Form: D-8826

Repair of Your Thoraco-Abdominal Aortic Aneurysm (TAAA)

Information for patients who are preparing for surgery

This guide gives you important information about:

- your aneurysm and its repair
- what to expect before, during and after surgery
- what you can do to have a healthy recovery
- who to call if you have any questions

Your Name:	
Your Vascular and Cardiovascular Surgeons:	Dr. Thomas Lindsay Dr. Maral Ouzounian Dr. Jennifer Chung
Yours Pre-Admission visit date:	
Date of your hospital admission:	

Please let us know if you have any questions or needs so that we can better care for you and your family. Our goal is to make your journey as smooth as possible.

What's Inside

Questions About TAAA Repair

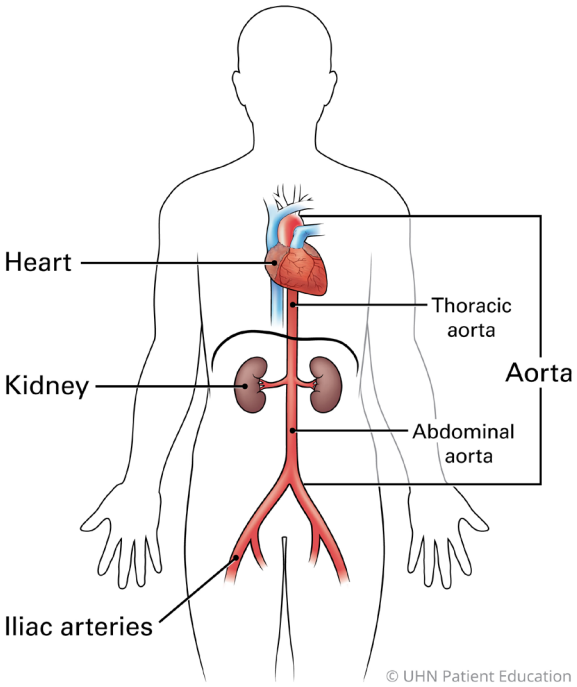
What is a TAAA repair?

Thoraco-**A**bdominal **A**ortic **A**neurysm repair is the name of the surgery recommended to replace the unhealthy part of your aorta.

What is the aorta?

The aorta is the largest blood vessel in your body. It carries oxygen-rich blood from your heart to all parts of your body.

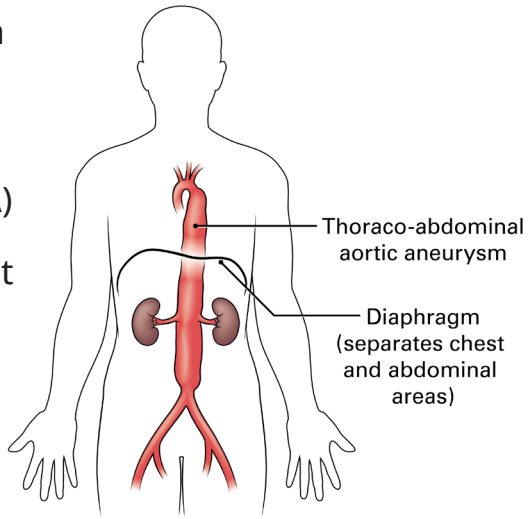
Your aorta runs through your chest and abdomen. The part in your chest is called the **thoracic aorta**. The part in your abdomen is called the **abdominal aorta**.



What is a thoraco-abdominal aortic aneurysm?

An aneurysm is a bulge, or balloon-like swelling, on the wall of a blood vessel. Aneurysms are named based on where they are in your body:

- An aortic aneurysm in your chest is called a Thoracic Aortic Aneurysm (TAA)
- An aortic aneurysm is in your abdomen is called an Abdominal Aortic Aneurysm (AAA)
- An aortic aneurysm that involves your chest and continues down into your abdomen, it is called a **thoraco-abdominal aortic aneurysm or TAAA**.

