



If you experience any of the warning signs of a stroke, even if temporarily, call 9-1-1 or your local emergency number right away. It is very important to get treatment as soon as possible. Clot-busting drugs can be very effective for treating ischemic strokes, but they can only be given within three hours of the event. Know the five most common signs of stroke:

- Weakness or numbness of the face, arm, or leg
- Trouble speaking or understanding speech; sudden confusion
- Vision problems- sudden blurred, double, or decreased vision
- Headache- sudden, severe or unusual
- Dizziness- sudden loss of balance or coordination

## MANAGEMENT OF STROKE

If you have had a stroke the doctor will need to carefully assess the type of stroke it was. This is usually done through a CT Scan or MRI. Ischemic stroke is treated with drugs designed to dissolve blood clots, while this type of medication could worsen the symptoms of hemorrhagic stroke.

Drugs or surgery that are used to help reduce risk of having TIA or another ischemic stroke include:

**Antiplatelet drugs** (ASA, clopidogrel and ticlopidine) - ASA is used more often because of its low cost and similar effectiveness. Ticlopidine use requires that lab tests be done to monitor for infrequent harmful effects on blood cells.

**Anticoagulants** - Heparin works quickly to reduce the clotting ability of the blood and is usually used in the hospital. Warfarin is slower acting and is used over a longer term. It is very important that regular blood tests be done with this medication to ensure that the clotting ability of the blood is in the right range.

**Hemorrhagic stroke** is most often treated by surgical procedures to repair the cause of bleeding.



## WHERE TO FIND MORE INFORMATION

**The Heart and Stroke Foundation of Canada**  
 222 Queen St., Suite 1402  
 Ottawa, Ontario K1P 5V9  
 Phone: 613-569-4361  
*Check your local phone listings for the regional office nearest you or visit their website.*  
[ww2.heartandstroke.com](http://ww2.heartandstroke.com)

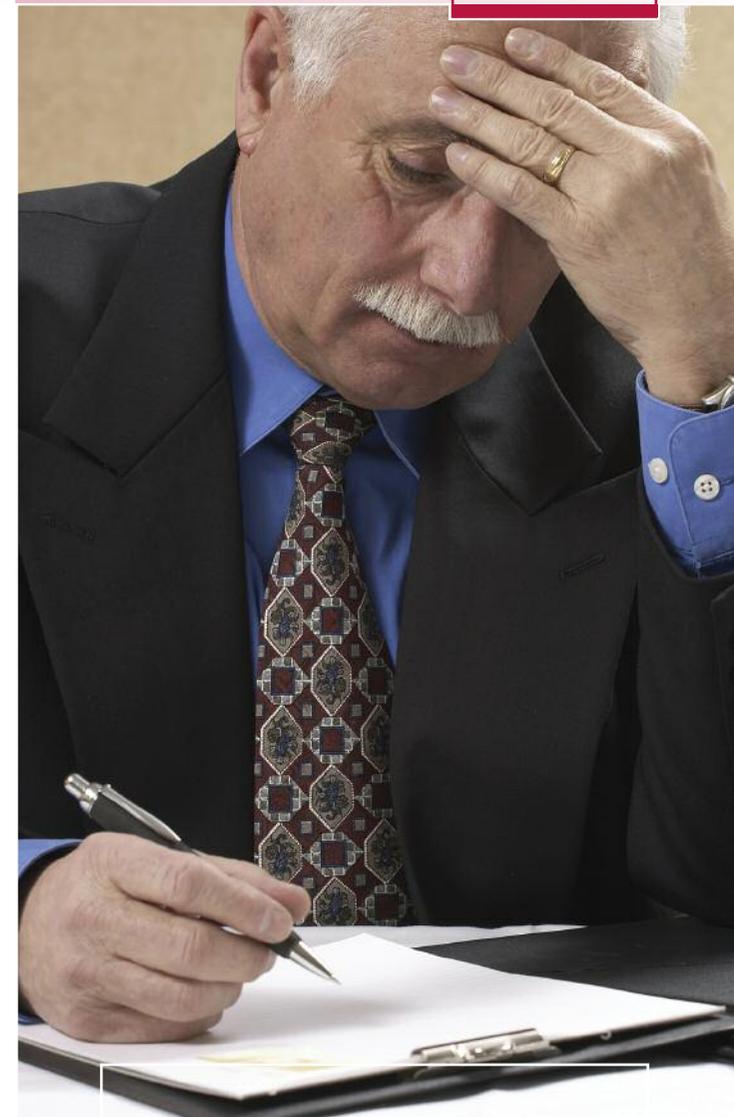
**The Public Health Agency - Healthy Heart Kit**  
[www.phac-aspc.gc.ca/ccdpc-cpcmc/hhk-tcs/index.html](http://www.phac-aspc.gc.ca/ccdpc-cpcmc/hhk-tcs/index.html)

**Public Health Agency of Canada**  
[www.phac-aspc.gc.ca/index-eng.php](http://www.phac-aspc.gc.ca/index-eng.php)

**Canada's Food Guide to Healthy Eating**  
[www.hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php](http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php)

**Centers for Disease Control and Prevention**  
[www.cdc.gov/stroke](http://www.cdc.gov/stroke)

The information found in this PROfile health brochure is of a general nature only. It is not intended to replace the advice of your pharmacist, physician, or other healthcare provider. If you have questions relating to your specific health concerns, please contact your personal healthcare provider.



