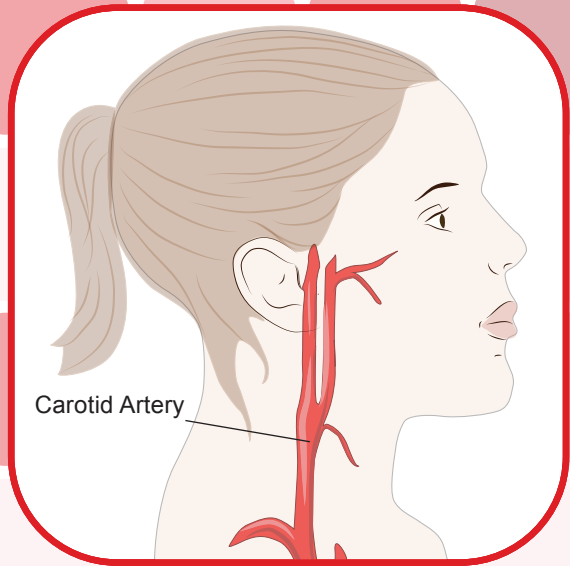


Carotid Arterial Disease

A Guide for Patients and their Families



Centre universitaire
de santé McGill



McGill University
Health Centre

Royal Victoria Hospital
Division of Vascular Surgery

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IMPORTANT: PLEASE READ

Information provided by this booklet is for educational purposes. It is not intended to replace the advice or instruction of a professional health care practitioner, or to substitute medical care. Contact a qualified health care practitioner if you have any questions concerning your care.

This material is also available on the website of the
MUHC Patient Education Office
(www.muhcpatienteducation.ca)

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McGill University
Health Centre

Bureau d'éducation des patients
Patient Education Office



Table of Contents

Introduction	4
What is the circulatory system of the brain?	5
What is carotid arterial disease?	6
What are the symptoms of carotid arterial disease?	7
What can increase my chances for carotid arterial disease?	8
How can atherosclerosis be controlled or prevented?	9
What tests can determine if I have carotid arterial disease?	13
What is carotid arterial disease surgery?	15
Your Surgery: Introduction	16
Before Your Surgery	17
Preparing for your surgery	
Pre-operative visit	18
Things to bring to the hospital	19
Cancelling	20
Evening before	22
Day of Surgery	23
At home	
At the hospital	24
Waiting room	25
After Surgery	26
Post Anesthesia Care Unit	
Pain	
Exercises	27
Side Effects	29
Length of hospital stay	30
Follow-up after surgery	32
At Home	33
Call Your Surgeon or go to the Emergency Room if...	34
Important Resources	36
Notes	38
Help Us, Help Others	39
Map of Royal Victoria Hospital	40

Introduction

This booklet will give you information about carotid arterial disease and its surgical treatment. It contains information about your recovery in the hospital and your return home.

The members of the Vascular Surgical Health Care team invite you to use this guide to help you participate in your care. If you should have any questions, or if you should need further information, please let us know.

If we gave you this booklet in the pre-admission clinic, remember to bring it with you when you are admitted to the hospital. You will not receive another copy.



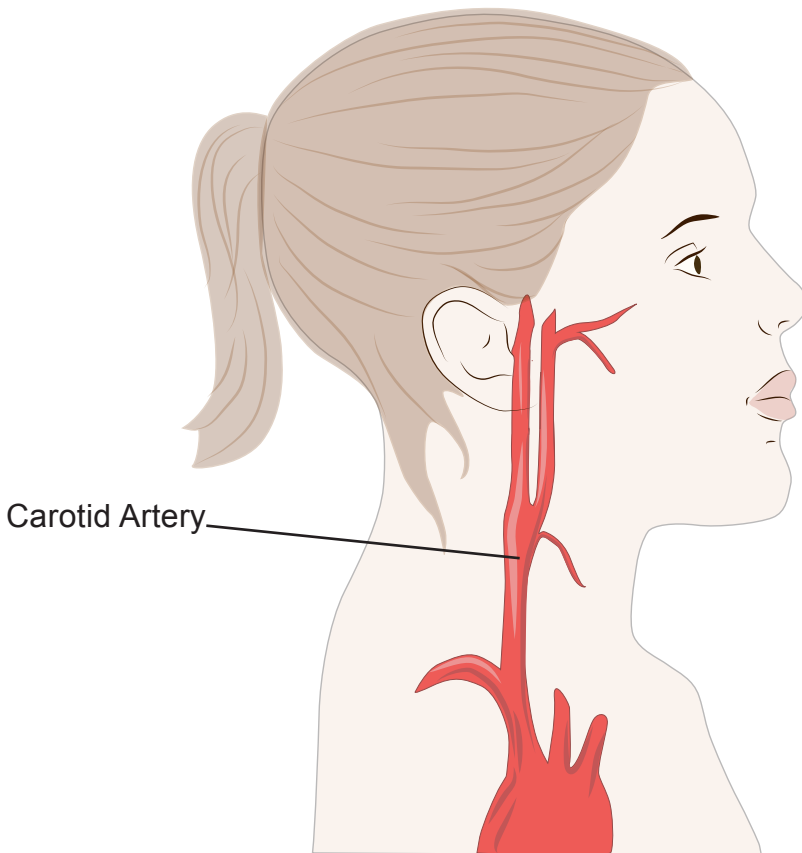
What is the circulatory system of the brain?

To help you better understand carotid arterial disease, you should have a basic understanding of your vascular or circulatory system. The circulatory system is responsible for carrying blood throughout your body.

Blood is delivered to the brain by the 2 large carotid arteries in the front of your neck and by 2 smaller vertebral arteries at the back of your neck.

