

TAVI: Trans-Catheter Aortic Valve Implant

A guide for your procedure

You and your family can use this guide to prepare for your TAVI procedure at Toronto General Hospital, and for your recovery when you leave the hospital.

Read this guide to learn about:

- About Your Heart..... page 2
- The TAVI Procedure page 5
- When to get medical help..... page 16
- Healthy living with a new heart valve page 17

When you come to the hospital for your appointments, please bring:

- ✓ This booklet
- ✓ Your medications in their pharmacy containers
- ✓ Your Health Card (OHIP)

TAVI Program Office

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Patient Education



UHN

Toronto General
Toronto Western
Princess Margaret
Toronto Rehab
Michener Institute

Someone from the TAVI office will call you 48 hours before your appointment to notify you when to arrive for your procedure.

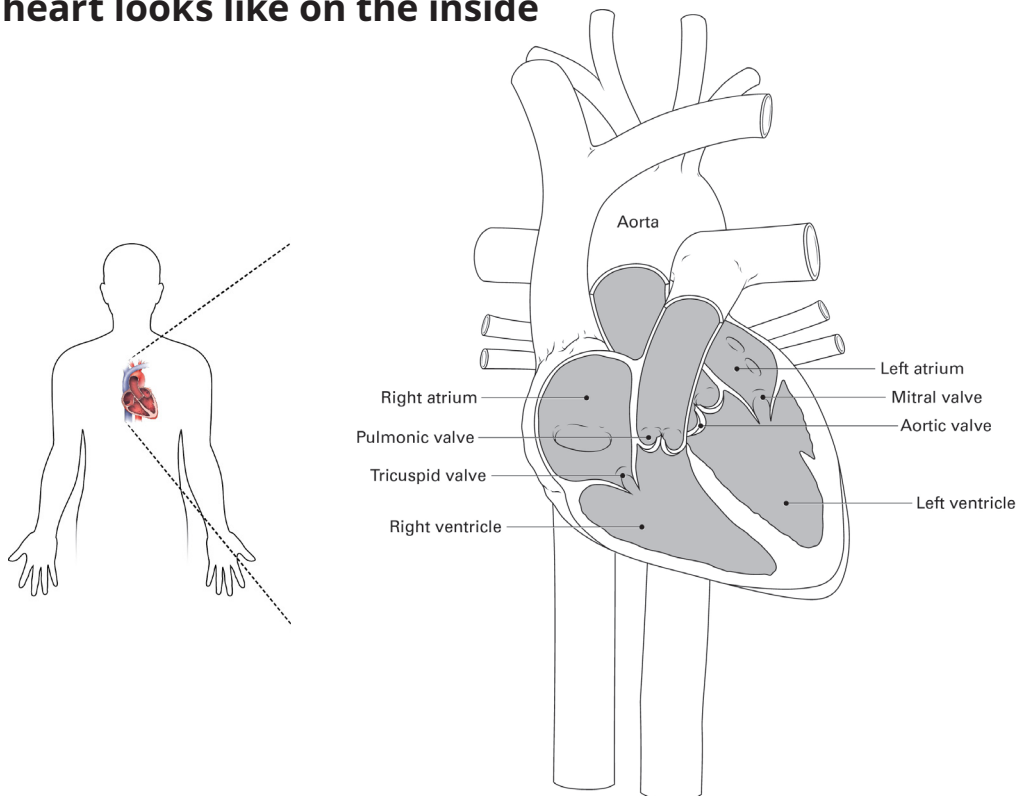
Our goal is to let you know the date of your procedure well ahead of time. However, we may call you on short notice if:

- There is a cancellation and we may be able to do your procedure sooner
- There is an emergency and we need to postpone or reschedule your procedure

About Your Heart

Your heart is like an amazing machine. From the moment you are conceived, to your very last breath, your heart never stops pumping blood throughout your body. Like any machine, the heart also wears down with age. In some cases, important parts of your heart can stop working as well as they used to and need to be repaired or replaced. The aortic valve is one of these parts.

What the heart looks like on the inside



Aortic valve stenosis or aortic stenosis (AS)

Aortic Valve Stenosis or “AS” happens when the aortic valve narrows and hardens, usually a slow and gradual process that takes place over years.