**Your PROfile Pharmacist**  
 has many resources available to help you understand the prevention and treatment of stroke and is always pleased to discuss your health concerns!

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# Stroke

# PROfile



## WHAT IS A STROKE?

A stroke (also known as a cerebrovascular accident or CVA) occurs when a part of the brain is not getting enough oxygen and nutrients to survive. Brain cells begin to die and symptoms occur according to the severity of the stroke and the part of the brain that has been affected.

### Two types of stroke

There are two types of stroke. Ischemic strokes account for 80% of cases. In this type of stroke, a blood clot interrupts blood flow to the brain. The other 20% of strokes are hemorrhagic. Hemorrhagic strokes involve uncontrolled bleeding in the brain from burst blood vessels.

#### Transient ischemic attack (TIA) or “mini-stroke”

Most people receive no warning that they are going to have a stroke. However, a transient ischemic attack (TIA) may be a sign that an ischemic stroke is on its way. A TIA is caused by a temporary interruption in the blood supply to part of the brain.

The symptoms of TIA are the same as for a stroke but they appear for a shorter period (several minutes to 24 hours). About one third of people who have had a TIA have a stroke within five years.

## WHAT CAUSES STROKES TO OCCUR?

### Ischemic stroke

Most ischemic strokes are related to atherosclerosis. Atherosclerosis is a narrowing of the arteries due to build-up of “plaque” (fatty deposits) on the inside of the blood vessel walls. This narrowing of the arteries reduces or blocks the flow of blood and oxygen to the brain and increases the risk for stroke. Clots are more

likely to form in areas damaged by atherosclerosis; a stroke may occur if the clot breaks free.

There are two types of ischemic strokes: thrombotic and embolic. If a blood clot forms in an artery that leads directly to the brain, it is a thrombotic stroke. If the blood clot develops elsewhere in the body (often in the heart) and is swept through the bloodstream to lodge in narrower brain arteries, it is an embolic stroke. Embolic strokes are often caused by irregular beating of the upper chambers of the heart (atrial fibrillation). In atrial fibrillation the heart is not pumping effectively and blood trapped in its upper chambers may start to clot.

### Hemorrhagic stroke

A hemorrhagic stroke may occur when a blood vessel in the brain leaks or ruptures. This type of bleeding is called an ‘**intracerebral hemorrhage**’. Blood from the hemorrhage spills into the surrounding brain tissue and damages cells. In addition, brain cells beyond the leak or rupture do not receive oxygen-rich blood and are also damaged. Uncontrolled high blood pressure is the most common cause of intracerebral (inside the brain) hemorrhage as it can cause the small arteries inside the brain to become brittle and easily cracked or ruptured.

Another type of bleeding causing hemorrhagic stroke is called ‘**subarachnoid hemorrhage**’. It is caused by bleeding that occurs between the surface of the brain and the skull. Aneurysms (ballooning of a weak spot in an artery wall) that have ruptured are the most common cause of this type of hemorrhage. After a subarachnoid hemorrhage, blood vessels may go into spasm and constrict, preventing oxygen-rich blood from reaching brain cells in the area. Subarachnoid hemorrhage usually begins with a sudden headache that is worse than you have ever experienced before.



## STROKE PREVENTION – MANAGING THE RISKS

There are between 40,000 and 50,000 strokes in Canada each year. It is the fourth leading cause of death in Canada. In order to prevent stroke it is most important to manage factors that increase the risk for this debilitating and life-threatening event.

### RISK FACTORS

**High Blood Pressure** - High blood pressure increases the risk for both ischemic and hemorrhagic type stroke. It weakens and damages the blood vessels in and around the brain, making them more likely to develop atherosclerosis, or rupture and hemorrhage. Regular blood pressure checks and treatment of high blood pressure are of extreme importance in preventing stroke.

**Blood Cholesterol** - High levels of bad cholesterol (LDL) and triglycerides increase risk of atherosclerosis and ischemic stroke. Regular cholesterol checks, low-fat diet, physical activity and management of elevated LDL and triglycerides are important in the prevention of stroke.

**Cigarette Smoking** - Smokers have a much higher risk of stroke compared to non-smokers. Quitting is the best thing you can do for your health!

**Overweight** - Being overweight increases your risk of high blood pressure, heart disease, atherosclerosis and diabetes, all of which increase stroke risk. Talk with your doctor about a diet and exercise program if you are overweight.

**Birth Control Pills** - Stroke risk increases with the use of estrogen - containing birth control pills, especially in women who are over the age of 35, or who smoke.

Additional risk factors for stroke, which you do not have control over, include family history, advancing age, gender (men have a higher risk than women before age 55) and race (African Americans are at greater risk).