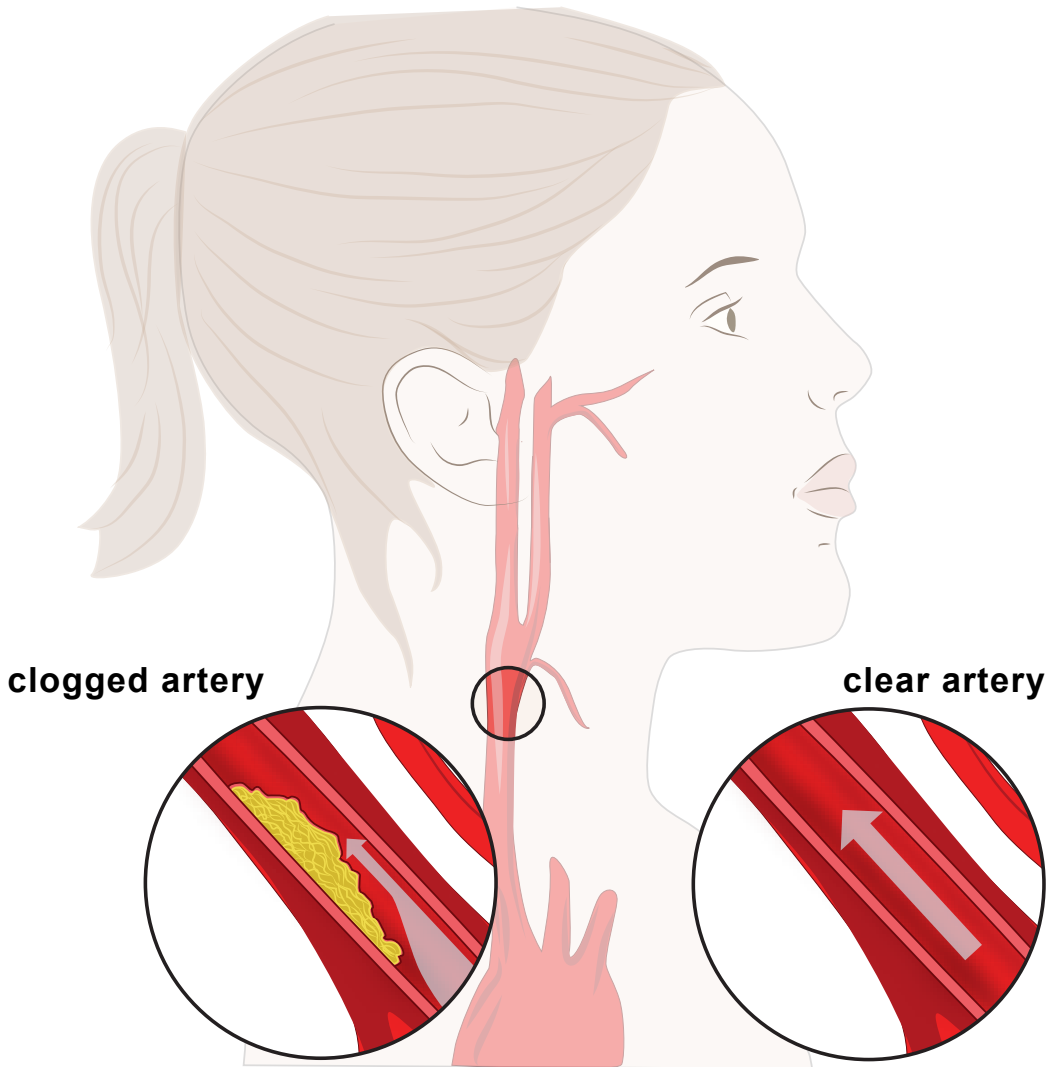
A stroke can occur when:

- the carotid arteries become narrowed and the brain does not receive enough oxygen
- small pieces of clotted blood break off and float to the brain.



What is carotid arterial disease?

There are many arteries, each supplying blood to a specific part of your brain. Normally, the lining of the wall of an artery is smooth and blood easily flows through it. When arteries become narrowed or clogged, this prevents blood from flowing easily. We call this **carotid arterial disease** (or carotid **stenosis**). This is one of the most common causes of stroke.

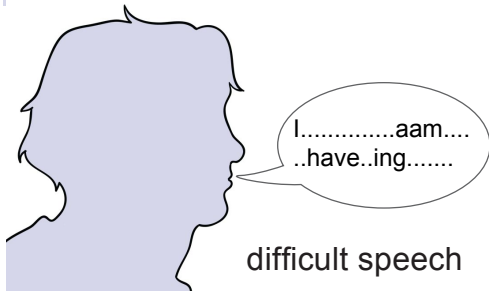
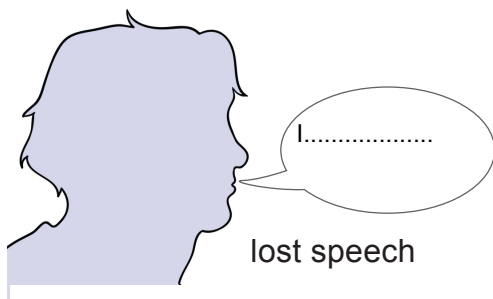


What are the symptoms of carotid arterial disease?

Stroke is the first symptom in many patients with carotid arterial disease. Sometimes before a stroke occurs, symptoms other than stroke can suggest that there is a blockage in the carotid arteries.

Transient ischemic attacks (TIAs) are one of the most important warning signs that you are at risk of having a stroke. Sometimes called “mini-strokes,” TIAs are temporary episodes of dizziness, tingling, numbness, blurred vision, confusion, or paralysis that can last anywhere from a few minutes to a couple of hours. See a doctor right away if you or someone you know has the symptoms of a TIA.

Possible signs or symptoms of a carotid artery blockage may be:



Weakness or
paralysis of your
arm, leg, or face
on one side of
your body.

Numbness or
tingling of your
arm, leg, or
face on one
side of your
body.



Loss of eyesight or
blurry vision in one eye.

What can increase my chances for carotid arterial disease?

Atherosclerosis is the major cause of carotid arterial disease. Although it may occur at any age, atherosclerosis or “hardening of the arteries” generally increases with age.

We cannot always predict who will develop atherosclerosis disease. However, there are some risk factors that will increase your chances of developing this disease.

Many of these risk factors can be modified or controlled:

- Smoking
- High blood pressure (hypertension)
- High levels of blood cholesterol (bad cholesterol)
- Uncontrolled diabetes
- Overweight (obesity)

Other reasons risk factors:

- Age
- Family history of vascular disease



How can atherosclerosis be controlled or prevented?

You can slow down atherosclerosis or carotid arterial disease by changing your lifestyle. Your participation could slow down the progression of your carotid arterial disease and reduce your chances of having a stroke.

QUIT SMOKING!

You have to stop smoking or using any other tobacco products.



Tobacco damages the wall of the arteries and increases the risk of atherosclerosis. Even smoking one to two cigarettes a day is harmful. It decreases the amount of oxygen in your blood and causes the blood to clot more easily. Though it is difficult to stop smoking, only you can decide when to quit and then to act on your decision.