Usually people over the age of 65 develop AS. However, AS may develop in children and young adults who are born with uncommon aortic valves. Most people are born with 3 valve leaflets in their aortic valve. Others may have a bicuspid aortic valve (2 leaflets).



Tricuspid Valve



Bicuspid Valve

Depending on how serious your AS is, you may have mild signs and symptoms (such as shortness of breath) to life-threatening ones (such as fainting, heart failure).

Your cardiologist can talk with you about whether you need to be treated with medication or an aortic valve replacement.

How do I know I have aortic valve stenosis?

You may not have any symptoms of aortic valve stenosis, making it hard to detect. The symptoms usually get more severe as the heart valve gets narrower.

It is important to talk to your doctor about an aortic valve replacement once you have symptoms because the stenosis may be serious.

The main symptoms of aortic valve stenosis are:

- shortness of breath
- chest pain, discomfort or angina
- dizziness or fainting
- swelling in the legs and or abdomen
- tiredness when you are increasing your activity level
- heart palpitations (rapid, fluttering heartbeat)
- congestive heart failure

Why do I have aortic stenosis?

There are a few different reasons people are diagnosed with aortic stenosis:

- **Congenital heart defect.** Some children are born with an aortic valve that has an abnormal number of “cusps” or leaflets. Normal aortic valves have 3 flaps of tissue (called tricuspid valves). Abnormal valves may contain 1, 2, or 4 valves, and may not work properly. You may need a replacement as these valves wear out more quickly.
- **Calcium buildup.** As you age, minerals deposit on your aortic valve, causing it to harden and narrow. This may cause the valve to stiffen. This becomes more common in people over 70 years.
- **Rheumatic fever.** Rheumatic fever is a bacterial infection that can cause problems with the heart’s valves. There is swelling in the heart muscle, which permanently damages the valve tissues. As a result, the leaflets of the valve may stick together and cause the aortic valve to get narrow.

What does aortic stenosis mean for me?

Having aortic stenosis does not necessarily mean you will have any symptoms. However, aortic stenosis may get worse over time, leading to problems that may affect your health and well-being.

When an abnormal aortic valve gets narrow or leaks, your heart works harder to pump blood through your aorta and to your body. Like other muscles in your body, if your heart is forced to push or move heavy loads, it will grow and thicken.

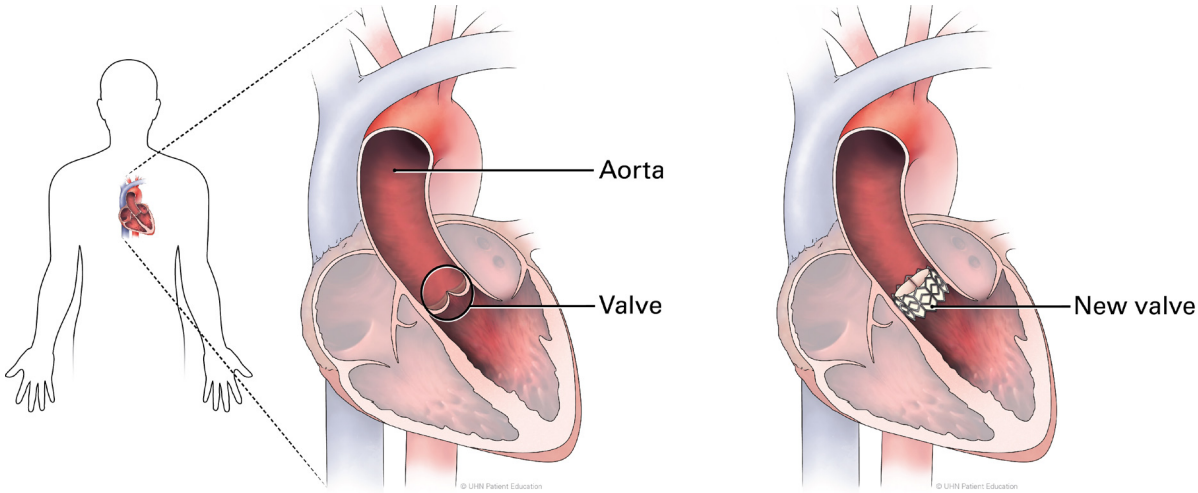
As the valve grows and thickens, you will begin to experience more severe symptoms. Most patients are referred to a TAVI doctor when their stenosis is moderate to severe.

