

# Transcatheter Aortic Valve Implant (TAVI)

**Transcatheter Heart Valve Program**

**Heart Health Program  
QEII Health Sciences Centre**

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You have been diagnosed with a condition called aortic valve stenosis (narrowing of the aortic valve). Your doctor has recommended that you have a Transcatheter Aortic Valve Implant (TAVI).

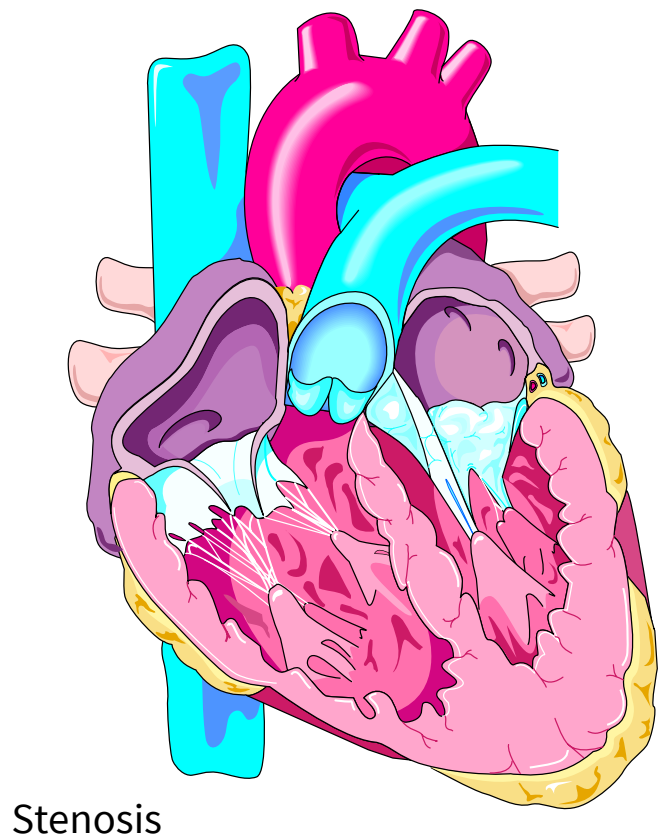
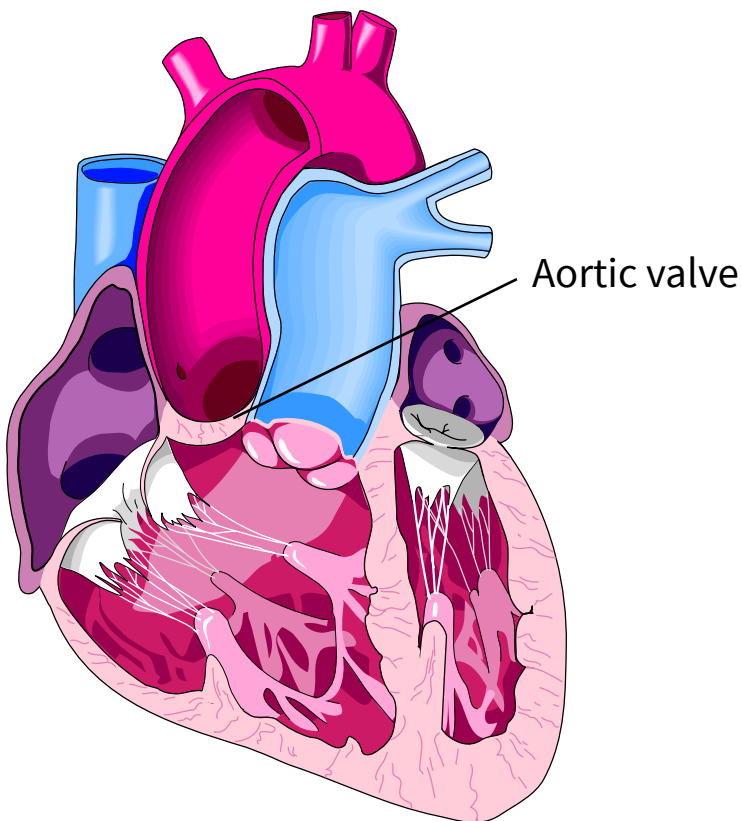
This guide will help you and your family get ready for your stay at the hospital and your recovery at home. Please read it and make notes on any questions you have for your health care team. There is space at the end of this guide to write down your questions.