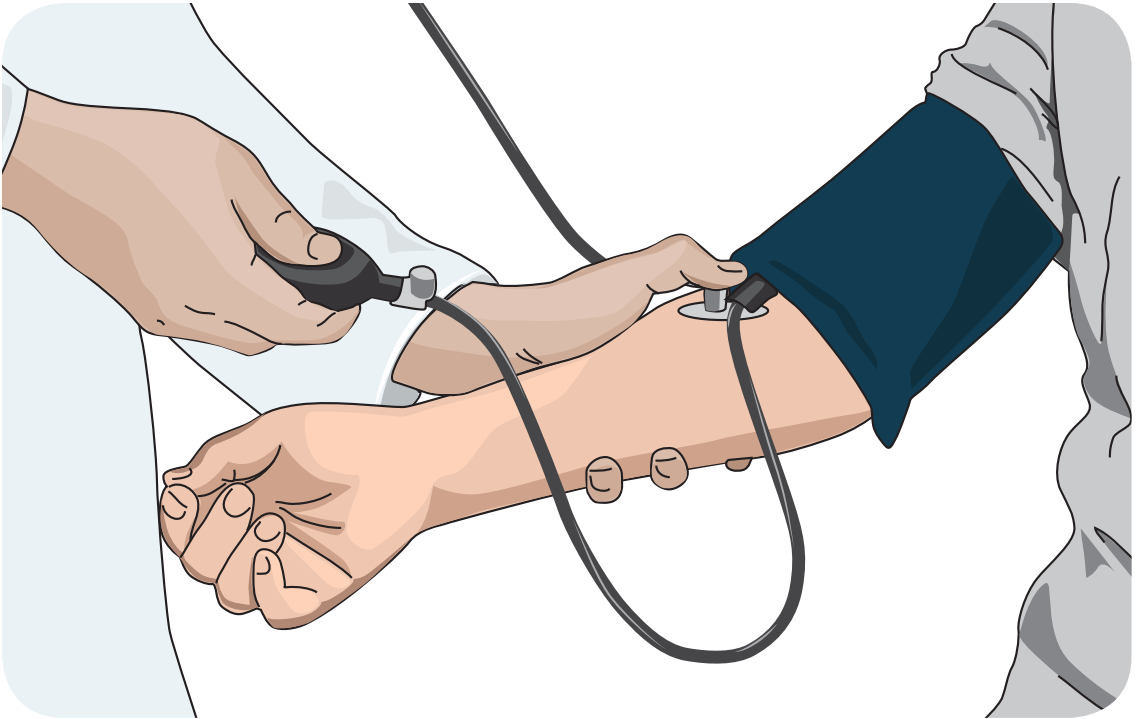
Here are a few suggestions :

- Make a list of the pros and cons of smoking.
- Throw out all your cigarettes and/or tobacco products.
- Talk to your family doctor about the different options to help you quit (example: Nicotine patch®, Zyban®, Nicorette® gum).
- Replace smoking by an activity you enjoy. Occupy yourself with other interests.
- Join a non-smoking group such as the Montreal Chest Institute Smoking Cessation Group or Nicotine Anonymous.

People who avoid smoking and tobacco products reduce their risks of arterial disease.

High blood pressure

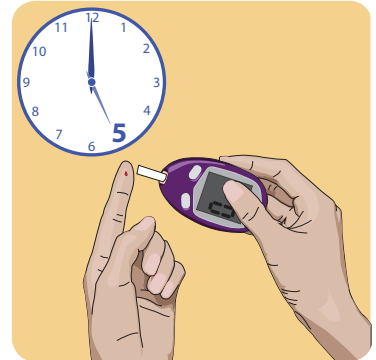
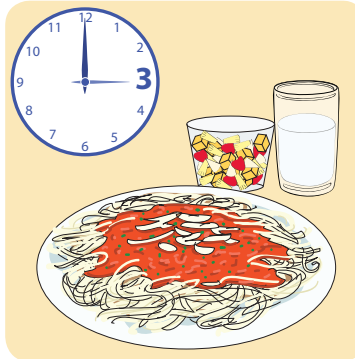
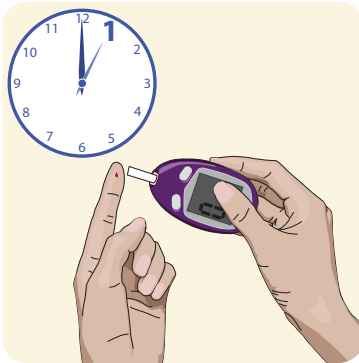
Untreated high blood pressure (hypertension) increases the work on the heart and creates stress on the arteries. Limit the damage of hypertension on your arteries by taking your blood pressure pills as prescribed by your doctor, even if you feel well.



- Your medications control high blood pressure, but they do not cure this problem. If your high blood pressure is associated with stress, learn to control your level of stress. Talk to your family and friends and take time to relax. Seek professional help if stress becomes too overwhelming.
- If your high blood pressure is associated with being overweight, learn to eat healthy foods and lose weight. Seek the help of a dietician, as needed.

Diabetes

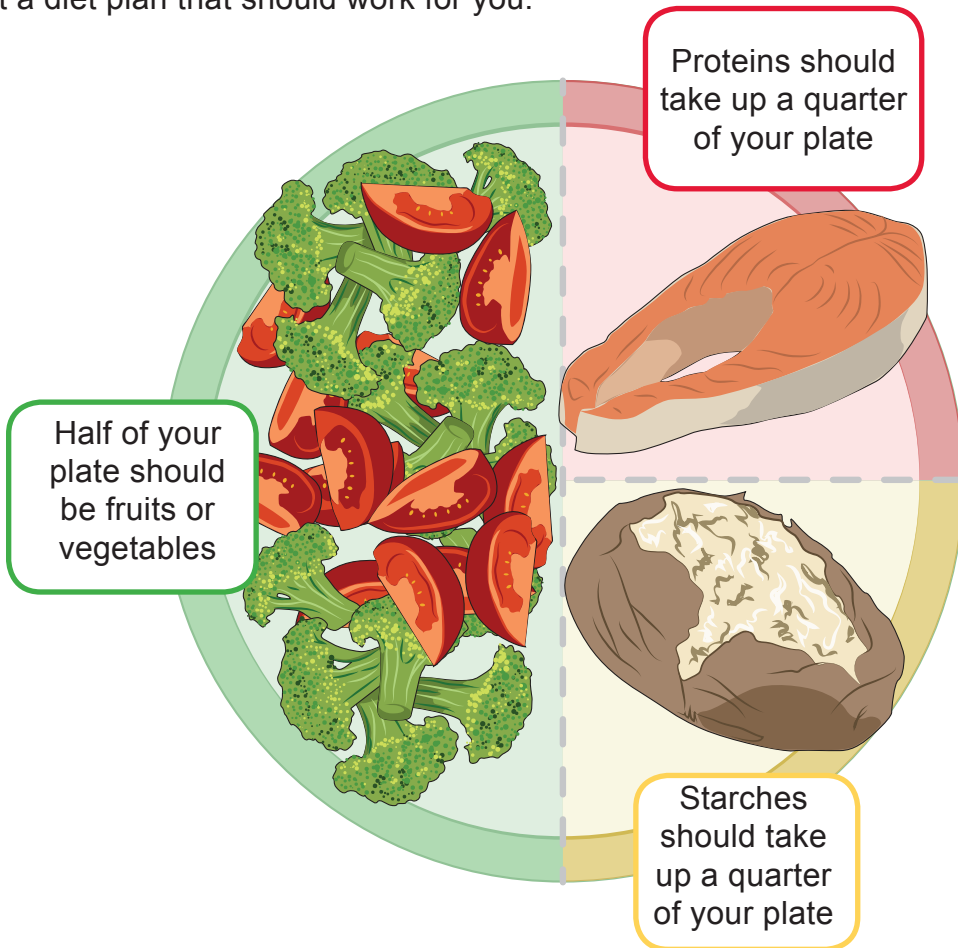
High blood sugar levels make your blood vessels more prone to blockage. Check your blood sugar levels before and two hours after your meals.