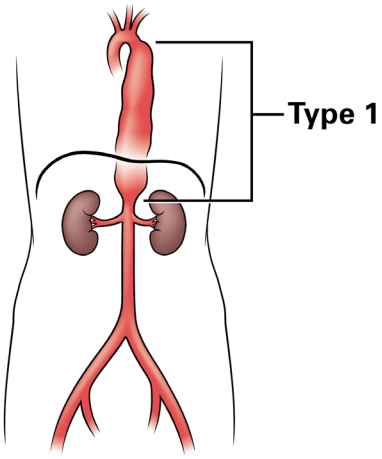


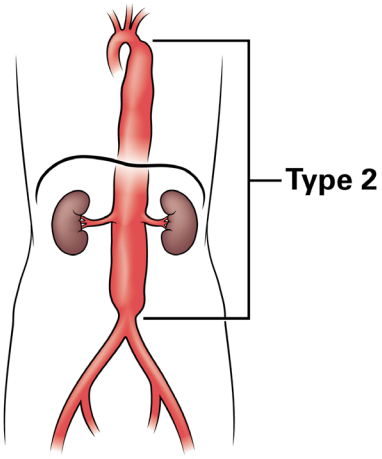
Are there different types of thoraco-abdominal aortic aneurysms?

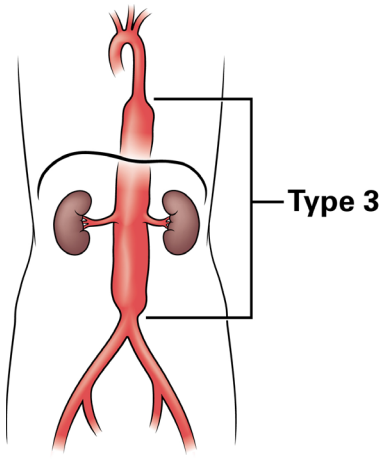
Thoraco-abdominal aneurysms are the most complex of aortic aneurysms because of their length and location.

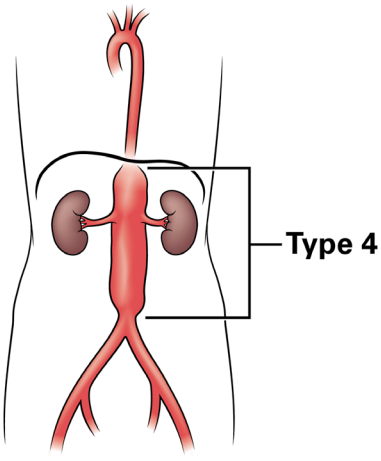
Thoraco-abdominal aneurysms are “typed” according to the amount of the bulging of the aorta within the chest (thorax) and abdomen:

- **Type 1** involves most of the descending thoracic aorta and the upper part of the abdominal aorta to the renal arteries.
- **Type 2** involves most of the descending thoracic aorta and most of the abdominal aorta, extending past the renal arteries to where the aorta divides to feed into the legs.
- **Type 3** starts lower down the descending thoracic aorta and involves most of the abdominal aorta, extending past the renal arteries to where the aorta divides to feed into the legs.
- **Type 4** involves most or all of the abdominal aorta, extending just up to the diaphragm and extending past the renal arteries to where the aorta divides to feed into the leg.









How is the TAAA repair done?

TAAA repair is a very complex procedure and requires a highly skilled health care team. There are different ways to do the surgery depending on the type of your aneurysm and you as an individual. Your team will talk with you about whether an **Open surgery** or **Endovascular Aneurysm Repair** (EVAR) approach is right for you.

Before the procedure, a spinal drain is inserted into your back to help protect your spinal cord around the time of surgery. It also lowers the risk of paralysis after surgery.

During an **OPEN surgical repair**, your surgeon makes a long incision (cut) along the left side of your chest, between the ribs and down towards the belly button (umbilicus) in the lower abdomen. The weakened part of your aorta is replaced with a fabric tube called a graft.

An **Endovascular Aneurysm Repair** (EVAR) is a less invasive way to manage your aneurysm. A catheter is inserted into an artery in your groin and a device called a stent graft (fabric tube) is put into your aorta to seal off the aneurysm from the inside.

The grafts are stronger than the weakened aorta and allows blood to flow to your organs but takes the pressure off the aorta.