# Transcatheter Aortic Valve Implant

## Aortic stenosis

Your heart has 4 valves that control the flow of blood in and out of your heart. The aortic valve is on the left side of your heart. It opens when blood is pumped from your heart to the rest of your body. With aortic stenosis, the aortic valve is narrowed or doesn't open properly, so the blood can't flow easily out of your heart to the rest of your body.

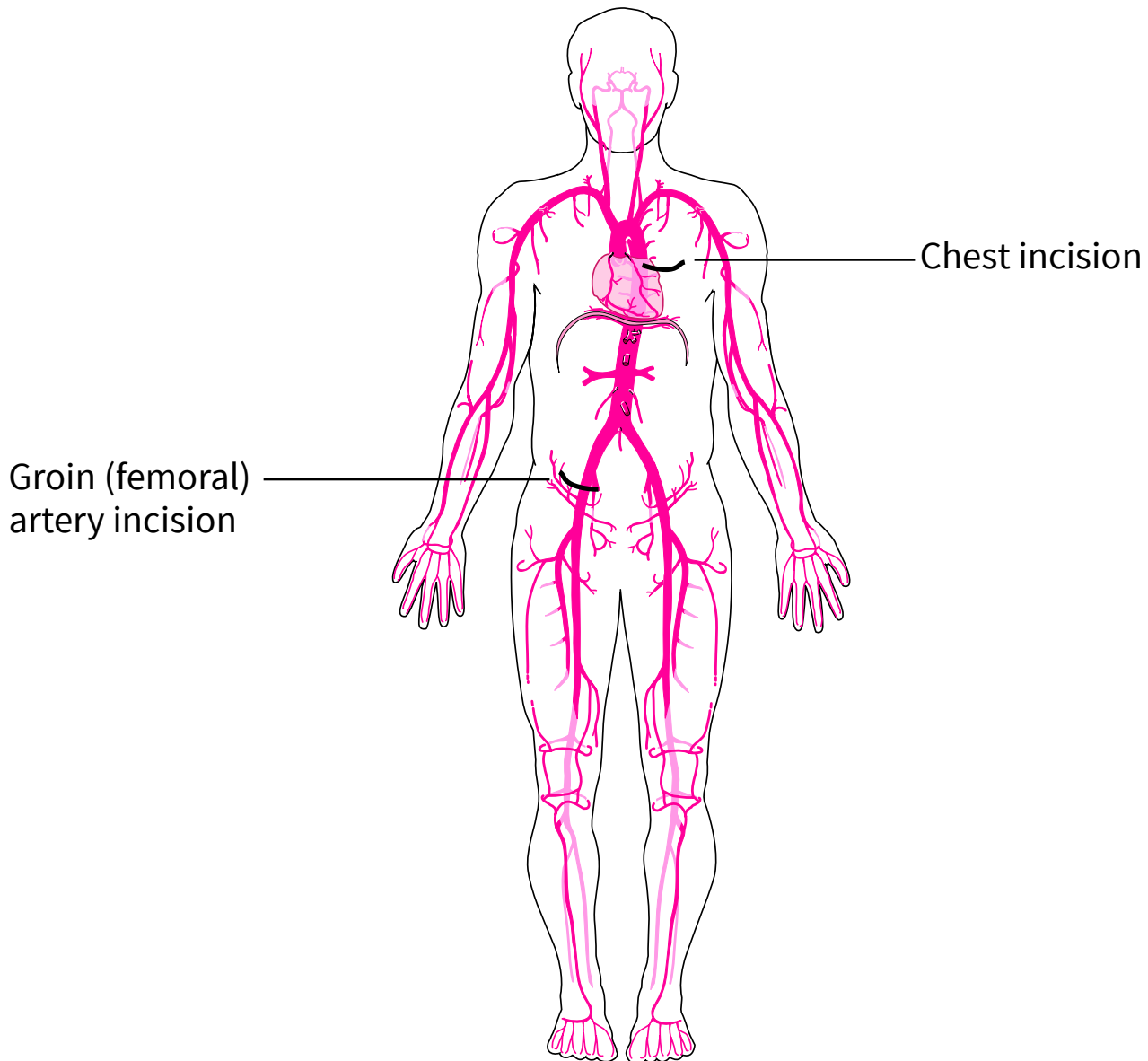
Aortic stenosis puts extra strain on your heart and can cause shortness of breath, swollen ankles, chest pain, dizziness and sometimes blackouts.



