



STROKE PATIENT EDUCATION GUIDE



For more information on Holy Cross Health's award winning stroke program scan the code or visit [HolyCrossHealth.org/stroke](https://www.HolyCrossHealth.org/stroke).

HC **HOLY CROSS
HEALTH**

A Member of Trinity Health



STROKE CARE AT HOLY CROSS HEALTH

Holy Cross Health is committed to providing high-quality care to our stroke patients, so you can move your life forward. This stroke educational booklet contains the following information for you and your family to review:

- the risk factors associated with stroke
- the causes of stroke
- the signs and symptoms of stroke
- how a stroke is diagnosed or how your doctor determines you had a stroke
- recovery from a stroke
- medications your doctor may prescribe to prevent a stroke in the future
- self-care following a stroke
- additional resources for stroke information

During your stay, you will receive necessary tests and medications and will be closely monitored to determine the cause of your stroke. You also may receive therapy, if needed, during your recovery at Holy Cross Hospital or Holy Cross Germantown Hospital. Both hospitals are designated as Primary Stroke Centers by the Maryland Institute for Emergency Medical Services Systems (MIEMSS). Holy Cross Hospital also holds Advanced Primary Stroke Center designation by The Joint Commission.

If you have additional questions about your condition, please call 301-754-7529 for Holy Cross Hospital or 301-557-5929 for Holy Cross Germantown Hospital.

Holy Cross Hospital
1500 Forest Glen Road
Silver Spring, MD 20910

Holy Cross Germantown Hospital
19801 Observation Drive
Germantown, MD 20876

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To download a full-color version of this booklet and additional information about stroke prevention, please visit [HolyCrossHealth.org/stroke-patient-education-guide](https://www.HolyCrossHealth.org/stroke-patient-education-guide).

STROKE FACTS

- A stroke cuts off vital blood flow and oxygen to the brain.
- Two million brain cells die every minute during a stroke, increasing risk of permanent brain damage, disability or death.
- In the United States, stroke is the fifth leading cause of death, killing about **140,000 people each year**, and a leading cause of serious, long-term adult disability.
- Approximately **795,000 strokes will occur this year** in the United States. About **690,000 of these are new** acute ischemic strokes (AIS).
- Stroke can happen to anyone at any time, regardless of race, sex or age.
- Approximately **55,000 more women than men** have a stroke each year.
- Men's stroke incidence rates are greater than women's at younger ages, but not older ages.
- African Americans have almost twice the risk of first-ever stroke compared to Caucasians.

COMMON STROKE SYMPTOMS INCLUDE:

- sudden numbness or weakness of the face, arm or leg – especially on one side of the body
- sudden confusion, trouble speaking or understanding
- sudden trouble seeing in one or both eyes
- sudden trouble walking, dizziness, loss of balance or coordination
- sudden severe headache with no known cause

Stroke Strikes Fast. Learning the signs and symptoms and BE FAST when they occur could save your life or the life of a loved one.

USE THE BE FAST TEST FOR RECOGNIZING AND RESPONDING TO STROKE SYMPTOMS:

- B=BALANCE** Does the person have sudden loss of balance?
E=EYES Has the person experienced a loss of vision in one or both eyes?
F=FACE Ask the person to smile. Does one side of the face droop?
A=ARMS Ask the person to raise both arms. Does one arm drift downward?
S=SPEECH Ask the person to repeat a simple sentence. Does the speech sound slurred or strange?
T=TIME If you observe any of these signs, it's time to call 9-1-1 or get to the nearest stroke center or hospital.

B E F A S T

BALANCE

Does the person have a sudden loss of balance?



EYES

Has the person lost vision?



FACE

Does the person's face droop?



ARM

Is one arm weak or numb?



SPEECH

Is their speech slurred or strange?



TIME

What time did symptoms start?



BE FAST was developed by Intermountain Healthcare, as an adaptation of the FAST model implemented by the American Stroke Association. Reproduced with permission from Intermountain Healthcare. Copyright 2011, Intermountain Healthcare.

