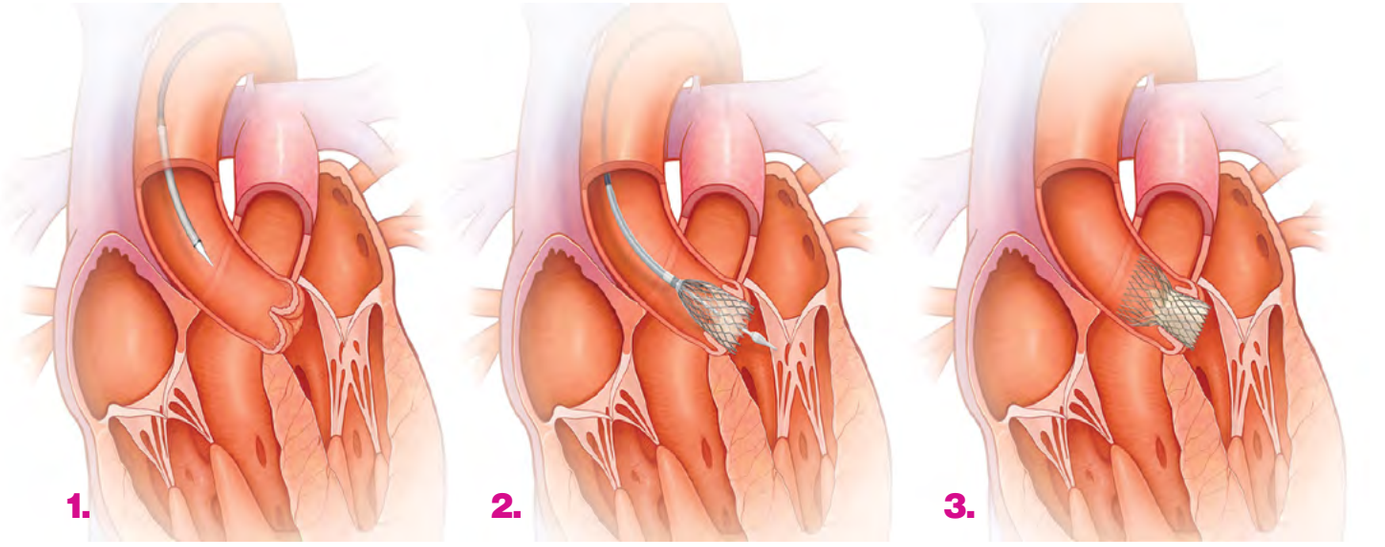
The device is delivered to your heart through a catheter. The frame of the CoreValve device is self-expanding, springing into place over the existing valve.

Medtronic CoreValve®

Placement

The CoreValve may be delivered through three approaches:

- An artery in your leg (femoral or iliac)—this is the most common approach.
- An artery near your collarbone (subclavian)
- A space between your ribs (direct aortic)



CoreValve ® Deployment

Placement of Your Valve

X-ray imaging, called fluoroscopy, will be used during the procedure.

1. The doctor will make a cut and insert a sheath into your artery. A balloon-tipped catheter will be guided to the aortic valve and opened in place, forcing open and preparing the diseased valve for the CoreValve device. The valve on the delivery system will be inserted into the sheath to reach the heart.
2. The doctor will place the CoreValve device in place over your diseased valve. When in place, the device expands to replace the diseased valve. The CoreValve will start functioning immediately.
3. The catheter and sheath will be removed, the cut will be closed, and the operation will be complete.

Edwards SAPIEN® Valve

Edwards SAPIEN® Valve

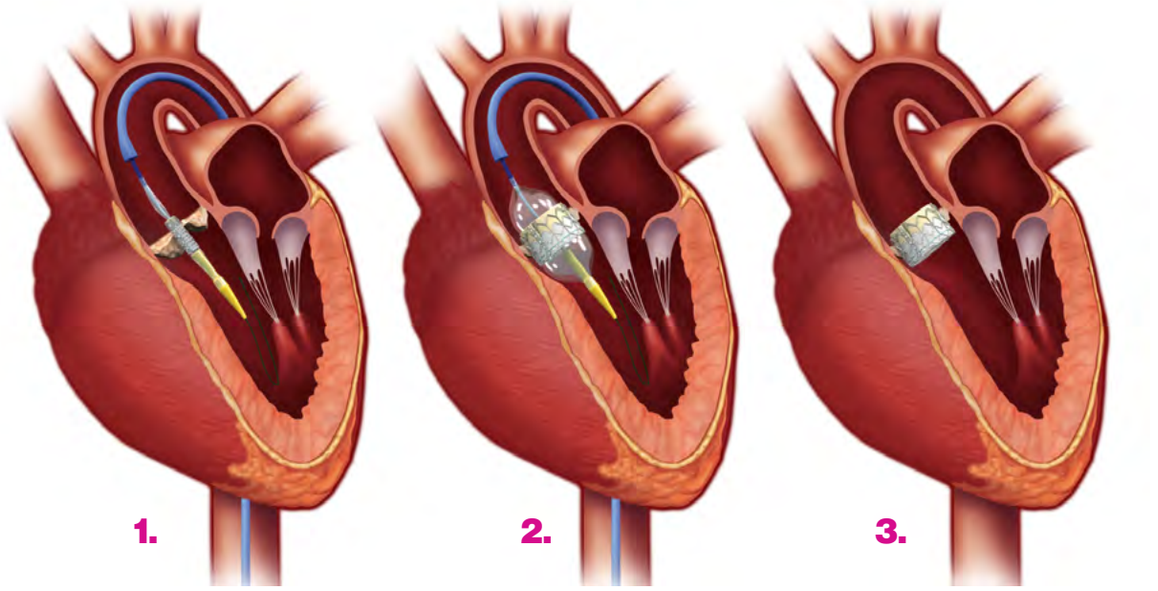
The Edwards SAPIEN valve is another TAVR option for patients. The SAPIEN consists of a valve made from bovine (cow) heart tissue supported by a frame of chromium cobalt. The device is available in four sizes, and if you are a candidate for this device, the TAVR team will choose one that's best for you.