What are the risks and possible complications of this surgery?

As with any surgery, there are some risks. Your surgeon will discuss these with you before your surgery.

Possible complications may include:

- bleeding
- death
- delirium
- heart attack
- longer ventilation (more than 48 hours)
- bowel ischemia (not enough blood flow to the bowels)
- stroke
- trouble swallowing
- wound infection
- kidney failure
- spinal cord damage (paralysis)

How long will I stay in the hospital?

You can expect to stay in the hospital for 10 to 14 days after your procedure. How long you stay will depend on:

- your general health
- the results of the surgery
- your recovery

Our plan is for you to go home or to rehabilitation as soon as we feel it is safe for you to do so. Your team will work with you and your family to plan your discharge from hospital.

Preparing for Surgery

What tests will I need to have?

Before your surgery, you may need:

- CT scans of your chest and abdomen. These tests give your surgeons detailed images of your arteries and the surrounding areas.
- Heart tests to see if your heart is strong enough for the surgery. These tests may include one or more types of echocardiogram and a cardiac angiogram.
- Ultrasounds of your legs and neck arteries
- Blood tests
- Breathing tests (also called pulmonary function tests)

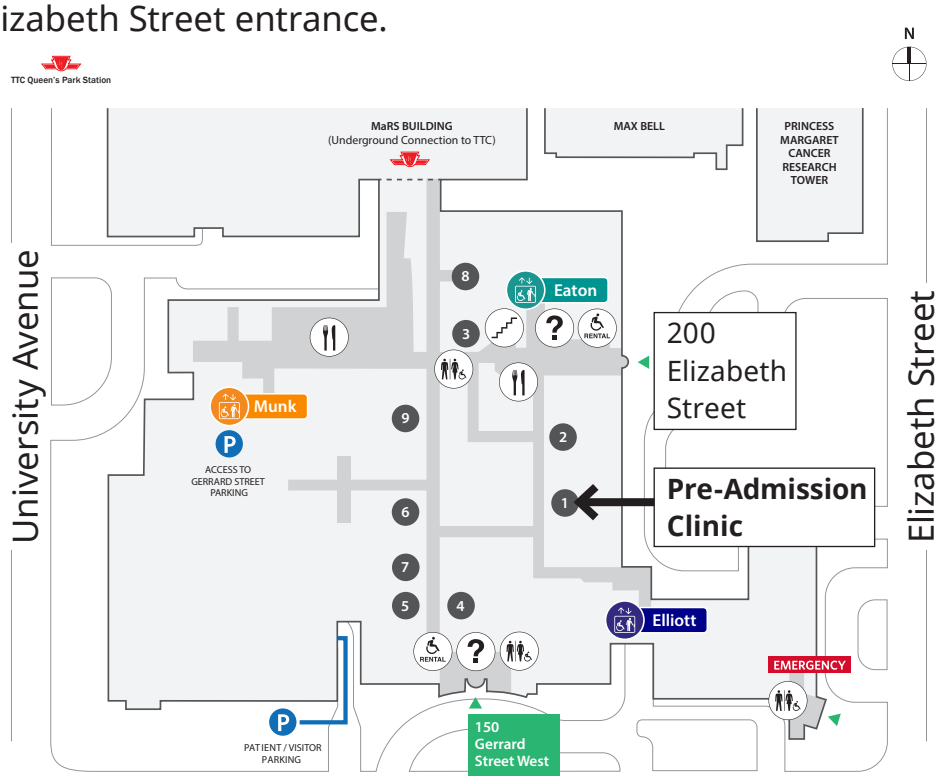
When do I visit the Pre-Admission Clinic?

You will have an appointment at the Pre-Admission Clinic about 2 weeks before your admission date Pre-Admission Clinic visits can last from 3 hours to the entire day, depending on your needs.

What happens at your Pre-Admission Clinic visit?