For people with aortic valve stenosis, the usual treatment is open heart surgery to repair or replace the aortic valve. However, for people who are too ill or who have other medical problems, open heart surgery may be too risky. Your health care team may recommend the TAVI procedure instead. During a TAVI procedure, an aortic valve is implanted through a catheter (flexible tube). This procedure is less invasive than open heart surgery, and recovery time may be faster. However, this is still a new procedure. The devices used for this procedure are still changing, so the improvements and long-term use are not well studied.

# Transcatheter Aortic Valve Intervention (TAVI)

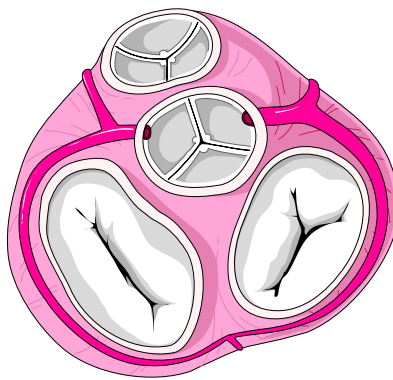
During the TAVI procedure, the new valve is guided into place through a catheter (narrow tube). The catheter is inserted through a large blood vessel in your groin or a small incision (cut) between your ribs. The large blood vessel in your groin is the most common. If this is not possible, your health care team may use an artery in your neck or chest.



## Transcatheter aortic valves

The valve is made of natural tissue from the heart of a cow or pig. This tissue is attached to a flexible metal mesh frame or stent (tube) that expands as needed. There are 2 types of valves: self-expanding and balloon expandable. The TAVI doctors will decide which type is best for you.

The mesh frame is squeezed onto a catheter. The catheter is inserted into your artery and guided to the aortic valve opening in your heart where it is implanted inside your existing valve. Once the new valve is implanted, the catheter is removed. The valve starts working immediately after the catheter is removed.



Normal heart valves

## **Your health care team**

Your health care team includes cardiologists, cardiac surgeons, cardiac anesthesiologists, radiologists and cardiac nurses. The members of your health care team work together to make sure you are getting the best care.

## **Getting Ready for Admission**

### **Dental visit**

If you have your own teeth and have not seen your dentist in the last 6 months, book a dental appointment before your TAVI procedure. If your dentist tells you that you need dental work (e.g. extractions, an infection treated, etc.), this needs to be done before your TAVI procedure.

### **Before your procedure**

There are things you can do before your procedure to lower your risk of complications:

- Stop smoking – ask your health care team about the Smoking Cessation Program.
- Reach your ideal body weight – ask your health care team about the Cardiac Health & Wellness Program, connecting with local dietitians or weight loss programs approved by the Heart Health Program.
- You may want to talk with your family about financial and legal matters and consider such things as Personal Directives or Enduring Powers of Attorney. Please bring any legal documents for medical directives with you to the hospital.

# Getting Ready for Your Stay in the Hospital

You will be in the hospital for about 2 to 5 days after your procedure.

## What to bring

The hospital is not responsible for your belongings. Please do not bring any jewelry or more than \$20 in cash. Your clothing and other belongings, including your glasses, dentures and hearing aids, will be given to your support person on the day of your procedure. Please bring the following:

- All of your medications, including all over-the-counter medications, in their original containers. After the team has reviewed your medications, they will be sent home with your family.
- Shaving kit (battery operated, not electric)
- Soap
- A box of tissues
- Toothbrush and toothpaste
- Lightweight housecoat that opens all the way in the front
- Non-slip, closed toe, flat slippers. You should come wearing flat walking shoes or sneakers. You will be walking (including on stairs) as part of your therapy and need safe well-fitting footwear.