The device will be guided to your heart via catheter and expanded in place with the help of an aortic balloon.

Placement

The SAPIEN valve can be placed using two approaches:

- An artery in your leg (femoral) - this is the most common approach.
- A space between your ribs (direct aortic)



SAPIEN ® Valve Deployment

Placement of Your Valve

X-ray imaging, called fluoroscopy, will be used during the procedure.

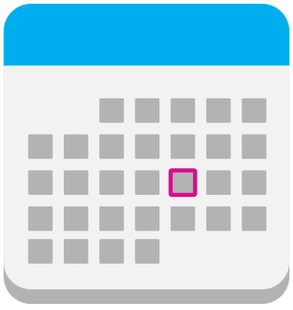
1. The New SAPIEN valve will be compressed on a balloon to make it small. The delivery system is a tube with a balloon at the end. The valve on the delivery system will be inserted into the sheath to reach the heart.
2. When the delivery system reaches your diseased valve, the balloon will be inflated to open the device. The new valve will push your diseased valve, crushing it against the wall and the new valve will start functioning immediately. The frame of the new valve uses your diseased valve leaflets to anchor itself in place.
3. The deflated balloon will now be removed. Your doctor will make sure that the new valve is working properly.

III

YOUR PROCEDURE STEP-BY-STEP

1 Week Before Procedure

You will receive a call to confirm your appointment and give you instructions, including when to arrive at The Mount Sinai Hospital. You will be informed which medications to continue or discontinue and any restrictions. He/she will answer any questions you may have.



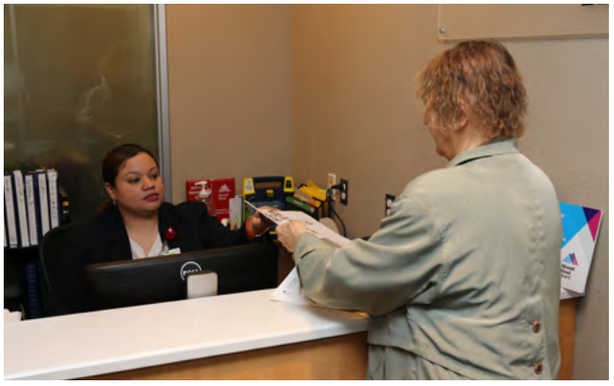
2 Day of Procedure

You may be admitted the day of or the day before your procedure. The street address and directions to the Mount Sinai Hospital are listed on page ***25*** of this guide. You may enter on 1468 Madison Avenue or 1190 Fifth Avenue. When you enter the building, ask the receptionist to direct you to the Guggenheim Pavilion 5 West, Fifth Floor, Room 182 for registration.

3 Registration

(About 1 hour)

(Guggenheim Pavilion 5 West, Fifth Floor, Room 182) You will be asked for your name, address, phone number, etc., and your insurance information. You will need to provide some form of identification. Any insurance copayment will be required at this time. You will also need to provide a list of medications you take.



4 Pre-Procedure (Ambulatory Area)

Some patients will be admitted to a room in the cardiac unit after registration, where they will stay overnight before their procedure, and others will be asked to come in on the same day as their procedure. An IV line will be inserted into your arm, you will receive bloodwork and a chest x-ray, and EKG contacts will be placed on your chest. Consent will be obtained and an antiseptic scrub will be used to prepare the access site.

5 Day of Your Procedure (Holding Area)

(1-3 hours)

You will be wheeled into the cardiac catheterization laboratory holding area on a stretcher. Here you will wait for evaluation by a nurse and anesthesiologist. Then you will be wheeled to the procedure room.

6 Procedure Room

(3-5 hours)

You will be wheeled into the Procedure Room, where you will be attached to monitoring equipment. The catheter access area will be shaved (groin, or arm if necessary) and you will be covered with sterile drapes. IV infusion will be given, delivering medication for sedation and anesthesia. You will be asleep when the procedure is performed.

7 Intensive Care Unit

(24-48 hours)

After your procedure you will be brought to the intensive care unit (ICU). You will be monitored closely and given a thorough physical exam that involves blood tests, a chest x-ray, an EKG, and an ultrasound to be certain that you are recovering properly. You will remain in the ICU until you are stable and then you will be transferred to a hospital room. Your stay will generally be one to two days. While in the ICU you will have several sensors and lines in place to monitor your heart and internal blood pressure.

8 Monitoring in Hospital Room

(2-3 days)

You will be monitored closely in a hospital room until your doctor feels you are ready for discharge.

IV YOUR PROCEDURE

When you come in for your procedure, you will receive a pre-procedure examination. We will monitor your blood pressure and heart rate, perform an electrocardiogram (EKG) and chest x-ray, and draw blood. You will review the procedure once more with the TAVR Heart Team and sign a consent form.

On the day of the procedure, you will be wheeled into the procedure room, where you will have monitoring lines placed and anesthesia that will put you to sleep. Then the doctor will go forward with obtaining the access needed to implant the valve.

Next, with the help of a special x-ray photo called fluoroscopy, your doctors will implant the TAVR valve. Once the valve is in place, the team will take pictures with the catheter and ultrasound to ensure the valve is properly positioned and functioning.

After the Procedure

Immediately after the procedure, you will go to the ICU for at least 24-48 hours. For the first 1-2 days, you will have monitoring lines in place in the neck or near the clavicle bone, as well as the wrist. Once these lines can be removed, you will move to the step-down telemetry floor.

Nurses will continue to monitor your blood pressure, heart rate, wound sites, circulation, electrocardiogram, neurological status, and conduct routine blood work. The TAVR Heart Team will see you every day.

You will have a repeat echocardiogram (ultrasound of the heart) within 24 hours to see how the new valve is working.

In most cases, you will be out of bed the morning after your procedure.