If your blood sugar is higher after your meals, consult your doctor. Your dietician, endocrinologist or family doctor can help you adjust your diet and medications if you are having difficulty controlling your blood sugars.

Diet

High cholesterol levels and saturated fats in your diet contribute to plaque and damage the wall of the arteries. To reduce the risk of atherosclerosis, choose foods low in total fat and low in saturated fat. A dietitian can give you information about a diet plan that should work for you.



Your doctor may also suggest a salt restricted diet to help control high blood pressure and/or fluid retention or recommend a general weight reduction diet or diabetic diet.



What tests can determine if I have carotid arterial disease?

If your doctor suspects that you have carotid arterial disease, he or she will order specific tests to diagnose the disease and determine the severity. The following is a list of tests that could be used to assess for carotid artery disease. The most commonly used is the carotid duplex scan. In some cases, but not all, the other tests may be needed to further assess your condition.

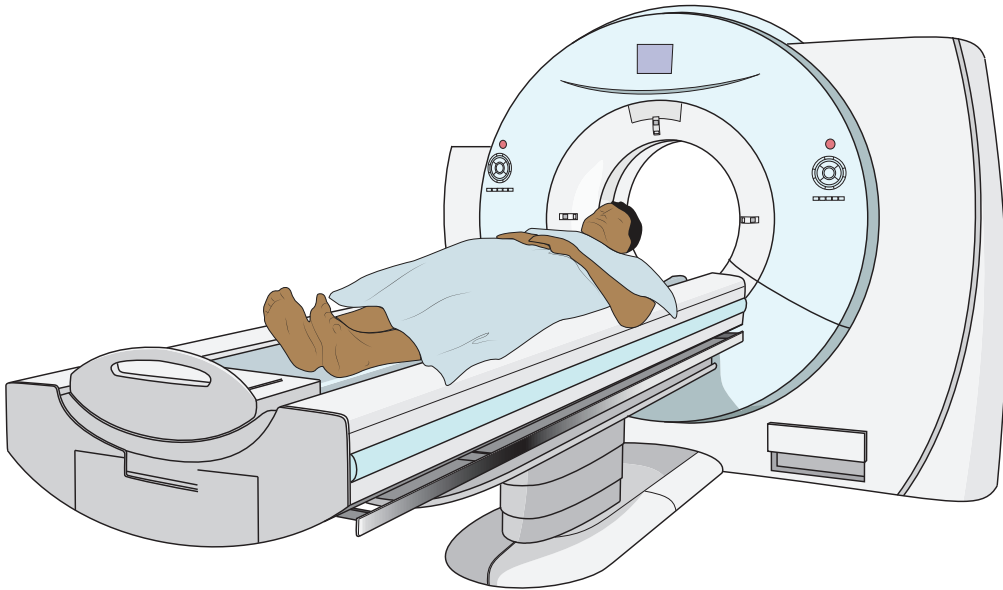
Duplex scanning allows your doctor to locate and grade the severity of the disease. A cold gel is applied on your skin to permit a better contact of the probe. The probe will be moved to better visualize the veins, the arteries and the blood flow of these vessels and can be visualized in a specific area on a screen. There is no risk to you from this test.



CT (computer tomography) uses a CT scanner to produce detailed images of both blood vessels and tissues in various parts of the body. These images help to diagnose a treatment plan.

You will need a test to check how well your kidneys are working. Let your doctor know if you are allergic to iodine.

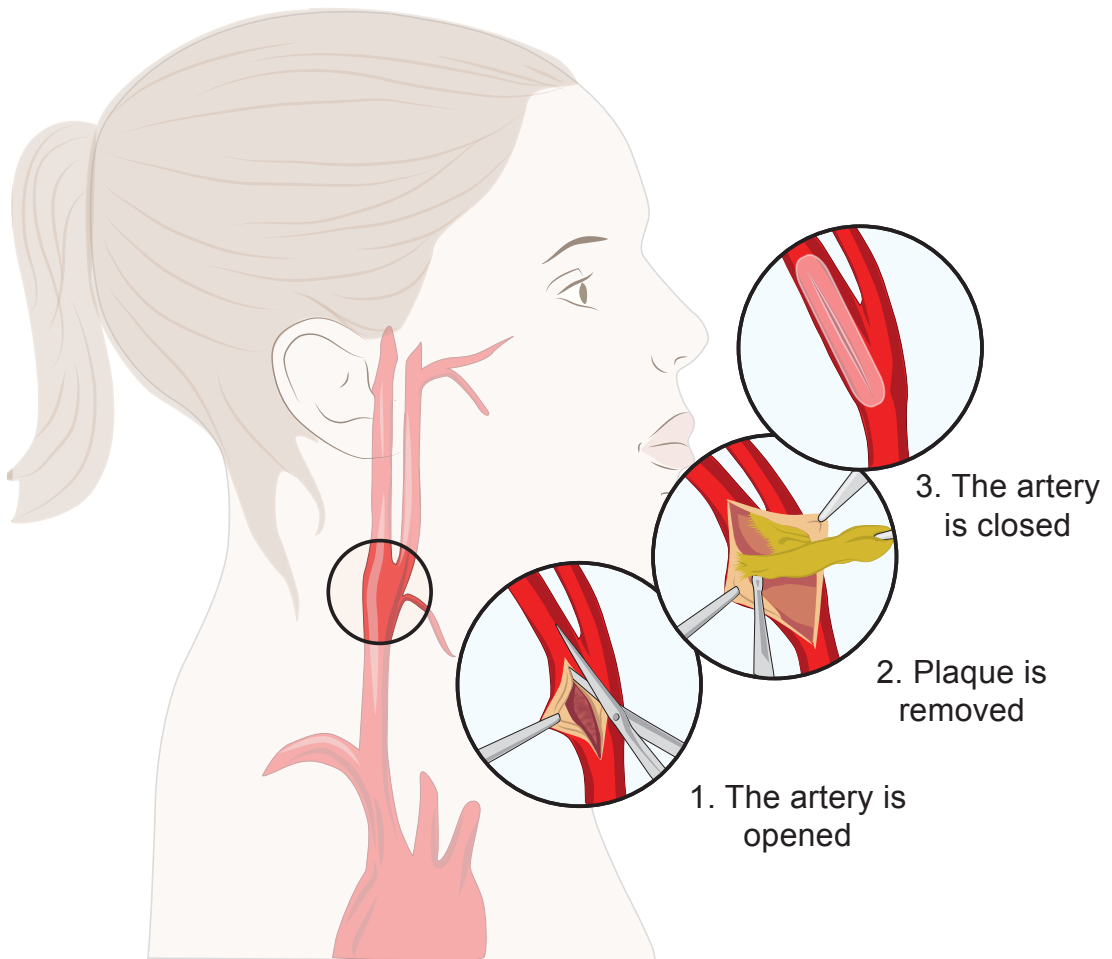
If you are a diabetic and take Glucophage®, you must not take it the day of your CT scan. Your doctor will advise you when to stop and to restart this medication.