The TAVI Procedure

What is a TAVI procedure?

Trans-Catheter **Aortic Valve Implant** (TAVI) is the name of the minimally invasive procedure recommended to replace your heart valve.

Medical word	What it means
Trans-Catheter	The valve is inserted through a thin flexible tube called a catheter.
Aortic Valve	The aortic valve controls the flow of blood through the heart. It has three leaflets that open to direct blood out of the heart into the aorta and close to prevent blood from flowing back into the heart.
Implant	To put the valve into the body.

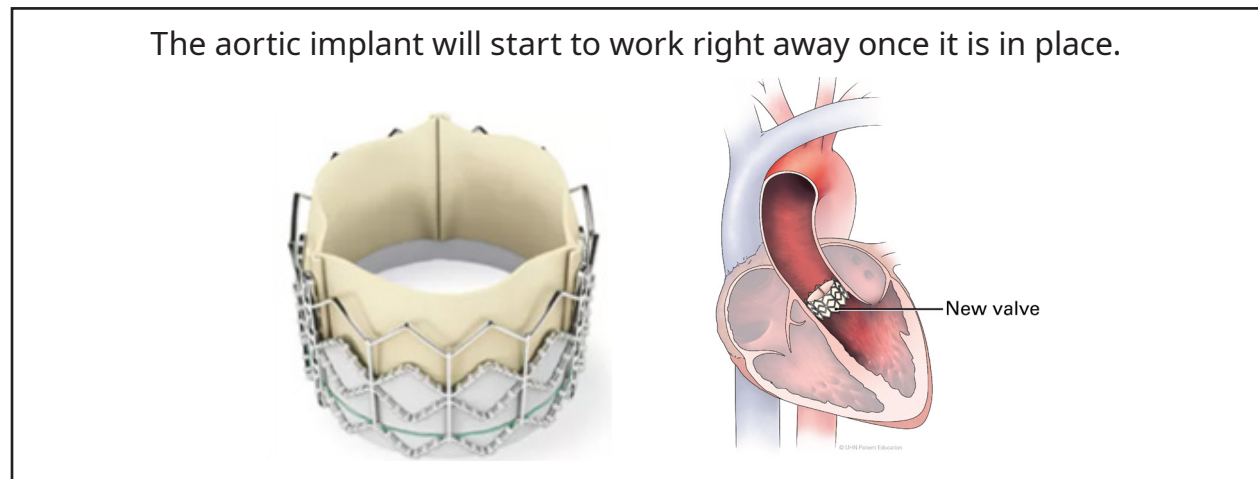


How is a TAVI done?

Your surgeon inserts the new valve into the aortic valve you were born with and expands it pushing your old valve to the outside of the new valve.

The TAVI heart valve is made of natural tissue from the heart of a cow or a pig (depending on the brand). The natural tissue is attached to a metallic mesh frame that helps to keep the new valve open and in the right place.

Your cardiac team carefully chooses the valve type and size specifically for you based on many factors.



Your clinical coordinator can give you more information about the type of valve your cardiac team has chosen for you.

What happens when my doctor refers me to Toronto General Hospital for a TAVI procedure?

- When the TAVI office receives your referral from your family doctor or cardiologist, a doctor from the TAVI team reviews it to decide what next steps are needed. The clinical coordinator calls you to review the process and sends you some information to review.
- Our TAVI team includes cardiologists, cardiac surgeons, echocardiographers, anesthesiologists, nursing care coordinators and administrators who are here to help you and answer your questions.

- To help decide if you are eligible for a TAVI procedure, you need to do at least 3 tests and meet with at least one of the clinical nurse coordinators who will review your health history and the TAVI procedure.

What tests will I need?

The process may be a little different for each patient but you can expect to have all of the following tests done.