You will be seen by a physical therapist during your stay to help you regain the strength and coordination needed in your recovery. This will also help us determine what your needs will be upon discharge. This may include:

- Standard discharge home
- Home with support services such as visiting nurse service (VNS) and physical therapy (PT)
- Sub-acute rehabilitation (which are inpatient facilities for patients who would not be able to otherwise manage at home immediately after discharge)

A social worker will meet with you to arrange home services or sub-acute rehabilitation if needed.

WHEN YOU ARE DISCHARGED

V

The average hospital stay after a TAVR procedure is 2-4 days.

Follow-Up

Be sure to see your cardiologist within one to two weeks after your discharge. You will be asked to return to Mount Sinai Heart for an evaluation with the TAVR Heart Team roughly 30 days post-procedure and receive an echocardiogram. You will be given this follow-up appointment prior to your discharge from the hospital. You will continue to see the TAVR Heart Team on an annual basis.

Cardiac Rehabilitation

When you follow up with your cardiologist, they may recommend cardiac rehabilitation. You will focus on exercise, physical therapy, and adopting healthier lifestyle habits.

Heart Failure

Heart failure is a condition in which the heart muscle has become weaker or stiffer than normal. This normally occurs gradually over a period of time when you have aortic stenosis.

Monitoring for Heart Failure

You need to continue to monitor for symptoms of heart failure. If you feel you have any of these symptoms, you should call your physician immediately or go to the closest emergency department (ED):

- Increasing shortness of breath
- Cough or congestion
- Swelling in your legs
- Increasing weight (weight gain of 2-3 pounds or more in one day, or five or more pounds in one week)
- Chest pain
- Dizziness
- Palpitations
- Feeling more tired or lack of energy
- Difficulty sleeping and restlessness
- Loss of appetite or nausea

What Can I Do About Heart Failure?

- Watch for worsening signs and symptoms (shortness of breath/fatigue)
- Weigh yourself daily
- Follow your recommended diet (low-sodium diet)
- Take medications as prescribed
- Keep active and follow your healthcare provider's recommendations on exercise
- Call your healthcare provider with any change in your health

Care for the Procedure Site:

- Carefully inspect the site daily, being sure to first wash your hands.
- Do not leave the bandage dressing on the site for more than 24 hours.
- Once you are discharged, you may take a shower and softly wash the site with plain soap and water, but do not take a bath, soak in water, or swim for two weeks after the procedure
- Keep the site clean and dry. Do not apply lotions, powders, or ointments

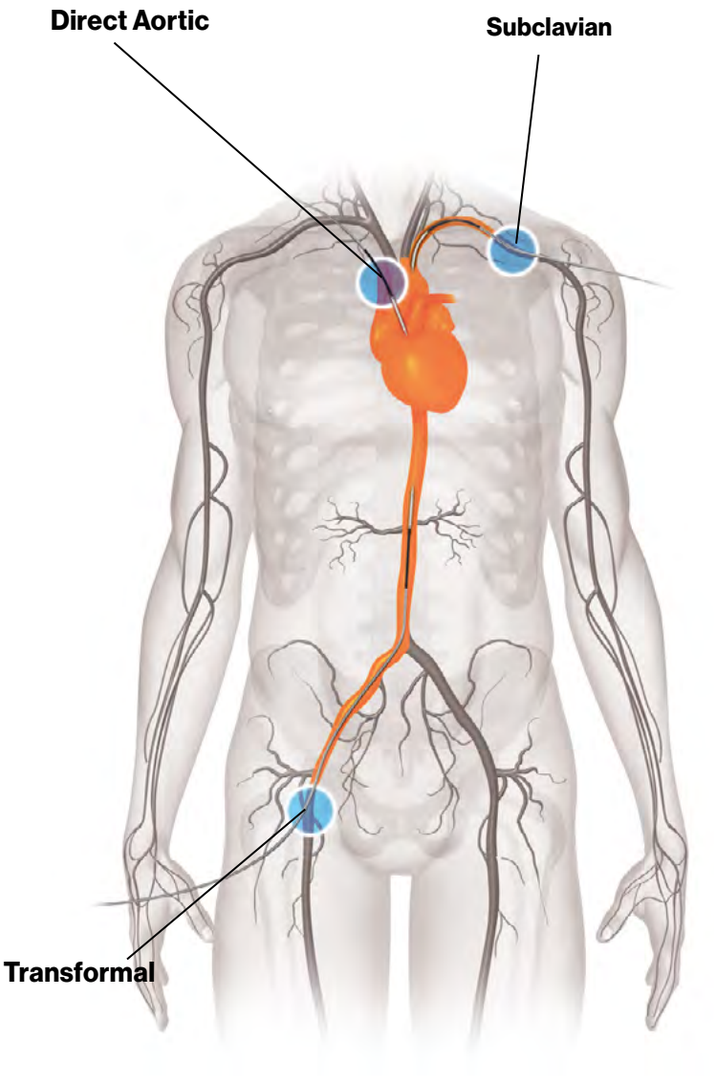
If the access site was the groin (transfemoral): There may be some bruising of the access site, which is expected and normal. After surgery, the area will be tender to touch. You may notice a small lump in the groin if the doctors used this site to place the valve. This will dissolve on its own in about 4-6 weeks.

If the access site required an incision in the lower abdomen/groin under the clavicle or between the ribs: Expect a small amount of firm tissue at the incision site. There may be some bruising of the access site, which is expected and normal. After surgery, the area will be tender to touch. You may have staples at the incision site and will be instructed when to return to have them removed.

Immediately call your doctor or go to the closest emergency room if you notice:

- Bleeding at the site that does not resolve after applying pressure for five minutes
- Discharge or drainage at the site
- Unusual or excessive swelling, pain, or redness
- A temperature greater than 101 degrees

Access Points for TAVR



Activity

Once you are discharged, it is okay to return to your normal daily activities with the following precautions:

- Avoid heavy lifting (>5 pounds), excessive bending, stretching, pushing, or pulling for two weeks after your procedure.
- It's okay to climb stairs, but take your time, go slow, and pause to rest if you feel tired.
- If your procedure was done through the groin percutaneously (without making an incision), you may drive after five days.
- If your procedure was done through an incision (through the groin, under the clavicle or in the chest), you should not drive until you have your follow-up appointment with your cardiologist and they clear you to drive.
- Avoid sexual activity until your follow-up appointment with your cardiologist.
- Your cardiologist will recommend a time frame for when you can return to work.