Cell phones, laptops and other electronic devices are not allowed to be used in the Coronary Care Unit (CCU) or Cardiovascular Intensive Care Unit (CVICU) rooms, as they may interfere with the monitoring equipment. Cell phones, laptops and tablets may be used in the family room or in the regular cardiology inpatient areas. Please check with the nursing staff before using electronic devices. A public phone is available for local calls and long distance calls with a calling card.



# Preparing Ahead for Going Home

You will need help at home after your procedure. We recommend that you arrange for a family member or friend to stay with you for your first week at home. If this is not possible, you may choose to hire a homecare worker or arrange for a short-term stay in a convalescent care facility at your expense. If you are not able to make homecare arrangements, please tell the TAVI nurse coordinator. They may be reached at 902-473-7885. The QEII Heart Health Program will work with you to try and coordinate your procedure date for when home support is available.

If you think you may need government assistance for medications or homecare after your procedure, please contact the Department of Social Development at 1-866-441-4340 to see if you qualify. These arrangements are your responsibility and must be made before you come for your procedure.

Accommodations for family and friends are not available at the hospital. A list of accommodations is available on the nursing units or from the nurse coordinator at 902-473-7885. Reduced rates are usually available for family and friends of patients.

You can't drive for at least 4 weeks after your procedure. Please arrange for transportation home, as well as someone to help you with driving until you are able to do so. Your cardiologist will tell you when you can return to driving.

# What to Expect

## The day before your procedure

On the day before your procedure, you will come to the Cardiac Day Unit (CDU) on the 6<sup>th</sup> floor of the Halifax Infirmary at 11 a.m. You may meet with members of your health care team, including nurses, doctors and anesthesiologists. Your health care team is there to advise you and answer any questions you or your family may have. Please bring your medications with you.

## Who will I see?

### Admission clerk

The first person you will see is the admission clerk on Cardiac Day Unit 6.1 (CDU). Please have your Provincial Health Card ready.

### Nurses at CDU

Your nurses will ask you for details about your medical condition and home situation. They will also do a physical assessment. If you need assistance, there is a call bell at your bedside.

### TAVI Nurse Coordinator

Using books, pamphlets and videos, you and your family will receive instructions before and after the procedure. This is a good time to ask the questions you have written down in the back of this guide.

### Anesthesiologist

The anesthesiologist (doctor who gives you medication to help you relax for your procedure) will visit you to explain about the medications and check if you have any allergies or medication intolerance. They will tell you if you will need general anesthesia or conscious sedation.

### Interventional cardiologist/Cardiac surgeon

This doctor will see you before your procedure to review your consent for the procedure, talk about any possible risks and answer any questions you may have.

## The night before your procedure, you will prep your skin as follows:

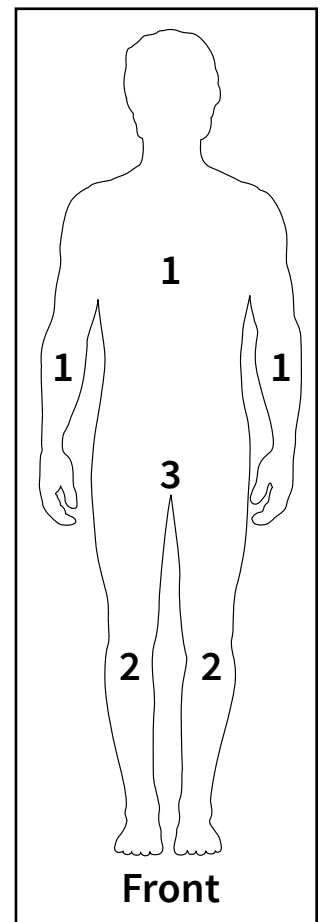
- Shower or bathe. **After one hour**, use CHG pre-moistened cloths according to the numbered steps below.
- Your skin should be completely dry and cool before applying CHG.
- Do not use lotions, moisturizers or makeup. Water and ingredients commonly found in personal care products can lower the antiseptic effects of CHG.
- After you use the CHG cloths, do not shower or bathe. CHG works best when left on the skin. **Let the CHG dry completely. DO NOT RINSE OFF.**
- **Use 3 CHG cloths the night before surgery, making sure to reseal the package so the cloths do not dry out overnight.**
- **Repeat the skin prep with the remaining 3 cloths the morning of your surgery.**