- You will fill out paperwork so you can be admitted to hospital.
- You may have tests, including blood tests, a chest x-ray and an electrocardiogram (ECG) to check your heart.
- A nurse will ask you questions about your health and help you prepare for surgery and recovery at home. You will learn how to do deep breathing and coughing exercises that keep your lungs clear and prevent infection (such as pneumonia) after surgery.
- A nurse or pharmacist will review all your medications. They will tell you which medications to stop before surgery, such as blood thinners.
- An anesthesiologist, a specialist doctor, will meet with you so you are prepared for your spinal drain and general anesthesia for surgery.

The Pre-Admission Clinic is at Toronto General Hospital on the Ground Floor near the Elizabeth Street entrance.



Important!

If you cannot come to this visit, call 416 340 4800 ext. 3529 to reschedule. You cannot have surgery without a pre-admission visit.

What should I bring to my Pre-Admission Clinic visit?

Please bring:

- ☐ Your Ontario health card (OHIP)
- ☐ Any other medical insurance information you need for your hospital stay
- ☐ Contact information for your family doctor and pharmacy
- ☐ Your “History and Physical” form, filled out by your family doctor
- ☐ All medications you are taking, in their original bottles. This includes prescription medications, and the medication, vitamins, supplements, herbs and natural products that you buy without a prescription.
- ☐ A copy of your power of attorney for personal care and/or advance directives.

Your Admission to Hospital

You will need to be admitted to the hospital 1 day before your surgery to the Cardio Vascular Intensive Care Unit (CVICU) so the spinal drain can be inserted.

On the day of your admission to CVICU for spinal drain insertion:

- you must shower or bathe at home to clean your skin and reduce your chance of infection after your surgery.
- do not wear perfume, scented lotion, make-up or contact lenses.

Check in at the Admitting Department at Toronto General Hospital Ground Floor near the Elizabeth Street entrance.

What should I bring?

On the morning of your admission please bring:

- ✓ Your Ontario Health Card (OHIP)
- ✓ A list of the medications you are taking
- ✓ Personal care items such as toothbrush, toothpaste, soap and deodorant
- ✓ Non-slip shoes or slippers

Bring few personal belongings when you are admitted. This is because your first days of recovery will be in the Intensive Care Unit where there is limited storage space.

When you are well enough to go to the 4th floor Vascular Unit, your family or friends can bring more of your personal belongings.

You are responsible for your belongings. Please do not bring jewelry or anything valuable.

- If you need to bring valuables to the hospital, they will be locked away during your hospital stay.

TAAA Surgery

What can I expect before surgery?

CVICU Admission for spinal drain insertion

After you are admitted and registered in Admitting, you can come to CVICU on the 2nd Floor of Gerrard Wing. Take the Eaton Elevator to the second floor and follow the sign to CVICU. Check in at the Nursing Station.

The anesthesiologist will talk to you about spinal drain insertion and answer your questions. After the anesthesiologist inserts the spinal drain, you will stay in a bed in the CVICU until you go for surgery.

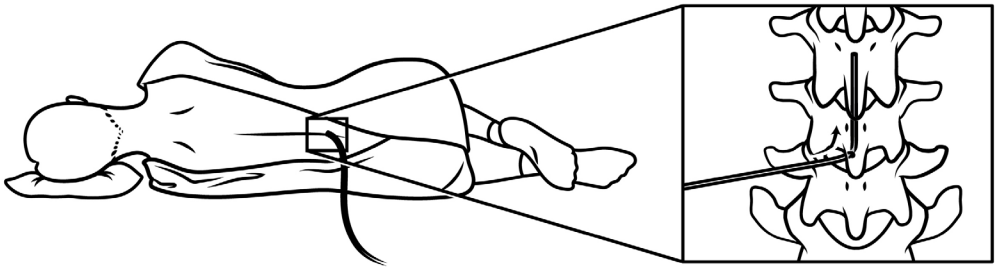
Why do I need a spinal drain for this surgery?

The lumbar drain will collect cerebrospinal fluid (CSF) during and after surgery. CSF a clear fluid that surrounds and protects your spinal cord and brain.

Too much pressure in the fluid around the spinal cord can slow blood flow to the area and can lead to loss of sensation, weakness, and even paralysis of the legs and lower part of the body. Draining CSF reduces the pressure in the spinal cord and decreases the risk of paralysis.