Medications

Your doctor may prescribe medications after your TAVR procedure. These will most likely include aspirin and Plavix, and you may also be prescribed a blood thinner (anticoagulant).

All medications have some side effects; they range from mild to severe and from common to extremely rare. Your doctor will discuss possible side effects of the prescribed medications with you and will also advise you of any other precautions. He or she will also instruct you on whether to take the medications with meals, and your prescription should be clearly labeled with those instructions as well.

General guidelines for taking your medications:

- Never discontinue any medication unless your cardiologist instructs you to do so.
- Stopping some medications, especially aspirin and Plavix or other blood thinners, may result in serious medical problems including stroke, heart attack, and death.
- If you forget a dose, take it as soon as you remember. If it is almost time for your next dose, skip the one you missed and go back to the regular schedule. Do not take a double dose.
- If your medication is in tablet form, do not split, crush, or chew it. Swallow the tablet whole. If it is in capsule form, do not open it and sprinkle the contents on food. Swallow the capsule whole.

If you have any questions or concerns, or any medication side effects develop, call your cardiologist.

You may be prescribed any of the following medications:

Antiplatelet Agents - These medications prevent clotting. Examples include aspirin and Plavix (clopidogrel).

Blood Thinners - These help to prevent the formation of blood clots. Examples include Coumadin (warfarin), Xarelto (rivaroxaban), or Eliquis (apixaban).

Diuretics - Diuretics help rid the body of excess fluid. Examples include Lasix (furosemide) and Diuril (chlorothiazide).

ACE Inhibitors - These help to lower blood pressure by decreasing resistance to blood flow. Examples include ramipril and lisinopril.

ARBs (angiotensin receptor blockers) - These medications help to lower blood pressure by decreasing resistance to blood flow. Examples include Atacand (candesartan) and Cozaar (losartan).

Beta Blockers - These can help to improve heart function by blocking adrenaline, causing the heart to beat more slowly and less forcefully. Examples include Toprol (metoprolol) and Zebeta (bisoprolol).

Statins - Statin drugs reduce cholesterol and lipids in your body. Examples include Crestor (rosuvastatin), Lipitor (atorvastatin), and Zocor (simvastatin).

If you are going to have an elective procedure or surgery, you should call 212-241-5696 in advance to get instructions on when to stop taking aspirin, Plavix, Effient, or Brilinta. It is important to discuss whether you need to discontinue any medications sooner, as it may not be safe to do so. In most cases, patients are instructed to stop Plavix 5 days prior to surgery and resume 2 days after surgery. Aspirin should not be discontinued.

Complications

Most medical procedures have risks, the TAVR procedure's most serious risks, which occur less than 2 percent (2 out of 100) of the time are:

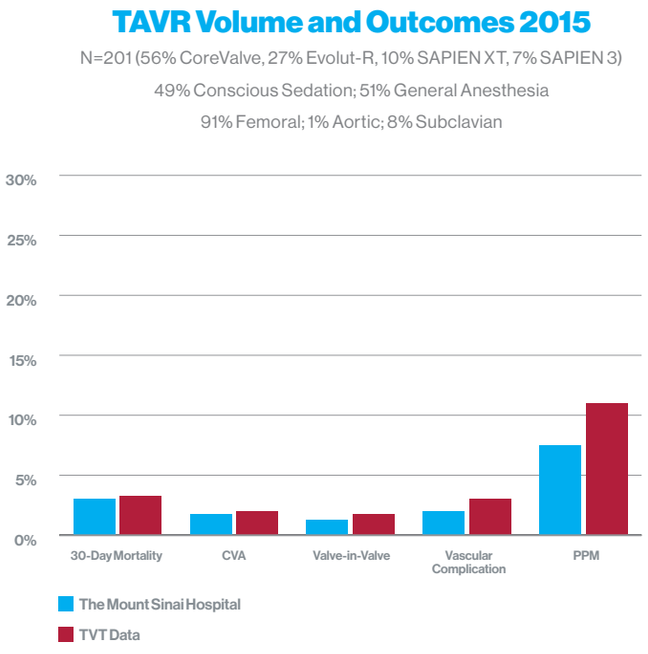
- Stroke
- Arterial damage
- Bleeding complications
- Need for permanent pacemaker
- Kidney injury
- Heart attack
- Need for additional valve surgery
- Valve infection
- Death

TAVR Outcomes 2015

The chart at right shows outcomes for the TAVR procedure at Mount Sinai Hospital compared to the TVT registry, which represents other facilities across the United States performing TAVR procedures.

In 2015, Mount Sinai Hospital had a volume of 201 TAVR procedures, distributed among the CoreValve, Evolut-R, and SAPIEN devices. The primary approach was transfemoral, or through the femoral artery in the groin.

For each of the measures listed on the chart, Mount Sinai Hospital had superior outcomes than those represented by the TVT registry.



FREQUENTLY ASKED QUESTIONS

VI

Q: What is the average TAVR procedure time once I'm in the procedure room?

A: The average procedure time is 2-3 hours once you are in the room.

Q: What is the average length of stay for a TAVR Procedure?

A: The average length of stay is about 3-5 days.

Q: What should I bring with me to the hospital?

A: You should bring your insurance card, some form of identification, and a list of the medications and supplements you take regularly as well as the dosages. You should NOT wear jewelry or bring valuables with you. You will be in a hospital gown while you are in the hospital. You should bring clothes to wear for your day of discharge. You may bring a robe or toiletries. Electronic devices are permitted, but are best left in the care of a loved one.

Q: How and when do I handle payment if I am admitted to the hospital after the procedure?

A: Depending on your insurance coverage, there may be an additional copayment if you are admitted to the hospital. You may pay by check or credit card, or with cash. For further information, call Mount Sinai Patient Financial Services at 212-731-3600.

Q: Must I be accompanied by a family member or friend?