What is carotid arterial disease surgery?

Carotid Endarterectomy

Carotid endarterectomy is a surgery during which your vascular surgeon removes the inner lining of your carotid artery if it has become thickened or damaged. This procedure eliminates a substance called plaque from your artery and can restore blood flow. This surgery lowers the risk of stroke.



Your surgery: Introduction

What is same day admission?

A Same Day Admission means that you are coming in to the hospital on the day of your surgery and that after your surgery you will be admitted to a room in the hospital. The number of days that you will stay in the hospital varies based on the type of surgery and your general state of health.

Speak Up

Patients must sign a consent form before going for a planned surgery. Signing a consent means that you are giving permission to your surgeon to proceed with the surgery. We encourage all patients to ask questions before signing their consent for surgery.

Before signing your consent your surgeon must give you enough information so that you can make an informed decision. It is not necessary or expected that you would receive every detail of the surgery.

You need only the information that would be expected to make the best decision. This information should include the risks and likelihood of the risks, the benefits and likelihood of the benefits.



Before your surgery

Preparing for your surgery

- Exercise will help make sure your body is as fit as possible before your surgery. If you are already exercising, keep up the good work. If you are not, start slowly adding exercise into your day.

Exercise does not need to be strenuous to be helpful; in fact, a 15 minute walk is far better than not exercising at all.



- We strongly suggest you stop smoking completely before your surgery, as this will reduce the risk of lung complications after the surgery. Doctors can help you stop smoking by prescribing certain medications.

- Do not drink alcohol 24 hours before surgery.

- Plan ahead, make sure everything is ready for you when you go home after your operation. You may need more help at first from friends or family, with meals, laundry, bathing, cleaning, etc.



- Discharge from the hospital for a Day Surgery Procedure is later that same day. A friend or family member must accompany you.

- Discharge from the hospital for a Same Day Admission could be after one day to several days. Discharge varies based on the type of surgery you have and your general state of health. Please remember to organize your transportation home. Check out time is 11 am.



Tell the nurse as soon as possible if you have any worries about going home.

Pre-operative visit

During your pre-operative visit, you might:

- Have blood tests.
- Have an electrocardiogram (ECG).
- Have a chest x-ray.

You will meet with a nurse who will tell you how to get ready for your surgery and what to expect while you are in the hospital.

You will meet with a doctor or one of the surgical residents (a doctor in training). He/she will ask you questions about your health and health problems and explain your operation, and review the consent form.



- If you are taking medications, the doctor will tell you which ones must be taken the morning of surgery and which medications should NOT be taken.
- If you need to take any additional medication before your surgery, the doctor will give you a prescription for those new medication(s).
- If you have other medical problems, you may be referred to another doctor (specialist) before surgery.

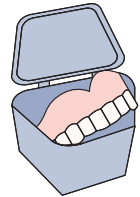
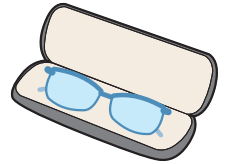
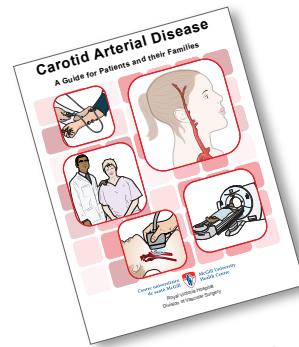
Some medication or herbal products need to be stopped a week or two before surgery. Have your list of medicines with you and the doctor will decide which ones to stop or to continue. Your pharmacist can give you a list of your medications.

Things to bring to the hospital

- This booklet.
- Your valid Medicare card and hospital card.
- Your medications including inhalers or nitro-spray in their original containers.
- If you wear glasses, contact lenses, a hearing aid or dentures, please bring the appropriate containers with your name on them.
- If you use a cane, crutches or walker at home, please bring them with you.
- If you do not speak French or English, please bring someone to translate for you.

If you will be staying in the hospital after your surgery, you might want to bring:

- Any private insurance information you might have (for a private or semiprivate room).
- Bathrobe, slippers, pajamas, loose comfortable clothing.
- Toothbrush, toothpaste, hairbrush, deodorant, mouthwash, soap, Kleenex, shaving equipment, and perhaps earplugs.



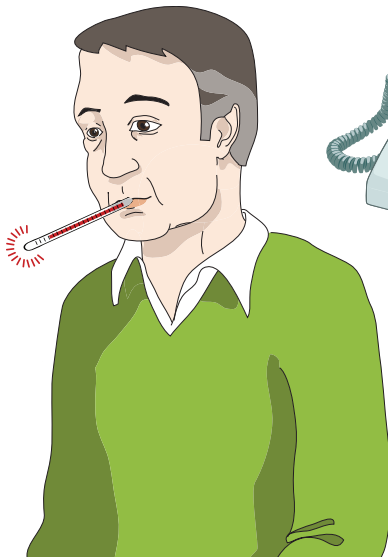
Please leave all jewelry, credit cards and objects of value at home. The hospital is not responsible for any lost or stolen articles.

Cancelling your surgery

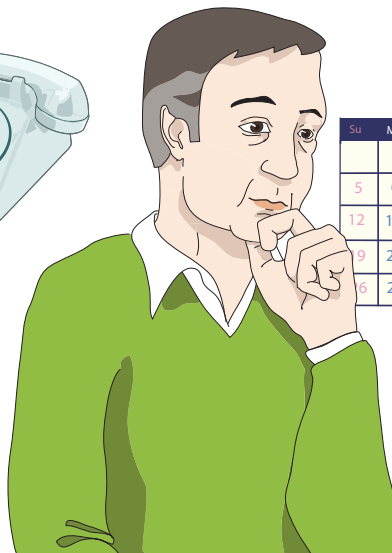
If you get a cold, are not feeling well, or become pregnant, please call your surgeon's office as soon as possible.