### Use cloths on the following areas:

1. Using the 1st cloth, gently wipe your neck and chest:
    - › Start at your chin and end at your belly button.
    - › Make sure to wipe from shoulder to shoulder.
  - Still using the 1st cloth, wipe both arms:
    - › Start at your shoulder and end at your fingertips.
  2. Using the 2nd cloth, gently wipe the inside and front of both legs:
    - › Start at your ankle and wipe towards your groins.
  3. Using the 3rd cloth, gently wipe your groins.
    - › Make sure you wipe in any skin folds (not inside genitals).
- After using the 3 cloths, let areas dry for 1 minute.
  - Do not rinse any part of your skin.
  - Dress in clean clothes.

### Notes:

- Prep the numbered areas. Avoid contact with eyes, ears, and mouth.
- When applied to sensitive skin, CHG may cause skin irritation such as a temporary itching sensation and/or redness. Showering or shaving right before applying CHG may make this worse. If itching or redness continues, rinse the areas with warm (not hot) water and stop using CHG.
- It is normal for the skin to have a temporary “tacky” feel for a few minutes after the antiseptic solution is applied.



## **The day of your procedure**

In the morning, you will do another wash to prepare your skin for the procedure. Staff will use special clippers to remove body hair. Please do not use razors to remove your own hair. Men may shave their face if they wish. Goatees, short beards and moustaches do not need to be removed.

You may have an intravenous (IV) started, as well as oxygen. You may be given a medication (either by IV or pill) to help you relax. We encourage close family members to be present at this time. If you are sleeping, it's best for your family to sit quietly and let you sleep.

You will be taken to the Cardiac Catheterization Laboratory on the 6th floor about 30 minutes to 1 hour before the procedure. Your family will be shown to the waiting area outside the Coronary Care Unit (CCU) where the doctor will talk with your family after your procedure.

At this time, we will give your belongings (such as glasses, dentures, hearing aids) to your family, so that they will have them ready for you after your procedure.

## **During the TAVI Procedure**

Your procedure will take about 1 to 1.5 hours, or sometimes a little longer. You will be given general anesthetic or conscious sedation, depending on what is right for you. This means that you will sleep or feel fully relaxed during the procedure and not feel any pain.

For procedures requiring general anesthesia, a doctor will put a breathing tube in your mouth. This tube is connected to a breathing machine. Usually the breathing tube is removed before you are fully awake. If, however, you are quite sleepy after the procedure, the tube may stay in until you are more awake.

All other equipment, which may include IV lines, a heart monitor, a chest tube, a temporary pacemaker and a urinary catheter (tube to drain your bladder), will be put in after you are asleep or fully relaxed with medications.

# After Your TAVI

## Coronary Care Unit (CCU)

After your procedure, you will be transferred to the CCU. Your family members may visit you within a short time of your return from the Cardiac Catheterization Laboratory. You may still be drowsy for several hours. The nurses and doctors will assess you and then bring your family in to visit. You may have up to two visitors at one time while you are in the CCU. The phone number for the CCU is 902-473-3422.

Please choose one family member to get information about your progress. This family member can then pass the information on to other family members and friends. Your chosen family member should leave their contact information with the unit clerk. Limited information can be given over the phone.

When your health care team feels that you are ready, you will be transferred to an inpatient bed in a unit that provides care and monitoring for cardiac patients. The doctor will decide where you will be monitored.

## Visitors

Family presence is very important for the healing process. It gives patients the support they need, when they need it, from the people most important to them. You will decide who is part of your family and your preferences for visiting. We will work with you to include their presence during your hospital stay. There is a rest period from 2:30-3:30. No visitors are allowed at this time.