A: You may come to the hospital unaccompanied, but you MUST be accompanied upon discharge.

Q: May I take mass transit home after the procedure?

A: You may NOT go home via subway, train, or bus. You must be driven home in a car.

Q: Will I experience pain or discomfort during the procedure?

A: You will be sleeping during the procedure and should not experience pain or discomfort. You may have some discomfort or tenderness after the procedure where lines were inserted. Please let the nurse know if you experience any pain.

Q: Can I have an x-ray after the TAVR is in place?

A: Yes. It is safe to have x-ray tests after the TAVR device is in place.

Q: Can I have an MRI if I have a TAVR valve in place?

A: The TAVR Valve is MRI Conditional. It can be scanned safely under the following conditions:

- Static magnetic field of 1.5 tesla and 3 tesla
- Spatial gradient field of 2500 gauss/cm
- Normal operating mode only with a maximum whole-body SAR of 2.0 W/kg for 15 minutes as read from equipment monitor.
- If you have a TAVR inside of an old surgical valve, then MRI is not recommended.

A HEALTHY LIFESTYLE

VII

It's very important to lead a heart-healthy lifestyle in order to fight cardiovascular disease. Maintaining heart-healthy living involves personal lifestyle changes centered on weight reduction, healthy eating, and regular physical activity.

Diet

The goal of a heart-healthy diet is to decrease your risk of heart disease. A heart-healthy diet limits fat, cholesterol, and sodium, and replaces salty, fat-laden, over-processed foods with fresh vegetables, fruits, grains, and lean protein. These steps can help to lower blood cholesterol levels, improve blood pressure and promote weight loss. According to the American Heart Association, a 10 percent decrease in total cholesterol levels could reduce the prevalence of disease by 30 percent.

Fat

Not all fats are created equal. Olive and grapeseed oils are powerful aids to heart health. Not only can their mono- and polyunsaturated fats help keep your cholesterol under control, but these oils are also some of the best sources of naturally occurring vitamin E. On the other end of the spectrum, coconut oil and palm oil are high in saturated fats and are best avoided.

In addition to choosing healthier foods, you can also switch to cooking methods that use a small amount of fat or none, such as: grilling, baking, steaming, sautéing, poaching, roasting, or boiling.

Sodium

Sodium is a required nutrient for the body, but most of us consume far more sodium than required. Excess sodium can contribute to high blood pressure by causing your body to hold on to excess fluid.

Although avoiding the salt shaker can help reduce sodium consumption, the greatest source of excess sodium is processed foods. The packaged food we buy in the store can be loaded with sodium. When in doubt, check the label and compare different brands to find the one with the lowest sodium.

Some high sodium foods to watch out for include : canned soups not labeled "low salt" or "reduced sodium, canned fish (anchovies, sardines, etc.), processed "deli" meats, cheese, salad dressings, packaged crackers, popcorn, potato chips, corn chips, salted pretzels, salted nuts, condiments, and packaged foods and mixes made with MSG.

Alcoholic Beverages

It is acceptable to enjoy alcoholic beverages, but only in moderation. The moderate consumption of alcoholic beverages is defined as 1-2 drinks per day (one drink is 1.5 ounces of liquor, 5 ounces of wine, or 12 ounces of beer).

Smoking Cessation

Smoking harms the heart! Avoid the use of and exposure to tobacco products. You will help yourself and those around you by not smoking. It is never too late to stop smoking, even if you've smoked for years. Your body can start the repair process as soon as you quit.

Exercise

It is important that you do not engage in strenuous activity or exercise until your cardiologist has cleared you to do so. It's important to adopt an exercise program that suits your level of fitness and experience. Jumping head-first into a difficult exercise routine could result in frustration (and going back to old habits), and pushing the body too hard can be dangerous for anyone, but particularly someone with a heart condition.

How you feel will guide how long and hard you should exercise and what activities you should do. Apply the talk test: Choose a level of exertion that allows you to still talk while you exercise. You should be able to talk in short sentences, but will likely not be able to sing.

Recommended Activities

Walking

Walking is one of the easiest ways to get the exercise you need to stay heart-healthy. Experts recommend at least 2.5 hours of moderate activity (such as brisk walking) a week.

Swimming

Swimming is a healthy activity that can be continued for a lifetime. It works practically all of the muscles in the body and builds cardiovascular fitness and endurance. Exercising in water is perfect for people who have a hard time with land-based physical activities because your weight in water is about one-tenth of your weight on land. Another great benefit is that it minimizes the risk of injuries. As physical therapy, it gently rehabilitates and relaxes muscles and joints, and it offers a good cardiovascular workout.

Yoga and Meditation

Yoga exercises encompass the practices of yoga postures, meditation, and pranayama (specialized yogic breathing). These practices are believed to influence the autonomic nervous system balance and our hormonal system.

After analyzing existing complementary and alternative medicine (CAM) studies, the May 2013 edition of the American Heart Association (AHA) journal *Hypertension* reports that transcendental meditation (TM) modestly lowers blood pressure by affecting the autonomic nervous system balances. Yoga can be practiced as part of your daily exercise program for stress reduction and general well-being. We do, however, recommend that you consult with your health care provider as some postures should only be assumed with the guidance of qualified teachers.

Biofeedback

The techniques used in biofeedback include cognitive behavioral therapy, relaxation therapy, guided imagery, and psychological education. They are generally taught by certified providers in those specific specialties. It is believed that these modalities result in better stress management by favorably affecting the autonomic nervous system as well as the hormonal system. The AHA in its 2013 scientific statement recommends that these modalities may be considered in clinical practice to lower blood pressure. They are widely used for stress reduction and have no significant health risks.

Managing Stress

Although human beings have evolved over thousands of years, instinctual bodily responses to perceived danger have persisted. One such response is "fight or flight." The brain sends signals to various organ systems to prepare the organism (ourselves) to avoid the danger. Either fighting or fleeing involves physical activity; therefore the body raises the blood pressure and the heart rate in order to increase the blood supply to the muscles. A threat to one's life is not the only stimulus that elicits the fight or flight response. Any event that is perceived as stressful (or any event that causes anxiety, frustration, anger, hostility, or depression, to name a few) can trigger this response in varying degrees.