Visit our website to learn more about Holy Cross Health's Primary Stroke Centers:
HolyCrossHealth.org/stroke

TIME IS CRITICAL...

CALL 911!

Design courtesy of Mount Carmel Health System, Columbus, Ohio.

STROKE RESOURCES

Holy Cross Health offers several resources that may benefit stroke patients and caregivers in need of further care and/or support:

Stroke Support Group at Holy Cross Germantown Hospital

Register at [HolyCrossHealth.org/Support](https://www.holycrosshealth.org/Support) or call 301-754-8800.

Holy Cross Health Community Health Classes

Register at [HolyCrossHealth.org/Classes-Events](https://www.holycrosshealth.org/Classes-Events) or call 301-754-8800.

Holy Cross Medical Adult Day Center

Phone: 301-754-7150

Website: [HolyCrossHealth.org/MADC](https://www.holycrosshealth.org/MADC)

Holy Cross Caregiver Resource Center

Phone: 301-754-7152

Website: [HolyCrossHealth.org/CRC](https://www.holycrosshealth.org/CRC)

Holy Cross Home Care and Hospice

Phone: 301-557-HOME (4663)

Website: [HolyCrossHealth.org/HomeCareAndHospice](https://www.holycrosshealth.org/HomeCareAndHospice)

Holy Cross Private Home Services

Phone: 301-754-7780

Website: [HolyCrossHealth.org/Private-Home-Services](https://www.holycrosshealth.org/Private-Home-Services)

Holy Cross Health Centers

Aspen Hill: 301-557-1950

Gaithersburg: 301-557-1832

Germantown: 301-557-2140

Silver Spring: 301-557-1870

Website: [HolyCrossHealth.org/HCHC](https://www.holycrosshealth.org/HCHC)

Holy Cross Health Partners

Asbury Methodist Village: 301-557-2110

Kensington: 301-949-4242

Website: [HolyCrossHealth.org/HCHP](https://www.holycrosshealth.org/HCHP)

There are also a variety of local and national stroke organizations and resources:

American Heart Association/ American Stroke Association Information

Website: <https://www.stroke.org>

American Heart Association/ American Stroke Association Support Network

Website: <https://supportnetwork.heart.org>

American Heart Association Stroke/ American Stroke Association Stroke Family Warmline

Website: <https://www.stroke.org/en/help-and-support/support-you-are-not-alone/stroke-family-warmline>

Constant Therapy-app to improve aphasia and memory issues post stroke

Internet: <https://constanttherapyhealth.com/Constant-Therapy>

Internet Stroke Center

Website: <http://www.strokecenter.org>

Montgomery County Stroke Association

P.O. Box 9343

Silver Spring, MD 20916-9343

Phone: 301-681-6272

Email: mcstroke@comcast.net

Website: <https://mcstroke.org>

National Institute of Neurological Disorders and Stroke (NINDS) Stroke Information Page

Website: <https://www.ninds.nih.gov/Disorders/All-Disorders/Stroke-Information-Page>

National Institutes of Health/NINDS Section on Stroke Diagnostics and Therapeutics