## Pain control

The amount of pain experienced after this procedure varies from person to person. It is very important to tell your nurse if you feel discomfort or have trouble breathing, moving or coughing. They will give you medication as prescribed by your doctor. It is very important to control your discomfort, as this will let you do your breathing exercises and other activities that are essential to your recovery. Good pain control will help with your healing.

## **Activity, breathing and exercise**

- You may feel very tired after the procedure and want to sleep. You will be helped to sit up for 5-10 minutes to dangle your legs over the edge of the bed. Later you will sit in a chair for 30-45 minutes. At this time, you will be expected to start your deep breathing exercises with help from the nurse. These breathing exercises are very important, as they help to expand your lungs and prevent pneumonia.
- You will be able to eat and drink. Visitors should check with the nurse before giving you any liquids, as they need to be measured. Heart healthy meals are provided.

## **The day after your TAVI Procedure**

You will sit in a chair for a longer time and walk around the unit a number of times with help. You may still feel tired, but the more you work at your activity, the quicker you will recover. We will continually monitor your progress. We will monitor your heart rhythm using a portable transmitter carried around your neck. This monitor will set off an alarm at the nurses' station if there are any problems. The IV in the side of your neck will likely be stopped by today. Your urinary catheter will be removed.

You will have an echocardiogram and blood tests. You may still need oxygen. You may have a fast irregular heart rhythm that feels like palpitations or fluttering. You may also feel short of breath. This is common and is easily treated with medications. We encourage your family to be with you so that they can learn about your recovery and be better prepared to help when you go home.

### **You will be working towards:**

- Getting in and out of bed with very little help.
- Doing your breathing exercises properly and cough effectively.
- Walking with minimal help and possibly on your own for at least 5 minutes, 5 or 6 times a day.

# Getting Ready for Discharge

Expect to stay in the hospital for about 2 to 5 days after your procedure. Your readiness for discharge depends on the type of procedure you had and how quickly you recover. Everyone recovers at a different rate. The stitches in your groin will dissolve on their own.

**Before going home, it is important to arrange for:**

- Someone to take you home.
- Someone to help you at home and stay with you for 7 days.

**The TAVI nurse coordinator and bedside nurse will make sure you have:**

- Prescriptions for your medications.
- A letter explaining your procedure for your family doctor.
- Discharge information for you and your family about your care and recovery.

Sometimes people may return to their local hospital or need homecare for a time to help with specific medical needs. Your health care team will decide whether you need these services and talk with you about what to do next.

# Going Home

## Managing at home

You and your family must start planning for your return home before your admission to the hospital. You cannot drive yourself home, so please arrange for someone to drive you home. If you have a long drive, it's a good idea to stop and stretch along the way. You should see your family doctor within a week of returning home from your TAVI procedure. You are responsible for making this appointment.

You must not lift, push or pull anything weighing more than 10 pounds for the first 2 weeks after you leave the hospital after this procedure. Even though you may feel ready to go back to your normal activities, we recommend that you take it easy for at least 1 month after you leave the hospital. If you need to climb stairs, try to limit this to a couple of trips a day for the first week. When you are stronger, you may go up and down stairs as needed.

You will not be able to drive a car for 4 weeks after your procedure. If you are still feeling dizzy or lightheaded, or are having trouble with your incision (cut), talk to your family doctor before driving.

Each day you will feel better and stronger and will be able to do more. You should do as much as you can for yourself. There will be some days when you may feel tired and a little down; these days will happen less often over the next few weeks. If you feel tired during your first week at home, have a short nap. Try to do a little more of the exercises you were shown in hospital each day.



## **Your incisions (cuts)**

It is normal to have a small bruise or soft lump at the incision site (site where the tube was placed for the procedure). It is also normal to have bruising at the site, sometimes spreading down to your thigh. Check your incision site every day.

Call your doctor or TAVI nurse coordinator right away if you notice:

- › A lump that is getting bigger or an area that continues to be red and warm
- › Yellow drainage from the incision site
- › Numbness in your leg that gets worse
- › Severe discomfort at the incision site

Wear lightweight cotton clothes next to your incision(s). Nylon or synthetic underwear can keep the incision damp instead of letting it stay dry. Women should avoid wearing pantyhose for the first week at home.