In today's world, however, triggers are often part of our daily lives, and the fight or flight response persists for abnormally long periods of time. Such persistence can have harmful effects. Angina (chest pain or discomfort when the heart does not get enough blood) and hypertension (high blood pressure) are considered to be stress-induced disorders.

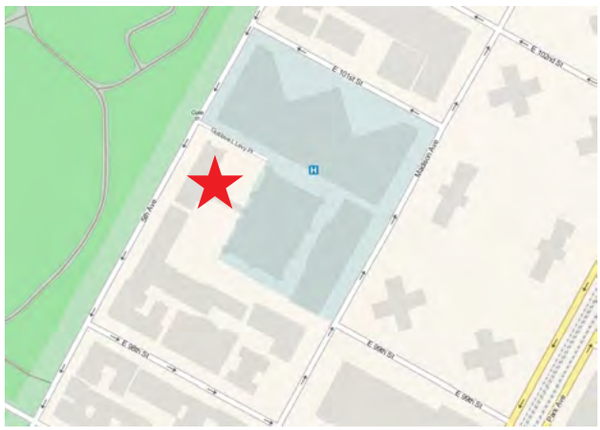
When you are under stress, your brain releases signals to your body through the nerves and hormones. These signals prepare your body to respond to various situations. Arteries have nerves attached to them. The nerves can either cause the arteries to relax or put more tension on their walls, narrowing them. Circulating hormones can do the same thing. Narrowing the arteries is like taking away a lane of traffic. There is still the same number of cars (the same amount of blood), but there is less space for it to flow through. It takes more energy to get the blood through the arteries, and so your heart has to work harder with each beat. When your heart has to work harder in conjunction with a higher heart rate, high blood pressure (hypertension) is the result.

There are various activities that can help you to better deal with day-to-day stress by eliciting what is called a relaxation response as opposed to a fight or flight response.

GENERAL INFORMATION

VIII

The Mount Sinai Hospital Samin K. Sharma Family Foundation Cardiac Catheterization Laboratory
Guggenheim Pavilion
1468 Madison Avenue or 1190 Fifth Avenue
New York, NY 10029



Getting to The Mount Sinai Hospital

By train

Amtrak services both New York's Penn Station and Grand Central station. The Metro-North Railroad also services Grand Central Terminal.

New Jersey Transit trains arrive at Penn Station and the PATH system services several New York City stations. Once arriving in New York, patients and visitors can take public transportation (see below); taxicabs are available for hire from the station.

Public transportation

Subway line: Number 6
Buses: M1, M2, M3, M4, M96, M98, M101, M102, M103, M106

The MTA's TripPlanner is a great resource to map out a public transportation route and is available at tripplanner.mta.info.

By car

Parking is available for those arriving by car.

99th Street between Park and Madison Avenues. The garage is open every day, 6 am to 1 am. Call 212-241-5125 to inquire about hourly and daily rates. Metered parking on streets bordering The Mount Sinai Hospital campus is also available. There is an alternate garage available on the corner of Madison and 104th Street.

From the east side of Manhattan

Take the FDR Drive to the 96th Street exit and turn onto East 96th Street. Continue to Madison Avenue and turn right. The Mount Sinai Hospital is at 100th Street and Madison Avenue.

From the west side of Manhattan

Travel the West Side Highway to the 96th Street exit. Continue across West 96th Street, through Central Park, to Madison Avenue. Turn left on Madison. The Mount Sinai Hospital is at 100th Street and Madison Avenue.

From Brooklyn and parts of Queens (Brooklyn Bridge)

From the Brooklyn-Queens Expressway, take the Brooklyn Bridge exit. Follow signs to the FDR Drive North. Exit at East 96th Street and continue onto Madison Avenue. Turn right on Madison Avenue. The Mount Sinai Hospital is at 100th Street and Madison Avenue.

From Staten Island (Brooklyn Battery Tunnel)

Take the Verrazano Bridge (Staten Island only) to the Brooklyn-Queens Expressway. Follow signs to the Brooklyn Battery Tunnel and make a right turn out of the tunnel. Take West Street to the West Side Highway, turning off at the 96th Street exit. Travel through Central Park to Madison Avenue. Turn left on Madison Avenue. The Mount Sinai Hospital is at 100th Street and Madison Avenue.

From Queens and Long Island (RFK Triborough Bridge)

Take the Grand Central Parkway (west) to the Triborough Bridge to the FDR Drive. Exit at 96th Street. Follow until Madison Avenue. Turn right on Madison Avenue. The Mount Sinai Hospital is at 100th Street and Madison Avenue.

From Westchester County and New England

Take the New England Thruway (95 South) to the RFK Bridge to the FDR Drive. Exit at 96th Street and turn right onto East 96th Street. Follow until Madison Avenue. Turn right on Madison Avenue. The Mount Sinai Hospital is at 100th Street and Madison Avenue.

From Upstate New York

Take the New York State Thruway (I-87 South), which will turn into the Major Deegan Highway. Exit at the Willis Avenue Bridge and bear right. Follow signs to the FDR Drive. Exit at 96th Street. Turn right on 96th Street. Turn right again on Madison Avenue. The Mount Sinai Hospital is at 100th Street and Madison Avenue.

From New Jersey

Cross the George Washington Bridge and follow signs for the West Side Highway. Exit at 96th Street and travel across 96th Street through Central Park to Madison Avenue. Turn left on Madison Avenue. The Mount Sinai Hospital is at 100th Street and Madison Avenue.

Patient Accommodations and Amenities

For premium patient accommodations and services on The Mount Sinai Hospital's campus, private rooms and suites featuring 5-star, hotel-style amenities are available at Mount Sinai's Eleven West. Call 212-241-5990 to learn more.