What can I expect during the spinal drain placement?

You may be asked to lie on your side with your knees bent toward your chest or to sit up at the side of the bed and lean forward over a table. The anesthesiologist will let you know.



Freezing is put in the area before the catheter is inserted. The drain catheter is put into the fluid that surrounds your spinal cord.

The anesthesiologist will inject some medicine to numb your lower back. The drain catheter is a thin, flexible, soft plastic tube pushed through the skin into the fluid sac around your spinal cord.

You should not feel any pain, but you may feel pressure against that part of your back. You will be asked not be move during the procedure. The drain site is covered with a clear dressing. The drainage tubing is attached to a drainage bag and hung on an IV pole beside you in bed.

What can I expect after spinal drain placement?

The nurse will watch you closely once the drain is inserted to make sure it is working properly.

The nurse will:

- check your drain and the dressing often. The spinal drain is not actively draining CSF during the night before your surgery.
- ask you questions and have you follow instructions (such as lift up your leg from the bed, bend your knee and then straight your leg, and move your feet)
- check the blood flow to your legs

If you need to change your body position, always ask your nurse for help to prevent the drain from moving around. **Family and friends should never move you or the bed or touch your drain.**

You can have a light supper the night before your surgery.

How long will the spinal drain be in place?

The spinal drain may stay in for up to 7 days after surgery. Your health care team will decide when your spinal drain can safely be removed.

At that time, the dressing and tube will be removed. This procedure should not cause you any discomfort. A dressing will be placed over the area.

What can I expect during surgery?

Your TAAA surgery is complex and may take up to 10 hours

- The surgical team will come to see you in CVICU around 7:00 am on your surgery day and then take you to the operating room.
- The surgical team will help you move onto the operating table and connect you to monitors. The surgeon will mark the area of your body where you will have the surgery with a marking pen.
- The anesthesiologist will give you medication so you will be asleep during the surgery and not feel any pain.
- The anesthesiologist will then put a breathing tube in your throat and connect it to the breathing machine (ventilator).
- A tube called a urinary catheter will be placed in your bladder to drain your urine.
- When the surgery is over, the surgeons will close your incisions with stitches and staples, and cover them with a dressing.
- Your surgeons will speak to your family after the surgery to let them know how you are doing.

After surgery you will be moved back to the (CVICU).

- You will be asleep. You will breathe through a tube attached to a breathing machine (ventilator). You will be able to talk once this tube is removed.
- Your heart beat will be monitored through sticky patches (electrodes) attached to your chest.
- You will have an intravenous (IV) tube in the side of your neck and in both of your arms. These are used to measure heart function, blood pressure and/or give you fluids and medications.

- You will have the spinal drain in your back, attached to a drainage bag and hung on an IV pole at your bedside.
- You will have a tube in your bladder (urinary catheter) to collect urine.
- You may have 2 small catheters in your chest incision. These catheters will be connected to pumps that deliver pain medication to the incision site continuously. This is called a nerve block.
- You will have a tube called a nasogastric or “NG” inserted either through your mouth or nose, and down into your stomach. It is connected to suction to empty out your stomach. It may be removed at the same time as the breathing machine.
- Your health care team will decide when your spinal drain can safely be removed. This is usually 48 to 72 hours after surgery.

Recovering in CVICU

Cardiovascular Intensive Care Unit (CVICU)
Nursing Station Phone: 416 340 3550

What can I expect after surgery?

- Two nurses look after you until you are stable.
- If you have a breathing tube in place, it is taken out when you are able breath on your own with a minimal support from the breathing machine.
- You will be on bed rest because of the spinal drain. Your nurse will help you to change your body position.

- The nurse will check you regularly to make sure you are comfortable. Let the nurse know if you are having pain.
- The nurse, physiotherapist and patient care assistant will help you gradually increase your activity, from sitting up in bed to sitting in a chair.

How can I manage my pain?