- 1. Transthoracic Echocardiogram (TTE)** An ultrasound of your heart which shows us how your heart and heart valves are working.
- 2. Angiogram** An imaging procedure that shows us your heart's blood vessels, aorta and femoral arteries.
- 3. Gated Cardiac CT** A test that takes several x-rays of your heart with exact measurements of the inside of your heart. This test lets us see if the procedure is safe and helps us choose the right type and size of valve for you.

What clinic appointments will I need?

- You need to speak with at least 1 member of the TAVI team (by phone or in person). You may have a clinic appointment booked with a cardiologist, a cardiac surgeon, a nurse practitioner or all three.
 - All of these appointments are booked after the clinical nurse coordinator speaks with you, reviews the process and collects your health information.
 - We send all of your upcoming appointment information (times and dates) to an email address you provide or by mail.
 - The time from referral to procedure varies depending on your health and booking availability. We will keep you updated on your progress every step of the way.

What can I do while waiting for procedure?

There are a few things you can do to while you are waiting for your TAVI procedure:

1. Look after your oral (mouth) health:

- It is important to have a dental check-up before having the TAVI procedure. Make an appointment with your dentist, if you haven't had one in the last 6 months
- If you need teeth removed or treatment for gum disease, this must be done before the TAVI procedure. We cannot go ahead with your procedure until any dental work you need is done
- If you have no teeth, you do not need to see the dentist
- We will provide you with a form to give to your dentist. They can fax it back to us at:

TAVI Program Office FAX 416 340 5143

2. Learn more about the process:

- Review the education booklet once you receive it
- Write down questions and email or call our office to review with one of the clinical nurse coordinators
- If you have someone who will be supporting you during this process make sure they also have this information and our number to go over any questions

3. Keep healthy with ongoing medical care:

- Your family doctor or primary health care providers are responsible for your medical care while you are waiting for the procedure
- Continue to see them for your regular medical care
- Continue to see specialists for your heart and other medical conditions

What happens when my tests are done?

- Once all of the testing and clinic visits are done we will review your case with the TAVI team
- The team determines if a TAVI procedure is right for you by looking at your test results and reviewing your health history
- A TAVI clinical nurse coordinator will call you to discuss the next steps (this may include open heart surgery, medical management or an appointment for the TAVI procedure)

What can I expect when I am booked for my TAVI procedure?

Before you come in for your procedure:

1. The TAVI clinical nurse coordinator will book your procedure. We review what you need to know before surgery during this booking, including:
 - When to stop taking any blood thinner medicine. It is very important that you stop taking your blood thinners to prevent you from bleeding too much during your procedure.
 - If you take certain types of blood thinners, you need to be seen at the Thrombosis Clinic before your procedure. An appointment will be set up for you. A clinician will explain when to stop taking your blood thinner.
2. You will speak with an anesthesiologist, pharmacist and nurse as part of your **Pre-Admission Clinic Assessment** to get you ready for your procedure. This may be done in person or over the phone.
3. You need to do tests at the hospital before your procedure as part of your **Pre-Admission Clinic Visit**.
 - At this appointment, you may have a Covid test, blood test, an ECG, a swab for MRSA or VRE and sometimes a chest x-ray.

4. Someone from the TAVI office will call you up to 48 hours before your procedure to tell you what time to arrive the day of your procedure.
5. You must start planning for your return home before your admission to the hospital. You will need to make arrangements for help at home after the procedure
 - Please arrange for an adult, such as a relative or friend to:
 - pick you up from the hospital and drive you home or to your next place of residence
 - stay with you for a few days until you are comfortable doing your normal activities (or you stay with them)

If you have no one to help and you would like to see a Social Worker during your Pre-Admission visit, please call 416 340 4800 ext. 6153.

Please let us know if you have any questions, if we missed anything during our discussions or if your health has changed.

Someone from the TAVI office will call you 48 hours before your appointment to notify you when to arrive for your procedure.

What can I expect the day of my TAVI procedure?

Before your procedure

- Come to the **Surgical Admission Unit (SAU)** (a map will be provided to you when your TAVI procedure is booked).
- Once you check in you are given a gown to change into and a labeled bag for your belongings. **Please do not bring any valuables to the hospital with you.**
- You meet a few members of the surgical team, including the anesthesiologist, the operating room nurse and the TAVI doctor to sign your surgical consent for your procedure.
- You have an IV line and an arterial line inserted into your arm.
- Once the team is ready you are brought to the operating room to have your procedure.