You can also visit mountsinai.org and click on "visiting us," then "accommodations " for more information, including nearby hotels and available discounts for our patients. Accommodations within a short distance of The Mount Sinai Hospital include:

Courtyard by Marriott Manhattan/Upper East Side

410 East 92nd Street
(between First and York Avenues)
Check availability and make reservations through Mount Sinai Guest Services to receive discount rates.
Call 877-231-7914
Discount code: M08

The Marmara Manhattan Luxury Hotel & Residence

301 East 94th Street
(between First and Second Avenues)
info@marmara-manhattan.com
212-427-3100

Hotel Wales

1295 Madison Avenue
(between East 92nd and 93rd Streets)
212-876-6000 or 866-925-3746

Franklin Hotel

164 East 87th Street
(between Lexington and Third Avenues)
212-369-1000 or 800-607-4009

Hotel Newton

2528 Broadway
(between 94th and 95th Streets)
212-678-6500
** Request special Mount Sinai rates.*

On the Ave Hotel

2178 Broadway at 77th Street
212-651-3351 or 800-497-6028
** Request special Mount Sinai rates.*

ALOFT Harlem

2296 Frederick Douglass Boulevard
(between 123rd and 124th Streets)
212-749-4000 or 866-921-2995
** Request special Mount Sinai rates.*

BE PREPARED FOR YOUR STAY

IX

Visitation

Hospital visiting hours are 11 am – 9 pm daily. If you require more flexible hours, you may speak to the nurse manager on the unit. The family waiting area is located on the fifth floor, adjacent to the cardiac catheterization laboratory.

Request for Private/Single Rooms in the Cardiac Care Center

Private rooms can be requested. The fee for a private room that is requested by the patient is $525.00 per day, which is above the semi-private room fees and usually not covered by your insurance carrier.

Private Duty Nursing

The Private Duty Nursing Office, 212-241-7383, is located in the Guggenheim Pavilion, MC Level, Room 209 and is open from 7 am – 11 pm. You may call there if you wish to have a private duty nurse during your stay. There are additional fees for private duty nurses.

Patients' Library

Books, audiocassettes, large print, and talking books in English and other languages are available and can be delivered to patients by calling 212-241-6110.

Interpreters

Translation services are available upon request for many languages and will be arranged by the Care Center Staff.

Help for the Hearing and Visually Impaired

Sign language interpreters and Telecommunication Devices for the Deaf (TDD) are available through the Care Center staff. Large-type books and talking books with earphones are available through the Patients' Library. The New York State Patients' Bill of Rights is available in Braille and is read in English and Spanish on closed circuit television.

Patient Representatives

Patient Representatives help patients and their families with problems, complaints, or concerns about their health care or Mount Sinai services that other staff are unable to resolve. Patient Representatives provide information regarding the New York State Health Care Proxy and patients' rights, and can answer questions about hospital policy and procedures. Patient Representatives for in-patients can be reached at 212-659-8990. Outpatients may call 212-241-6848 on weekdays during business hours. At other times, calls will be referred to a nursing administrator.

Self-Pay Policy

The Mount Sinai Hospital offers financial assistance to patients who do not have private insurance and who do not qualify for government programs. Eligibility is determined based on income and assets. For more information, please contact Patient Financial Services at 212-731-3100 or 866-682-9380.

Faith-Related Resources

Faith-related Resources include two chapels in the Guggenheim Pavilion, West Tower (the Peck Jewish Chapel and the Hatch Interdenominational Chapel) for meditation and religious services. Chaplains representing all faiths and denominations are available to patients and families and can be reached by telephone.

Jewish Chaplain	212-241-7262
Catholic Chaplain	212-241-7908
Protestant Chaplain	212-241-5280
Greek Orthodox Chaplain	212-749-0017

Telephone and Television Service can be requested during the admissions process.

Beautician Services, including hair and nail care, available by appointment at 212-241-5570.

Newspapers are available and sold every morning on inpatient floors. Phone 212-241-2679.

Notary services are available Monday through Friday from 9 am – 4:30 pm through the Patient Service Center at 212-659-8990.

The Mount Sinai Gift Shop, which carries a wide variety of useful and decorative gift items, children's gifts and baby items, is located on the 7th floor of the Guggenheim Pavilion. The shop also sells flowers, greeting cards, jewelry, and candy. It is open every day from 8 am – 8 pm on weekdays and 9 am – 8 pm on weekends. The gift shop will wrap gifts and deliver them to patient's rooms. Credit cards are also accepted. Phone 212-241-GIFT.

The **Plaza Cafeteria** offers a wide selection of appetizing hot and cold dishes, including Kosher food. The Cafeteria is open from 6:30 am – 7:30 pm, Monday through Friday, and some hours on the weekends as well. It is located on the first floor of the atrium of the Guggenheim Pavilion.

A **Coffee Stand**, serving delicious Starbucks® coffee and an assortment of breakfast rolls, is open Monday through Friday, from 6:45 am – 9:00 pm in the West Lobby of the Annenberg Building.

IX PHYSICIANS

Interventionalists

Samin K. Sharma, MD, FSCAI, FACC

Director, Clinical and Interventional Cardiology
President, Mount Sinai Heart Network
Dean, International Clinical Affiliations
Zena and Michael A. Wiener Professor of Medicine

Education and Training

- MBBS: SMS Medical College Jaipur, India
- Residency, Internal Medicine: New York Infirmary; Beekman Downtown Hospital, NY
- Fellowship, Cardiology: City Hospital Center at Elmhurst, NY
- Fellowship, Interventional Cardiology: The Mount Sinai Hospital, NY

Samin K. Sharma, MD, is well known for complex coronary interventions, performing over 1,500 each year with an extremely low complication rate. According to New York State DOH reports, he had the highest angioplasty success rate among interventional cardiologists in New York State from 1994 to 2003 and 2007 to 2008, a remarkable feat considering the complexity of cases referred.