If it is not possible to reach your surgeon, call the **Admitting Department:** (514) 934-1934 ext. 31557.

Call to reschedule if:



You are not well.



You need to cancel.

Please keep in mind that the Royal Victoria Hospital is a Transplant and Cardiac Center. This means that your surgery may need to be delayed or cancelled because of an emergency. Your surgeon will reschedule your surgery as soon as possible.

Day before your surgery

The **Admitting Department** will phone you to let you know what time to come to the hospital.

You are usually expected to arrive 2-3 hours before your surgery is planned to start.

The time of surgery is not exact. It may be earlier or later than planned.



If you do not receive a call before 2:00 pm, you can contact the Admitting Department at
(514) 934-1934 ext 31557

Date of surgery:



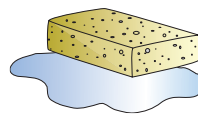
Time of arrival at the hospital:

Room: Admission Department A-1-25. First floor from main entrance A wing, room 25.

If you have any further questions, you can contact the nurses of the Preoperative Clinic at
(514) 934-1934, extension 34913 or 34916,
Monday to Friday, from 1:00 p.m. - 3:00 p.m.

Evening before surgery

Before going to bed, take a shower or bath using one of the sponges given to you to wash your neck.

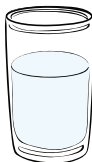


Do not have anything to eat after midnight before your surgery. However, you are allowed to drink some clear liquids such as water, apple juice, carbonated drinks, tea, coffee.

NO milk, NO cream, NO orange juice and NO alcohol.



apple juice



water



coffee/tea



carbonated
drinks

orange juice



milk/cream



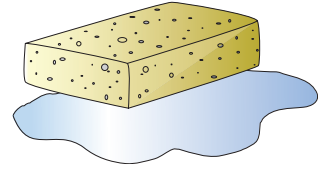
alcohol





You can drink clear liquids up to 2 hours before your surgery. Stop drinking at 5:30 am if your surgery is scheduled for 8:00 am.

Morning of Surgery

- Take a shower or bath using one of the sponges given to you to wash your neck.
- You can wash your face and hair with your regular soap and shampoo.
- Wear clean clothes after your showers.
- On the day of surgery do not wear any lotion, make-up, lipstick, nail polish, perfume, cologne, hairspray, contact lenses or aftershave.
- Take only the medications you were told to take by the doctor, with sips of water only.



Take the following medications
(with sips of water) 

Do not take the
following medications 

At the hospital

Report directly to the Surgical Admission Services (A1.25) at the time given.

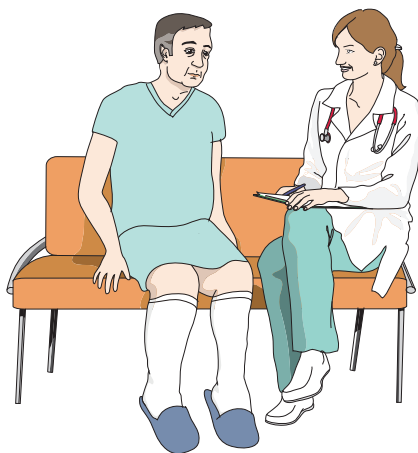
You might have another blood test.

If you will be staying in hospital, the admitting clerk will ask you about the kind of room you would prefer. You will also have to sign a general consent and admission form(s).

Please keep in mind that it is not always possible to have a private or semi-private room

The nurse will help you to get ready for the surgery. He/She will:

- Go through a checklist with you.
- Have you change into a hospital gown.
- Make sure your personal belongings are in a safe place.
- Instruct you on how to put on special tight elastic stockings, if needed. These help prevent blood clots from forming in your legs. You should wear these until you are walking often after your operation.



When the operating room is ready, an orderly will bring you there.

Please note: The time scheduled for your surgery is not exact. Your operation may be earlier or later than planned.

In the Operating Room Area you will meet your anesthetist and the other members of the surgical team.

Waiting room

Family and friends can wait for you in the family waiting area located at S6.28 on the 6th floor of the S pavilion.



Our space is small so we ask that you limit the number of people coming with you. There is a phone available in this room for your family or friend to contact the Post Anesthesia Care Unit (PACU) for updates. Just pick up the phone and it will ring directly into the PACU without you having to dial.

The extension to call for information is 34702 if you are using another phone.

There are coffee shops located on A1 and R1 (Ross Pavilion).

There is a Pharmacy (Jean Coutu) on R1. Bank machines are on A1 and S3 (Surgical Pavilion). The cafeteria is also located on S3.

After Surgery

Post Anesthesia Care Unit (PACU)

- When your operation is over, you will be taken to the Post Anesthesia Care Unit (PACU or recovery room).
- There are no visitors allowed inside the PACU.
- Your vital signs (pulse, blood pressure) will be checked very often.
- Your nurse will check your cut (incision) or the bandage (dressing), if you have one.

Pain Control

- You may feel some discomfort after your surgery; the staff will try to keep you as comfortable as possible. The nurses will ask you to describe your pain using a “pain scale.”

0 = no pain 10 = pain as bad as you can imagine

Ideally we want to keep your pain level below 4 on a scale of 10



Pain relief is important because it helps you:

- Breathe more easily
- Move more easily
- Sleep well
- Recover faster
- Do things that are important to you

Please be specific about where your pain is.

You will not become addicted to pain medication given to you for surgical pain

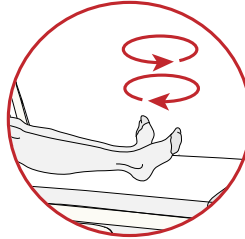
Exercises

After the surgery, you will remain in bed for 12 hours or until the nurse tells you that it is fine to get up. Most patients will be encouraged to sit up in a chair.

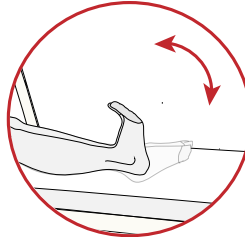
Lying in bed without moving may cause many problems like pneumonia, blood clots and muscle weakness. You can start the following exercises as soon as you wake up, and continue them during your stay in hospital.