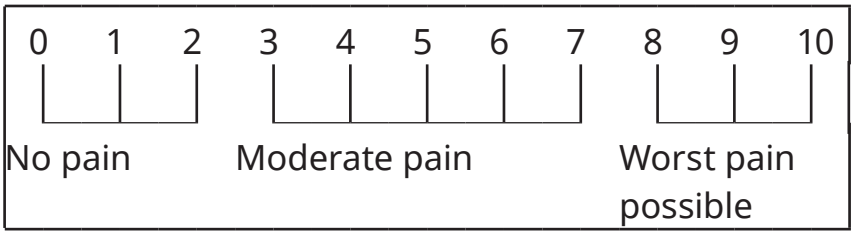
Everyone feels pain and discomfort differently after surgery. We will work with you to manage your pain.

Good pain control is one of the keys steps in your recovery. You will have some pain and discomfort after surgery.

Describe your pain to your health care team using a scale between 0 to 10. "0" means no pain "10" means the worst pain you can imagine.
This helps us understand how much pain you are having and how well the pain medication is working.

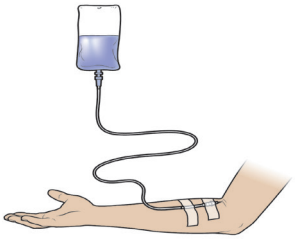
How to use the pain scale:

Pick a number that tells how much pain you are having.



You will have medication to control your pain. Pain medication can be given in different ways which include:

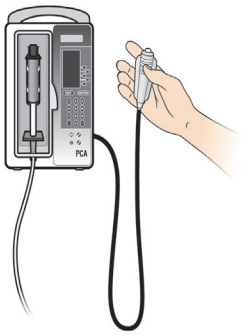
Intravenous (IV) medication



Intravenous means inside the vein. Pain medicine can be given into the vein through a small needle or a plastic tube called a catheter.

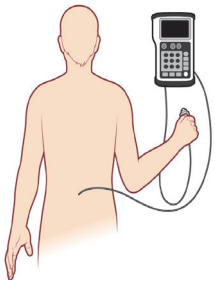
Tell your nurse when you have pain. Do not wait for the pain to get worse.

Intravenous (IV) Patient Controlled Analgesic or PCA



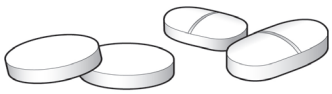
This is an intravenous medicine that you give yourself by pressing a button when you have pain.

Epidural Catheter



Epidural pain and numbing medicine goes through a thin tube into your back.

Medication by mouth



When you are drinking well, you may be given pain medication to swallow.

Can I have visitors?

Yes, CVICU has an Open Visiting Policy. Your family can wait in the CVICU Waiting Area outside the unit (next to the Eaton elevator). A volunteer will arrange for your family to visit you.

How might I experience after surgery?

Hoarse voice

- Voice hoarseness after this type of surgery is common. Surgery near your neck or upper chest can damage to the nerves that serve your voice box. Sometimes breathing tubes used in surgery can cause swelling (inflammation) that presses on the vocal cord nerves.
- Most voice hoarseness is temporary, and your voice should improve within a week. Sometimes it takes up to 6 to 8 weeks. If your voice hoarseness has not gotten better before you are ready to go home, a doctor will look at your vocal cords using a mirror or a thin, flexible tube (known as a laryngoscope). Talk to your health care team about how to improve your voice should the hoarseness continue.

Delirium

- Delirium is a condition that causes a person to become confused. Delirium is temporary and usually starts over a few hours or days. It is quite common after surgery.
- Delirium is more common in people who are over 75 years old, smoke, drink alcohol, take sleeping or anti-anxiety pills, use illicit drugs regularly, or have early signs of memory loss (dementia).
- Tell your nurses or doctors if you have any of these risk factors before your surgery. They can help you through this difficult and sometimes frightening time. Generally, the confusion passes within 72 hours.

Mixed feelings and emotions

- Surgery is a major event that can affect you and your family emotionally and physically. Fear, sadness, anxiety, anger, frustration, mood swings or depression can happen before and after surgery. This is normal!
- These feelings can last for a few days or sometimes a few weeks.
- They often go away as you begin to feel more confident and secure in your daily life.
- Recovery is better when feelings are identified and dealt with early. Your health care team can help.