During your procedure

- You are awake during your TAVI procedure but are given medication called conscious sedation to make you feel sleepy. Some people fall asleep but you will be awake enough to communicate with the team.
 - An anesthesiologist stays with you at all times making sure you are comfortable and monitors you throughout the procedure.
- The surgeon makes 2 small punctures (openings) into each groin
 - The first side is used for the catheter that carries the new valve through your femoral artery into your heart
 - The second side is used for such things as to monitor your heart pressure through the femoral vein
- The artery in your right arm is also be used to deliver medication called **contrast dye** to help the doctors see the inside of the vessels during the procedure.
- X-ray imaging called fluoroscopy is used to help the doctor see your heart and guide the catheter.

Your new valve begins working right away to direct the flow of blood out of your heart. By implanting a new valve, we hope to relieve your symptoms by helping your heart work better and improve the quality and length of your life.

After your procedure

- You are transferred to the recovery room where you will stay for about 1 to 2 hours.
- The TAVI team will speak to the contact you provided to let them know that the procedure is over and how you are doing.
- When you are ready the team transfers you to the cardiac floor. Some patients can be discharged from hospital the same day as their TAVI while others may stay overnight 1 night.
- Your care team assesses your condition and talks with you and your family about how you are recovering. Together you decide when you are able to leaving the hospital. This is called discharge planning.

What care do I need after my TAVI procedure?

After the TAVI procedure, you are transferred to one of 2 cardiac floors (5B or 4A – both in the Peter Munk Building of the hospital).

- The nurse checks you regularly to make sure you are comfortable. Let the nurse know if you are having pain.
- The nurse regularly checks your groins and your arms, teaches you what to expect as they heal and how to care for these sites.
- The nurse reminds you to keep your legs straight the first 4 hours after the procedure. This is very important to prevent bleeding from the insertion sites in your groin. Also, there may be some intravenous tubes or temporary wires in in your groin.
- After that first 4 hours, the nurse helps you gradually increase your activity, from sitting up in bed to sitting in a chair to walking short distances.
- When you are fully awake, we give you clear fluids to drink. You can start eating food when you are drinking well.

Tell the nurse or doctor if you notice:

- the incision becomes red and tender
- the incision becomes more painful
- the incision starts to leak or drain yellowish fluid
- you feel unwell or think you may have a fever

Can I have visitors?

Family or friends who want to call after your procedure can phone the Toronto General Hospital at 416 340 4800 and press 0. They need to give your name and will be transferred to the cardiac floor where you are staying.

They can speak with the charge nurse for more information about visiting hours.

What activities can I do?

- You will have help to gradually increase your activity. Each day you will be able to do a little more activity and walk farther.
- As your appetite improves, you can have a regular diet. We will provide heart-healthy meals to help you recover

What tests might I expect to have done before I go home?

- Chest x-ray
- ECG (electrocardiogram) – a record of your heart’s electrical activity
- Blood tests
- Echocardiogram – ultrasound images of your heart

What can I expect for my recovery?

Check your insertion site every day. If you notice any of these warning signs, see your family doctor.

What is normal?	What are warning signs?
<ul style="list-style-type: none">• slightly red, swollen and tender• a bit lumpy or bumpy• occasional clear drainage• pain gets better gradually• bruising	<ul style="list-style-type: none">• any area of redness or swelling that does not get better• a lump that is getting bigger• yellow or pink drainage• pain does not get better or is severe• fever – a temperature of 38.5 °C (101 °F) or higher• bleeding from the puncture site that does not stop

If you are worried, call your family doctor first or call the TAVI office at 416 340 4800 ext. 6153 or 6803.

Do I need new medication after a valve implant?

There may be some changes to your medications after your TAVI procedure. The cardiologist caring for you on the floor will include this in the list of your discharge instructions.

What activities are safe?