Leg exercises

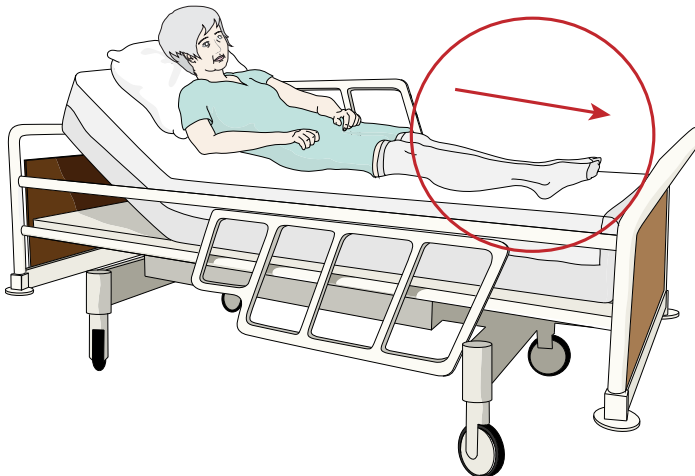
These will help blood circulation in your legs. Repeat these 4 to 5 times every half hour while you are awake.



Rotate your feet to the right and left.



Wiggle your toes and bend your feet up and down.



Stretch your legs out straight.

The day after your surgery you will be encouraged to begin walking and gradually increase your activity.

Breathing exercises

Deep breathing and coughing exercise, and the inspiriometer will help to prevent pneumonia.

How To Use Your Inspirometer



Inspirometer

1. Put your lips tightly around the mouthpiece, breathe in deeply or “pull like drinking with a straw” and try to hold the red ball up for 3 seconds.
2. Remove the mouthpiece, breathe out
3. Completely rest for a few seconds.
4. Repeat this exercise 10 times every hour until you are out of bed and walking in the hallways.
5. Cough up secretions/phlegm to prevent pneumonia.

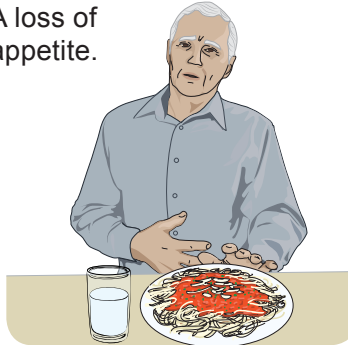
Side Effects

For the first day or so, you may experience some side effects. The following side effects are normal after a surgery and they will resolve:

Feeling groggy from the anesthesia or medications.



A loss of appetite.



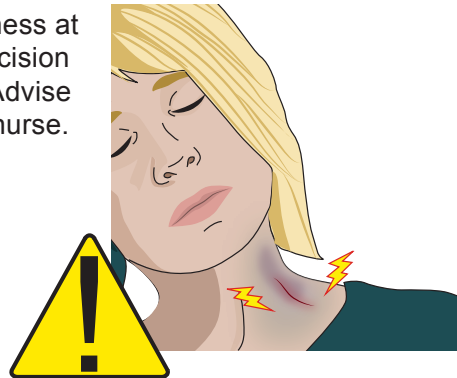
Fever without any signs or symptoms of an infection.



Bruising in the neck area.



Soreness at the incision site. Advise your nurse.



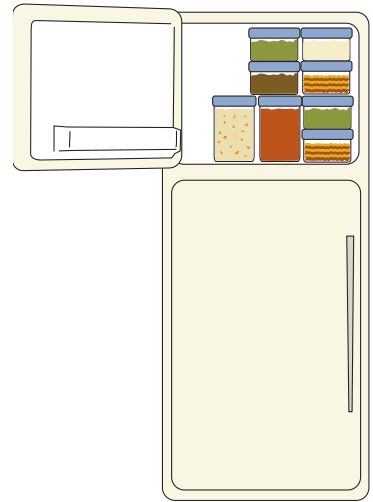
Before you leave the hospital, the Health Care Team will explain which activity level is permitted. Take the time to ask your questions and clarify your doubts.

Length of hospital stay

The length of time in hospital is usually between 24 hours to 2 days. The nurse or the surgeon will advise you when you will be ready to go home. Therefore, it is important to plan your return home in advance:

Ask your family or friends for help, as needed. If you live alone, you might consider household help or staying with friends or relatives until you are stronger.

If possible, prepare some meals in advance and freeze them.



For 2 weeks after your surgery:

- avoid any exercise (such as golf)
- avoid activities that require effort such as lifting objects more than 5 pounds (2 kilos)



If you feel you may have any difficulties related to your return home (ex: cooking, cleaning, bathing, etc.), notify the Health Care Team, as soon as possible. If possible, tell us in pre-admission clinic or prior to surgery.

Follow-up after surgery

Before leaving the hospital, the nurse will give you:

- An appointment with your surgeon in the outpatient clinic and in the Vascular Lab
- An exit prescription
- A summary for your family doctor



IMPORTANT:

If CLSC follow up or nursing care is needed, arrangements will be done by the nurse before you leave the hospital. It is important to continue to visit your family doctor on a regular basis. He/she will reorder your medications as needed and will monitor your health status.



At Home

Once you leave the hospital, your normal activity level will return depending of the type of surgery. Consider resting between activities.

Do not drive your car

After your operation, until you have permission from your surgeon. Your ability to respond quickly may be impaired as you recover from the operation.



Care of the incision site and hygiene

Unless it is contradicted by your surgeon:



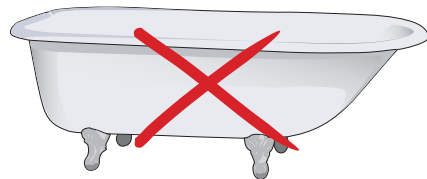
Avoid creams, powders or lotions around the wound.



Do not use alcohol or peroxide to clean your incisions

You may shower 3 days after surgery.

Do not cover the incision during shower.



Do not soak your incision in the tub

Depending on the kind of surgery, the staples may be removed the next day after surgery and sterile strips will be applied. Itchiness and dryness of the site of your operation are normal signs of healing. There will be no stitches to be removed from the incision.

Call your surgeon or go to the emergency room if...

If you experience any of the following signs and symptoms, contact your surgeon immediately and/or go to the emergency room:



Headache that does not go away with Tylenol® or rest.



Increasing redness and warmth around the wound lasting several days.

Any yellowish or greenish foul smelling drainage coming from the wound.





Severe pain.



A fever of 38.5°C / 101.3°F or more with signs and symptoms of infection, lasting more than 24 hours.



Loss of sensation or numbness or paralysis in your face or other body part. Recurrent symptoms like you had before the surgery.