Recovering on the Inpatient Unit

What can I expect on the inpatient unit?

When you leave the CVICU, you will go to the 4th Floor, Munk Building.

4th Floor Vascular/ Cardiovascular Surgical Unit: 416 340 4208

You will wear a heart monitor that sends a recording of your heart activity to a display that the health care team watches.

On the inpatient unit, each nurse cares for several patients, helping them recover and get ready to go home. They will ask you how you are feeling and check

- the pulse, colour and warmth of your legs to make sure the blood flow is good
- that your incisions are healing well
- that your pain is well controlled.

A nurse practitioner (NP) may be part of your care team. The NP is a registered nurse with education and experience in caring for patients after cardiac and vascular surgery, and their families.

A nurse practitioner

- Can prescribe medications, order tests and follow your progress
- Has ongoing contact with your doctors and all members of your health care team
- Helps coordinate your care in the hospital
- Helps deal with concerns about going home

Movement and exercises

Continue to do your deep breathing and coughing exercises to clear your lungs of mucous. This helps to prevent pneumonia.

A physiotherapist may work with you each day to get moving and walking.

- First, you will sit at the side of the bed and “dangle” your legs.
- Next, you will walk a few steps with help. You will gradually increase your activity until you can walk on your own. As you get stronger, you will spend more time out of bed, walking short distances.
- You will have help to gradually increase your activity. Each day you will be able to do a little more activity and walk farther.

Change your position often to avoid pressure sores

- Do not put pressure on your heel for long when standing or lying down. Putting pressure on an area with poor blood flow can cause a painful blister that does not heal well.
- Change your position while you are in bed to avoid pressure sores on your lower back and hips. Your nurses can help you with this.

Eating and drinking

You will not be able to eat or drink for the first few days after the surgery to allow your stomach and bowels time to recover. As you had a breathing tube in your throat, your will be seen by a Speech Language Pathologist to check that your swallowing is safe before you are allowed to eat for the first time after surgery. You will start with fluids, then eat and drink small amounts at a time until you can return to your usual meals. As your appetite improves, you can have a regular diet.

Showering

You can have a shower 3 or 4 days after surgery. Gently wash your incision with soap and water. Rinse well and pat dry with a clean towel.
Do not take a bath until your incisions are completely healed. Speak to your doctor about this.

Feeling tired (fatigue)

- It is very common to feel tired after surgery. It may take many week or even a few months to feel “back to normal”. Plan rest periods of 20 to 30 minutes during the day. You don’t need to go to bed to rest. Pace yourself and rest after activities. Do not rush your recovery and overdo things. This will slow your recovery.
- Listen to your body and rest if you feel tired.
- Find a healthy balance between exercise and rest and good nutrition.

What plans are made for when I leave the hospital?

- Your health care team will assess your condition and talk with you and your family about how you are recovering. Together you will decide when you are able to go home. This is called **discharge planning**.
- As this is a complex surgery, you may need rehabilitation (rehab) after the surgery. This is a period of recovery in a special health care facility to help get your strength back.

What do I need to know before I leave the hospital?

During your hospital stay, the health care team will teach you how to care for yourself, so that you know

- how to take care of your incisions
- what exercises to do
- how to manage your pain
- when you can drive, return to work and do your usual activities again such as housework, gardening, exercise and sex
- what warning signs to watch for and when to call the doctor

Your nurse, nurse practitioner or pharmacist will review your medications. Some may have changed during your hospital stay. You will get a prescription for medications that are new or changed, unless you are going for rehab. In that case, you will get any prescriptions you need from the rehab facility.

If you are being discharged home, you should be ready to go home by 11:00 am on your day of discharge.
Please arrange for your ride to pick you up by this time.

Your Recovery at Home

What you can expect

You will continue to recover at home over the next few weeks to months. Your total recovery time will depend on your age and overall health. It may take up to 6 to 12 weeks for a full recovery.

There are many things you can do to help your recovery. If you have any questions, write them down so you can ask them at your follow-up appointment.

