Transcatheter Aortic Valve Implantation (TAVI)

You have been referred to the Hamilton General Hospital to assess if getting an artificial heart valve by a transcatheter aortic valve implantation (also known as TAVI) is right for you.

What is Aortic Stenosis?

Aortic stenosis is a disease of your heart valve.

It causes narrowing of the aortic valve which may cause symptoms of shortness of breath, chest pain, passing out, weakness or feeling tired.

The cause of aortic stenosis is often related to calcium build up on the valve leaflets that occur in some people as they age. We don’t know why this occurs in some people and not others.
What is Transcatheter Aortic Valve Implantation (TAVI)?

TAVI is done for patients with severe symptomatic aortic stenosis who are not able to have traditional open heart surgery because they are high risk or have many other medical problems. The procedure is different from open heart surgery as your surgeon does not cut through your sternal bone and the recovery time is often not as long.

The new heart valve is put into your heart by a small thin hollow tube, called a catheter. The valve is compressed and then inflated by a balloon on the catheter. Once inflated, the new valve is implanted inside your existing valve and the catheter is removed. The new valve starts working right away.

TAVI can be done in one of two ways:

1. **Transfemoral** – through a small incision in the femoral artery (a blood vessel in the groin or upper leg), or

2. **Transapical** – through an incision in the chest below the left nipple. The transapical approach is used in patients who have blood vessels in the legs that are too small for the catheter to deliver the valve.

The TAVI team will decide which is best for you. With either approach, a new aortic valve is placed inside of your existing aortic valve.

Follow-up appointments

- Family doctor – 1 week
- Cardiologist – 4 to 6 weeks
- TAVI doctor – 4 to 8 weeks

The TAVI Team

The TAVI team is made up of several doctors, nurses and radiology technicians. You will meet with one of the TAVI doctors in consultation and that doctor will discuss your case with all members of the TAVI team. On the day of your procedure you may meet a different doctor or surgeon. However, the doctors work as a team and each doctor will be aware of your history.

If you have any questions or concerns, please contact the TAVI team at 905-527-6241.
Care of your access site

- Look at your access site every day. It may be tender and slightly red, have a small lump or mild swelling, or have clear discharge.

Taking a bath or shower

- You may have sponge baths for the first 5 days.
- You may shower 5 days after the procedure.
- You may allow soapy water to run over your incisions but do not scrub them.
- Gently pat your incisions dry.
- Do not take a bath until your incisions are healed. Your incisions are healed when they are dry with no open areas and no drainage.

Call your doctor if you notice

- Pain at the access site.
- An increase in bruising or swelling from when you left the hospital.
- If you develop a lump larger than a golf ball at the access site.
- Redness, warmth to touch or pus draining from the access site.
- Fever greater than 38°C or 101°F, or chills.

If you develop any sudden severe pain or notice bright red blood at the access site

- Apply pressure and call 911 right away.

The artificial aortic valve

The artificial heart valve is made of bovine (cow) tissue. The valve is attached to a flexible mesh frame.

There are several valves used for TAVI. Currently, the TAVI team at Hamilton General Hospital uses the Edwards Sapien XT valve.

* The size of the artificial valve is based on your own valve and ranges from the size of a quarter to a toonie.

What are the risks?

The risks vary with each person and are related to your health condition.

Your doctor will explain your risks to you before the test.
What tests do I need to have to see if I am a candidate for TAVI?

Some of these tests may need to be repeated at Hamilton General Hospital after you have been seen by the TAVI team.

- Physical exam.
- Blood test (complete blood count, electrolytes, kidney function, and blood clotting).
- Echocardiogram – A special type of ultrasound that uses sound waves to take pictures of your heart.
- Transesophageal echocardiogram (TEE) – A special type of ultrasound that uses sound waves to take pictures of your heart. The pictures are taken from inside the esophagus. This type of ultrasound gives a much clearer picture of your aortic valve than a regular ultrasound.
- Coronary and peripheral angiogram – A test where the doctor injects a special dye into your arteries. An x-ray camera takes moving pictures that show your heart and the arteries that supply blood to the heart muscle and the lower extremities.
- CT scan – A test that uses an x-ray machine to take detailed pictures of the body. The CT scan will take pictures of your heart. Contrast (dye) is injected into a vein to highlight the structures of your heart including the aortic valve. The CT scan will help doctors decide what size heart valve is best for you.