Important Resources

If you have any questions or concerns when you return home, you can call the following: **514-934-1934**

Important Phone Numbers



Vascular Surgery clinician nurse	..... # 43564
Surgical unit Ross 5	..... # 35144
Surgical unit 9 West	..... # 34994
Surgical unit Ross 3	..... # 35003
Surgical unit 8 East	..... # 34985
Your Surgeon	..... 514-843-1524
Surgical outpatient nurse	..... # 35264
Your family doctor	.....
Your pharmacist	.....
Your local CLSC	.....



If you do not know the name or the telephone number of the CLSC in your area, call 811, a telephone medical information service known as Info-Santé available 24 hours a day, 7 days a week.

Other important resources

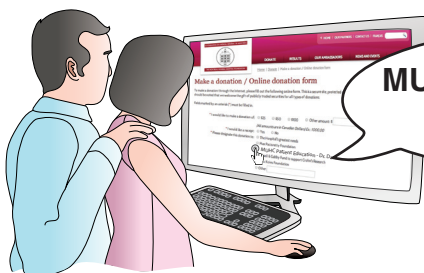
Montreal Chest Institute Smoking Cessation Program	.... 514-843-2080
Quebec Lung Association (www.pq.poumon.ca )	.... 1-888-566-5864
Nicotine anonymous (www.nicotine-anonymous.org )	.... 514-849-0131
Quebec Diabetes (www.diabete.qc.ca/en/index.html )	.... 1-800-226-8464
Quit smoking Centres(www.jarrete.qc.ca/en/default.html)	.... 1-866-527-7383
Vascular Disease Foundation	.... www.vdf.org

NOTES :

Help Us Help Others

Help support the MUHC Patient Education Office! Donations make a huge difference. They help us create health information materials and programs to deliver the best care for life. All patient materials are freely available on the internet to MUHC patients, and to patients and families everywhere.

Make a donation through the Montreal General Hospital Foundation to:



**MUHC Patient Education
Dr. David Fleiszer**



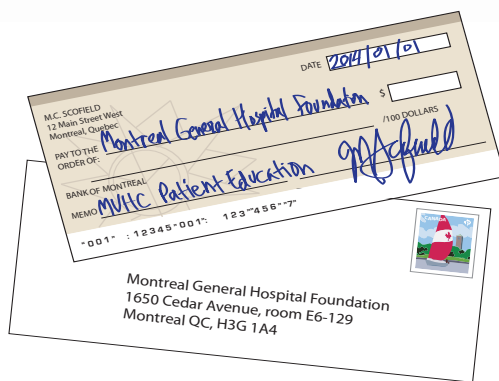
Online: mghfoundation.com

By Phone: 514-934-8230

LA FONDATION DE L'HÔPITAL GÉNÉRAL DE MONTRÉAL



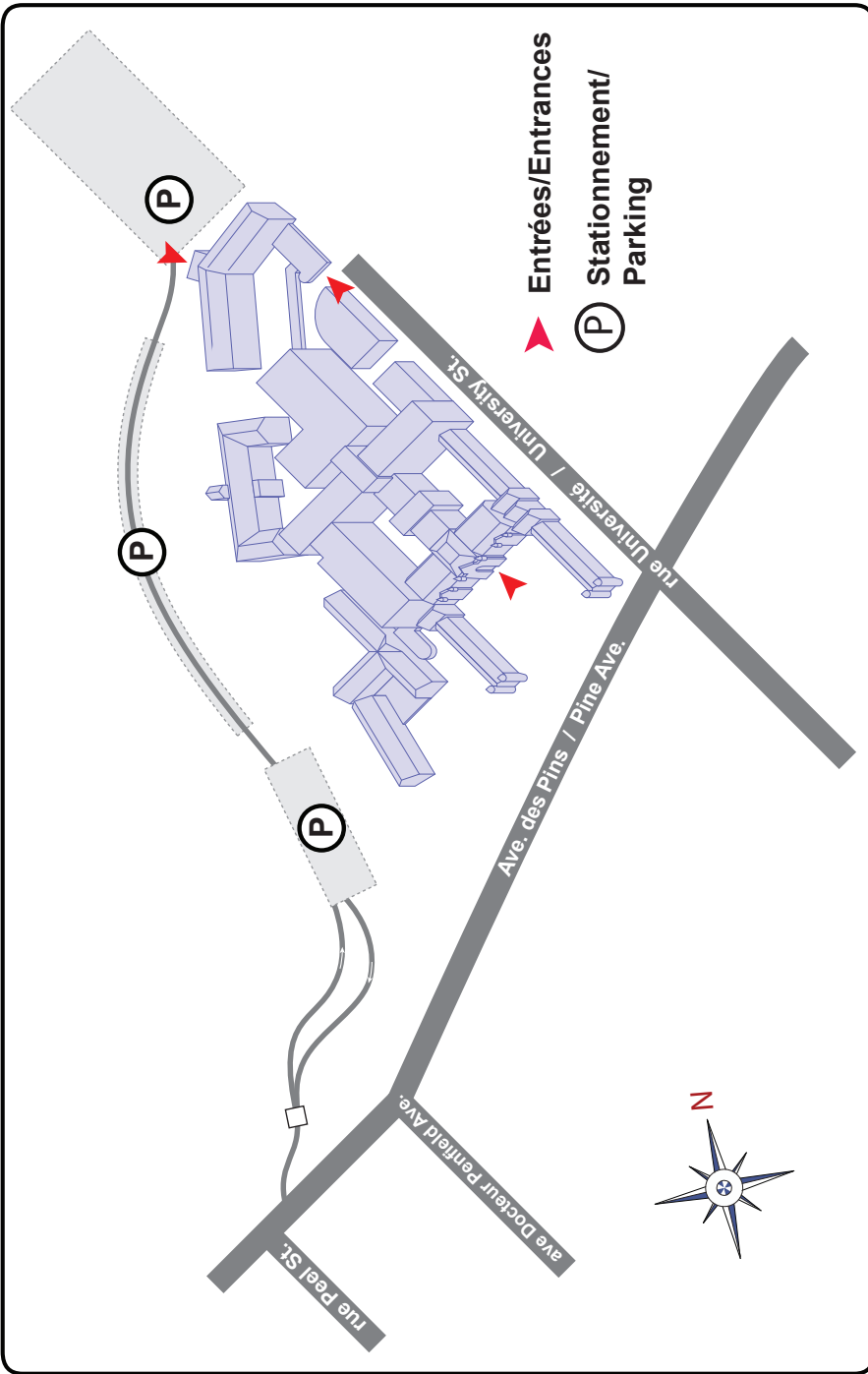
THE MONTREAL GENERAL HOSPITAL FOUNDATION



In Person / By Mail: 1650 Cedar Avenue, room E6-129
Montreal QC, H3G 1A4

Thank you for your support!

MUHC Patient Education Office: muhcpatienteducation.com



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