- Before the procedure, your physical activity may have been very limited. After your procedure, you can expect to feel tired and take rests often. As you get stronger and more confident, you can gradually increase your activity.
- Walking and or moving your body is important for your recovery. During the first week at home try walking around your space or taking a short walk outside each day. Then, gradually increase your activity by walking a little longer each day.
- Until your follow-up appointment, please take it easy. **Do not lift or carry anything heavy such as a bag of groceries.** Avoid strenuous activities such as gardening, vacuuming and swimming.
- When you can return to work will depend on the type of job you do and your recovery. Please discuss your plans to return to work with your cardiologist or at your follow-up appointment.

We will give you written discharge instructions specifically for you before you leave the hospital. Your instructions will include all of the things you should do and not do when you go home or to your next place of residence. Please make sure you read and understand the discharge instructions before you leave the hospital.

Your discharge instructions will include information about:

- What to expect after your procedure
- Signs to watch for
- When you can shower or bathe again
- Caring for your puncture site
- Managing your medication
- When you can travel or fly in an airplane again
- Meal planning and nutrition
- Recommended exercise and physical activity
- What activity is safe
- When you can drive again
- Smoking and oral health
- Important contact numbers

Should my health care providers know that I have a new heart valve?

Yes, tell all your care providers that you had a TAVI procedure and have an artificial heart valve. This includes:

- Your family doctor, dentist and any other doctor you see
- Your pharmacist
- Your physiotherapist, visiting nurses and home care providers

You will receive a card in the mail from the valve manufacturer to carry in your wallet. The card has the type of valve you have and when it was implanted.

You may also wish to wear medical identification to let health care providers know that you have an artificial heart valve. You can order Medic Alert products (such as bracelets, necklaces or watches) from Medic Alert Foundation Canada at 1 800 668 1507 or www.medicalert.ca.

When do I need follow-up appointments?

You should have a follow-up appointment with your regular cardiologist 2 months after your TAVI procedure. You may also need an echocardiogram as part of this follow up.

Some patients prefer see their own cardiologist. If you choose to visit your own cardiologist for follow up, please ask your cardiologist to fax the follow-up note to the TAVI Program office. Fax: 416 340 5143.

When to get medical help

Once you leave the hospital, your regular doctors will provide your health care.

Call your family doctor if you have any of the following:

- A lump that is getting bigger or increasing pain at your insertion site
- Fever – a temperature of 38.5 °C (101.3 °F) or higher
- Signs of skin infection – any area that has swelling, redness, warmth or drainage (yellow or pink fluid)
- Signs of a bladder infection – burning, sudden urge to pee, urine that is cloudy or smells bad, back pain
- You feel ill and are concerned

Call 911 or go to your nearest Emergency Department if you have ANY of the following:



- Sudden chest pain
- Sudden shortness of breath
- Irregular heart rate
- Loss of vision
- Numbness or weakness in your legs more than usual

Healthy living with a new heart valve

How do I keep my new valve healthy?

To stay healthy and protect your new heart valve, it is important to prevent germs such as bacteria from entering your body. Bacteria can get into your blood if you have an infection or wound in another part of your body.

For example, if you have an infection in your mouth or on your skin, bacteria can easily get into your blood. The bacteria can cause a serious infection that damages your heart tissue and valves.

A healthy mouth

Do not have any dental work (cleaning or treatment) for 6 months after your TAVI procedure, unless you have a tooth ache or abscess. **Visit your dentist twice a year after your TAVI procedure.** Tell your dentist that you had valve surgery.

Important: You will need to take antibiotic prophylaxis before any dental procedure above the gum line, including dental cleanings, for life.

Healthy eating

For more information about healthy eating:

- Read UHN's pamphlet "Your Heart and Sodium (salt) Restriction"
Visit www.uhnpatienteducation.ca
- Visit the Dietitians of Canada website: www.eatrightontario.ca
- Enter 'salt' in the search box for a list of helpful articles
- Speak with a Registered Dietitian for free at 1 877 510 5102

Healthy skin

One of the best ways for you and your family to stay healthy is to wash your hands often. But keep your skin clean and dry. Check for any breaks or cuts in your skin.

Remember, we are here to help! Please speak with the clinical nurse coordinator if you have any questions about this process.



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