Driving

- You will not be able to drive for 4 to 6 weeks after your surgery.

Returning to work

- Depending on the job you do, you may be able to return to work 6 weeks after surgery.
- If your job involves physical labour, you may need to wait at least 8 weeks before returning to work. This will depend on your overall health and your recovery. Please talk with your surgeon.

Taking care of your incisions

- You will have staples (metal clips) on your chest and abdominal incisions.
- Keep your incisions dry and open to air unless they are leaking.
- Check your incisions each day for any new changes. It is normal for your incisions to be slightly red, swollen or painful for 2 to 3 weeks after your surgery. If you have new pain, redness, lumps or more leaking than usual, see your family doctor.
- **DO NOT scrub or use any creams, powders or ointments on your incisions.**

Your personal hygiene

- When showering, let the soap and water run over your incisions. Pat your incisions dry with a clean towel. If there is any leaking coming from your incisions, cover the incisions with clean gauze right after you shower.
- **Do not swim, use hot tubs or take baths until your incisions are totally healed and no longer leaking.**

Tips for Healthy Living

Activity and exercise

- Regular physical activity can help you recover and return to your usual activities as soon as possible. Being active also has long-lasting benefits for your health.
- Start slowly. Take short walks around your house, with rest periods in between. Gradually walk a little farther and a little faster. You are likely to feel tired at first, but this will slowly get better.
    - Plan time to rest during the day.
    - As you get stronger, you can gradually take on your usual activities.
    - **Do not do strenuous activities or lift anything heavy (over 10 pounds or 4.5 kilograms) for 4 to 6 weeks.**

Help at home

- Plan to have someone help you at home for at least 1 to 2 weeks after your surgery. You may need help with laundry, cleaning, cooking and grocery shopping and drives to medical appointments.

Healthy eating

- Eating well helps your body heal and recover. Eat a variety of foods from the four food groups. Choose foods that are low in fat, cholesterol and salt. See Canada's Food Guide for more information about healthy eating.
- Some pain medications can cause constipation. To prevent constipation, drink lots of fluids and eat foods that are high in fibre such as fruits, vegetables, whole grain breads and cereals.

Stay smoke free

- If you smoke, the most important thing you can do is to stop smoking.
- Quitting smoking helps protect your graft and prevent further narrowing of your blood vessels.
- If you need help to quit, talk with your doctor. Help is available with medications, and support (online and in person).
- Visit Smoking Cessation at UHN for helpful information and resources.

Follow-up care

See your family doctor within 1 to 2 weeks of going home. This is important so you can have general checkup and any other follow up care that you may need.

Your staples and stitches can be removed about 2 weeks after your surgery by either your family doctor. You will see your surgeon about 8 after surgery.

When to Get Medical Help

If you have new symptoms and don't know what to do, do not wait. Get medical advice or help if you are concerned.

Visit your family doctor or go to a walk in clinic if you have non-urgent concerns such as:

- Leg swelling that doesn't go away
- New mild pain, redness or swelling around your incisions
- Drainage or leaking from your incision that is increasing or smells bad
- New lump around your incision site
- Diarrhea (loose, watery poo)
- Not passing any gas or feeling constipated for more than a few days
- Vomiting (throwing up) and not able to eat or drink
- Chills and a fever above 38.5 °C (100.4 °F) for at least 24 hours

Call 911 or go to the hospital emergency department if you have an emergency such as:

- Numbness in your arms, feet or legs, or they become cold or painful, or you have trouble moving them
- New pain in your groin, back, chest or abdomen
- Severe pain or swelling at your incisions site
- New shortness of breath
- Feeling dizzy or faint
- You lose control of your bladder or bowels
- You are no longer able to pass urine

Important Contact Information

Who to call if you have questions

- If you have questions while you are in hospital, please ask your nurse or nurse practitioner, or the doctors on the vascular team.
- If you have questions before or after your surgery or need to book your follow up appointment, please call your surgeon's office:

Surgeon's name	Phone
Dr. Maral Ouzounian	416 340 4218
Dr. Thomas Lindsay	416 340 4620
Dr. Jennifer Chung	416 340 4745

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