## **It is OK to take a shower as long as you follow certain precautions:**

- Use warm (not hot) water.
- Do not rub the incision line.
- Do not use perfumed soaps, lotions or creams on the incision line.
- Gently pat your incision dry with a clean towel.
- Do not rub the incision.
- Use separate towels for the waist up and the waist down.

## **Pain or discomfort**

You can expect discomfort to gradually lessen as you continue to heal. If you start to have more pain, contact your doctor. Call your doctor or the TAVI nurse coordinator if you have:

- › Flu-like symptoms, such as feeling unusually tired
- › Fever

## Medication

Your medications will probably change after your procedure. The TAVI nurse coordinator will go over your medications with you. **Take ONLY the medications prescribed at the time you leave the hospital.** Make sure you know all of your medications: the name, what it does, how much to take, when and how to take it, and side effects. **NEVER take more or less of your medication, or stop taking your medication, without talking with your doctor first.**

## Blood thinners

Some people who have had a TAVI procedure or who have irregular heartbeats need to keep their blood thinner. This is done by taking a medication that thins the blood and makes it take longer to clot. There are different medications that are used.

You may be asked to take aspirin every day. Aspirin is available over the counter. We usually recommend baby aspirin, 81 mg once a day. You may also be advised to take a medication called Plavix<sup>®</sup> (clopidogrel) for the first 3-6 months. It is taken by mouth, 75mg once a day.

You may be prescribed warfarin to thin your blood. Some patients may be prescribed other medications, such as dabigatran (Pradaxa<sup>®</sup>), rivaroxaban (Xarelto<sup>®</sup>) or apixaban (Eliquis<sup>®</sup>). Your cardiologist will talk with you about how these medications work and what side effects they may have.

Your cardiologist will decide which medication is best for you. You may be asked to take one blood thinner or a combination of two or more medications.

Because your blood takes longer to clot than usual, you may find that you bruise more easily. Call your family doctor right away if you have:

- › Pink or red urine (pee)
- › Black bowel movement (blood in your poop)
- › Severe headaches or abdominal (stomach) pain
- › Heavy bleeding from the nose or gums
- › Brown or red vomiting
- › A lot of bruising

## Things to remember

- Take your medications exactly as prescribed by your doctor. Never stop taking your blood thinner(s) without talking with your doctor and never take 2 doses at once.
- Do not take over-the-counter or herbal medications without talking to your doctor or pharmacist, as some of these medications may increase the chance of bleeding.
- Talk to your pharmacist if you have any questions about your medications.
- If you are going for dental work or surgery, tell your dentist or surgeon that you are taking anticoagulants (blood thinners).
- Carry ID that shows you are taking blood thinners and wear a MedicAlert® bracelet.
- Eat a consistent amount of foods with higher amounts of Vitamin K. These foods will affect how the blood thinners that you are taking work. These foods include green leafy vegetables, green tea, cauliflower, Brussels sprouts and large amounts of vegetable oil.

## Antibiotics

If you have had a TAVI procedure, you need to tell your dentist or surgeon before any dental work, surgery or examinations considered invasive, such as rectal or bladder exams, so that they can prescribe antibiotics for you to take before any procedure.

These types of procedures may cause an infection that can affect your heart valve. Feeling generally unwell and tired without getting better can be a sign of an infection. Other signs include fever, chills or sweating. If you have any of these symptoms, see a doctor right away.

## Fluid intake

You may need to limit your fluid intake for a few weeks after your procedure. Some people retain (keep) fluid in their body, which can make them short of breath. This extra fluid can make your feet, ankles and legs swollen and puffy. Your nurse will tell you about any fluid restrictions after your procedure. Fluids include beverages such as tea, coffee, water, fruit juice, milk and pop, as well as frozen yogurt, sherbet, Jell-O®, soups and broths.