Going home

- Have a family member or friend bring in your clothes and shoes 1 or 2 days before your planned discharge.
- Take short walks daily that you may gradually increase with time. For example:
  - Week 1 – walk for 5 minutes 5 to 6 times a day
  - Week 2 – walk for 10 minutes 3 times a day
  - Week 3 – walk for 15 minutes twice a day
  - Week 4 – walk for 30 minutes daily
- Avoid strenuous activity or heavy lifting (nothing over 5 pounds) for several weeks.
- Do not drive for 4 weeks after your procedure.
- You will be given medication prescriptions before you go home. If you have any questions ask the nurse, doctor, or pharmacist. You will likely be started on a blood thinner medication that you are expected to take for 1 month. The medication is called Plavix (Clopidogrel). You will also need to take Aspirin lifelong. If you are already taking a blood thinner like Coumadin one of the anti-platelet medications may not be given.
- Do not go to the dentist for 3 to 6 months following your TAVI unless you have an abscess or toothache. When you do go to the dentist you need to take antibiotics before each visit. This will help prevent an infection. Your dentist or family doctor can give you a prescription for the antibiotic.
What should I expect after the procedure?

- You will go to the Coronary Care Unit (CCU) on the 4th floor or the Intensive Care Unit (ICU) West on the 3rd floor.
- The breathing tube will be taken out when you are awake and able to breathe on your own.
- For the first couple of hours your nurse will remind you to keep your legs straight as you may still have catheters in your groins.
- You will gradually increase your mobility with the help of nurses and/or physiotherapist. You will likely be expected to get out of bed the morning after the procedure.
- You will continue to wear a cardiac monitor for at least 48 hours.
- You will have blood tests, electrocardiograms (ECGs) and x-rays done many times during your stay.
- You will have an echocardiogram (ultrasound of your heart) before you are discharged home.
- Your nurse and/or doctor will check your groin sites and/or your chest incision to make sure they are healing properly. You may notice bruising at the site where the catheter was placed which may extend down your leg.
- Expect to stay in the hospital 3 to 5 days.
- You will be given medications that thin your blood unless you are already on blood thinners.

What should I expect before the procedure?

- Meeting with a TAVI team cardiologist or surgeon.
- Undergo all needed tests.
- If you are on blood thinners, you may be asked to see the Thrombosis Clinic at Hamilton General Hospital before your procedure.
- If you have a pacemaker, you may be asked to see the Pacemaker Clinic at Hamilton General Hospital before your procedure.

Admission to Hamilton General Hospital

You may be admitted the day before your procedure or the morning of your procedure. The TAVI team will provide you with instructions.

- If you are admitted the day before your procedure:
  - You may eat or drink until 12:00 midnight the night before your procedure.
  - Your nurse will give you the medications you will need the morning of your procedure. Take with only a sip of water.
  - Your family may visit with you during visitation hours.
  - You will be seen by several health care professionals including, but not limited to, doctors and nurses.

- If you are admitted the day of your procedure:
  - You may eat or drink until 12:00 midnight the night before your procedure.
  - You will be given instructions on what medications you may take the morning of your procedure. Take with only a sip of water.
Admission to Hamilton General Hospital (continued)

- Bring all of your current medications in their original containers.
- Bring a pair of slippers with a back and non-slip sole.
- Bring your personal care items, such as a toothbrush, toothpaste, shampoo, soap and a housecoat.
- Leave money, credit cards, jewellery and valuables at home.
- When you arrive at the Hamilton General Hospital, go to Patient Registration on the Main Level.
- After you have registered, you will be admitted to the Coronary Care Unit (CCU) on the 4th floor or Same Day Surgery on the Main Level.

Procedure day

- Your nurse will shave a small area on both of your groins and clean you with a special antiseptic soap.
- You will be taken to the Heart Investigation Unit (HIU) or the Operating Room (OR) depending on which approach your doctor has chosen for you. Both are located on the 3rd floor.
- Your family may wait in the 3rd floor waiting room and the doctor will talk to your family after your procedure is done.

Procedure

- When you arrive in the procedure room you will notice the room is very busy with nurses, x-ray technicians and doctors preparing for your procedure.
- You will be put to sleep by an anesthesiologist and will have a breathing tube.
- You will have a catheter in your bladder.
- You will have small tubes in your groins, neck and wrist.
- If you undergo the transapical approach you will have an incision on your left chest wall. You will also have a chest tube to collect any fluid drainage you may have.
- You will have a temporary pacemaker placed during the procedure. If you already have a pacemaker let the doctors know so they can arrange for you to see the Pacemaker Clinic before your procedure.
- The procedure takes about 2 hours.
Admission to Hamilton General Hospital (continued)

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If your doctor is NOT available, go to an Urgent Care Centre.

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