Annapoorna S. Kini, MD, MRCP, FACC

Director, Cardiac Catheterization Laboratory
Professor of Medicine, Cardiology
Director, Interventional Cardiology Fellowship

Education and Training

- MBBS: Kasturba Medical College Mangalore, India
- Residency, Medicine/Cardiology: University of Wales Cardiology, UK
- Fellowship, Cardiology: The Mount Sinai Hospital, NY
- Fellowship, Interventional Cardiology: The Mount Sinai Hospital, NY

Annapoorna S. Kini, MD, performs over 1,000 coronary interventions annually (the highest number by a female interventionalist in the United States) with an extremely low complication rate of <0.3 percent. According to New York State Department of Health Reports for 2004-2006, 2005-2007, and 2009-2011, Dr. Kini received the two star status for PCI safety among more than 400 other interventionalists.

Jason Kovacic, MD, PhD

Associate Professor of Medicine (Cardiology)

Education and Training

- MD: University of Melbourne, Australia
- PhD: Victor Chang Cardiac Research Institute through University of New South Wales, Australia
- Residency, Internal Medicine: Prince of Wales Hospital, Sydney, Australia
- Fellowship, Cardiology: St. Vincent's Hospital, Sydney, Australia
- Fellowship, Vascular Biology: National Heart Lung and Blood Institute, National Institutes of Health
- Fellowship, Interventional Cardiology: The Mount Sinai Hospital, NY

George Dangas, MD, PhD, FACC, FSCAI

Professor of Medicine (Cardiology)
Professor of Surgery (Vascular)
Director, Cardiovascular Innovation

Education and Training

- MD, PhD: National Kapodistrian University of Athens, Greece
- DHM: Naval School of Hyperbaric Medicine, Hellenic Navy, Athens
- Residency, Internal Medicine: Miriam Hospital, Brown University, Providence, RI
- Fellowship, Cardiology: The Mount Sinai Hospital, NY
- Fellowship, Interventional Cardiology: The Mount Sinai Hospital, NY

Nitin Barman, MD

Associate Professor of Medicine (Cardiology)

Education and Training

- MD: University of Chicago
- Residency, Internal Medicine: University of California, San Francisco
- Fellowship, Cardiology: Cleveland Clinic Foundation
- Fellowship, Interventional Cardiology: The Mount Sinai Hospital, NY

Surgeons

David Adams, MD

Professor and System Chair, Cardiovascular Surgery

Education and Training

- Residency, Surgery: Brigham and Women's Hospital, Harvard Medical School
- Residency, Surgery: Brigham and Women's Hospital, Harvard Medical School
- Fellowship, Pathology: Harvard Medical School
- Fellowship, Cardiothoracic Surgery: Brigham and Women's Hospital, Harvard Medical School

David Adams, MD, is a recognized leader in the field of heart valve surgery and mitral valve reconstruction. As the Program Director of The Mount Sinai Hospital's Mitral Valve Repair Reference Center, he has set national benchmarks, with > 99 percent degenerative mitral valve repair rates, while running one of the largest programs in the United States with a team that now performs over 400 mitral valve operations per year.

Alan Stewart, MD

Associate Professor, Cardiovascular Surgery

Education and Training

- MD: New Jersey Medical School
- Residency, General Surgery: Hospital of University of Pennsylvania
- Fellowship, Cardiothoracic Surgery: Columbia University

Anelechi Anyanwu, MD

Professor, Cardiovascular Surgery

Education and Training

- MD: University of Nigeria
- Internship, Surgery: University of Nigeria
- Residency, General Surgery: Greenwich District Hospital
- Residency, Cardiothoracic Surgery: Hammersmith Hospital
- Fellowship, Cardiothoracic Surgery: Mount Sinai Hospital

Paul Stelzer, MD

Professor, Cardiovascular Surgery

Education and Training

- MD: Columbia University College of Physicians & Surgeons
- Residency, General Surgery: Roosevelt Hospital
- Residency, Thoracic Surgery: New York Hospital Cornell University Medical Center

Other Physicians of the TAVR Team

David J. Bronster, MD

Clinical Professor, Neurology

Education and Training

- MD: Mount Sinai School of Medicine
- Residency, Internal Medicine: Cabrini Medical Center
- Residency, Neurology: Mount Sinai Hospital

Umesh K. Gidwani, MD

Associate Professor, Medicine, Pulmonary, Critical Care and Sleep Medicine

Education and Training

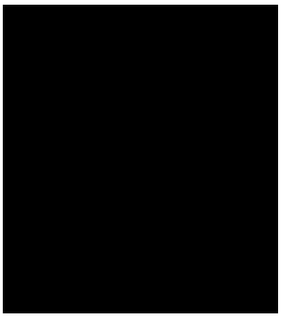
- MD: Grant Medical College
- Residency, Internal Medicine: St. Elizabeth Hospital
- Fellowship, Critical Care: Mount Sinai School of Medicine CUNY
- Fellowship, Pulmonary Disease: New York Medical College

Partho Sengupta, MD

Associate Professor of Medicine (Cardiology)
Director, Interventional Echocardiography

Education and Training

- MD: Government Medical College, Nagpur, India
- Residency: Mayo Clinic, Rochester, MN
- Fellowship, Cardiology: Mayo Clinic, Scottsdale, AZ
- Fellowship, Advanced Fellowship in Echocardiography: Mayo Brothers Distinguished
- Fellowship: Mayo Clinic School of Medicine, Rochester, MN



Anesthesiologist

Associate Professor of Medicine (Cardiology)
Director, Interventional Echocardiography

Education and Training

- MD: Government Medical College, Nagpur, India
- Residency: Mayo Clinic, Rochester, MN
- Fellowship, Cardiology: Mayo Clinic, Scottsdale, AZ
- Fellowship, Advanced Fellowship in Echocardiography: Mayo Brothers Distinguished
- Fellowship: Mayo Clinic School of Medicine, Rochester, MN

The mission of the Samin K. Sharma Family Foundation Cardiac Catheterization Laboratory at Mount Sinai Heart is to improve outcomes and safety of our interventional patients by using a team concept to deliver clinical innovations, unrivaled research, and personalized clinical care.

Mount Sinai *Heart*

Important Numbers

TAVR Office	212-241-5696
Cardiac Catheterization Laboratory Front Desk	212-241-5881
Coronary Care Unit	212-241-7222
Seven East - Telemetry Unit	212-241-5544