## Exercise

Below is an exercise program for you to follow. We would like you to start with a walking program, because it is a safe and easy way to exercise. Start at Step 1. When this gets easy, move on to Step 2. You should reach Step 4 within about a month after your procedure, but listen to your body and move through the steps at your own pace.

Step 1	5-6 walks per day (for 5-10 minutes each)
Step 2	2-3 walks per day (for 10-15 minutes each)
Step 3	2 walks per day (for 15-20 minutes each)
Step 4	3-5 walks per week (for 20-30 minutes each)

When you first go home, you may walk outdoors if the weather is OK. A good place to start walking is in a shopping mall, as the surface is flat, the temperature is controlled and you can avoid bad weather. Have someone go with you at first as you gain more confidence. Start with a flat walk and avoid hills until you can walk on a flat surface for at least 15 minutes without feeling too tired or short of breath. When you start with hills, stop at times to rest.

Wait one hour after eating before exercising. Do not exercise if you are too tired from other activities, or if you have a cold, flu or other illness.

There are two ways to make sure that you are not exercising too hard or doing an activity that is too hard for you:

- Watch your breathing! If you are unable to walk and talk at the same time, you are working too hard. Slow down or stop and rest.
- Watch your pulse! It is safe for your heart to beat 20-30 beats per minute faster than when you are at rest.

**STOP AND REST if you feel unwell or you have any of the following:**

- › Pain or tightness in your chest, jaw, arms, neck or back
- › Dizziness or confusion
- › Feeling that your heart is racing or has a different type of beat
- › Nausea, shortness of breath and sudden fatigue (tiredness)

**Go to the nearest Emergency Department if these symptoms do not go away within 15 minutes.** Contact your family doctor if these symptoms go away but you are still worried about them.

## Tips to help your appetite

It is important to go back to eating a well-balanced diet as soon as possible after your procedure. Many people find that they don't feel hungry for the first few weeks after the procedure. You may find both the taste and texture of food seem different. Here are some tips to help you eat well. **Healthy eating promotes healing.**

- **Eat 6 or more small meals throughout the day.** Several small meals can give the same nutrition as 3 large meals. This will also help prevent nausea (feeling sick to your stomach).
- **Plan nutritious snacks throughout the day,** such as low fat pudding, low fat yogurt, low fat cheese and crackers, or peanut butter on toast.
- **If food leaves a metallic aftertaste,** try eating lemons, other tart fruits or fruit-flavoured sour candy. Don't try this if you have a sore throat or mouth, as it could be painful.
- **Constipation** (not being able to have a bowel movement) can be a problem. Prunes, prune juice, fruits, vegetables, and whole grain breads and cereals will help with constipation.

Before you go home, ask about your cholesterol level. If you need a special diet, such as low fat or low cholesterol, ask to see a dietitian. Bring a family member with you to the appointment. If you have any questions or trouble with eating, the dietitian can help. You can also ask your family doctor for a referral to see a dietitian in your local area.

## Followup at the QEII

You will have a followup appointment with your TAVI doctor and nurse coordinator in 4-6 weeks. We will arrange for you to have an echocardiogram before your followup appointment. You will be given your followup appointment date and time by phone and/or mail. We may arrange for further follow-up appointments at 6 months and then once per year through your cardiologist. We will tell you whether you need to have an echocardiogram with each of these followup visits.

## On behalf of the TAVI Team:

We hope that this guide will help you with a healthy and quick recovery. If you have any questions, please write them down on the next page. Bring this guide with you when you come to the hospital for your procedure.

What are your questions?  
Please ask. We are here to help you.

**Questions for my health care team**

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**Looking for more health information?**

Find this pamphlet and all our patient resources here: <http://library.nshealth.ca/PatientGuides>

Contact your local public library for books, videos, magazines, and other resources.

For more information, go to <http://library.novascotia.ca>

Connect with a registered nurse in Nova Scotia any time: call 811 or visit <https://811.novascotia.ca>

Learn about other programs and services in your community: call 211 or visit <http://ns.211.ca>

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*Please do not use perfumed products. Thank you!*

**Nova Scotia Health Authority**

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The information in this pamphlet is to be updated every 3 years or as needed.