10 Center Dr., MSC 1063

Building 10, Room B1D733

Bethesda, MD 20892-1063

Phone: 301-435-9321

Email: https://www.ninds.nih.gov/Contact_Us

Stroke Comeback Center

Website: <https://strokecomebackcenter.org>

University of Maryland

Stroke in the Young Program ages under 50 years old
410-328-5803

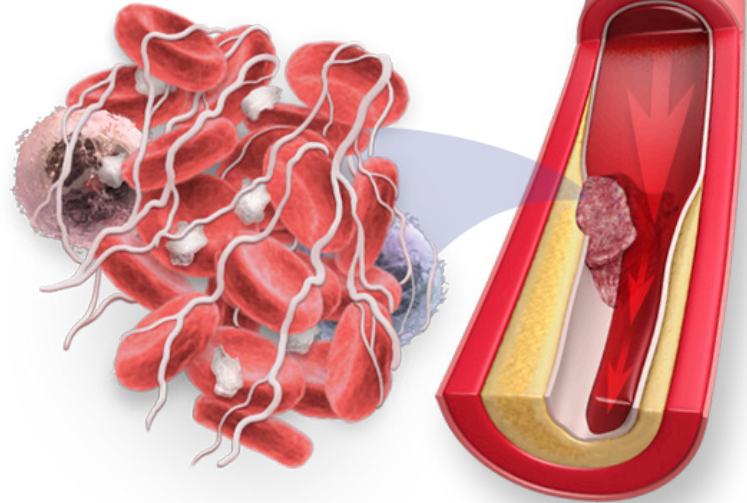


let's talk about

Anticoagulants and Antiplatelet Agents

Anticoagulants and antiplatelets are medicines that reduce blood clotting in an artery, vein or the heart. Doctors prescribe these to help prevent heart attacks and strokes caused by blood clots. Blood clots can block blood flow to your heart or your brain causing a heart attack or stroke.

Blood clots are made up of red blood cells, platelets, fibrin, and white blood cells (shown below). Anticoagulants and antiplatelets keep these parts from sticking together and forming a clot.



What should I know about anticoagulants?

Anticoagulants (sometimes known as “blood thinners”) are medicines that delay the clotting of blood. Examples are heparin, warfarin, dabigatran, apixaban, rivoraxaban and edoxaban.

Anticoagulants make it harder for blood clots to form in your heart, veins and arteries. They also can keep existing clots from growing larger. It's important to follow these tips while on anticoagulants:

- Take your medications exactly as prescribed.
- If you take warfarin, have regular blood tests so your health care provider can tell how the medicine is working.
 - The test for people on warfarin is called a prothrombin time (PT) or International Normalized Ratio (INR) test.
- Never take aspirin with anticoagulants unless your doctor tells you to.
- Make sure all your health care providers know that you're taking anticoagulants.
- Always talk to your health care provider before taking any new medicines or supplements. This includes aspirin, vitamins, cold medicine, pain medicine, sleeping pills or antibiotics. These can affect the way anticoagulants work by strengthening or weakening them.

- Discuss your diet with your health care providers. Foods rich in Vitamin K can reduce the effectiveness of warfarin. Vitamin K is in leafy, green vegetables, fish, liver, lentils, soybeans and some vegetable oils.
- Tell your family that you take anticoagulant medicine.
- Always carry your emergency medical ID card.

Could anticoagulants cause problems?

If you do as your doctor tells you, there probably won't be problems. But you must tell them right away if:

- You think you're pregnant or you're planning to get pregnant.
- Your urine turns pink, red or brown. This could be a sign of urinary tract bleeding.
- Your stools turn red, dark brown or black. This could be a sign of intestinal bleeding.
- You bleed more than normal when you have your period.
- Your gums bleed.
- You have a very bad headache or stomach pain that doesn't go away.

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Anticoagulants and Antiplatelet Agents

- You get sick or feel weak, faint or dizzy.
- You often find bruises or blood blisters.
- You have an accident, such as a bump on the head, a cut that won't stop bleeding or a fall of any kind.

What should I know about antiplatelet agents?

Antiplatelets keep blood clots from forming by keeping blood platelets from sticking together.

Almost everyone with coronary artery disease, including those who have had a heart attack, stent, or CABG, are treated with aspirin. Aspirin can help prevent an ischemic stroke. It can also help if you have had a TIA or if you have heart problems.

Many heart attack and stroke patients – and people seeking to avoid these events may get dual antiplatelet therapy (DAPT). With DAPT, two types of antiplatelets— aspirin and a P2Y₁₂ inhibitor—are used to prevent blood clots.

P2Y₁₂ inhibitors are usually prescribed for months or years along with aspirin therapy. You may be prescribed one of three of these medications -- clopidogrel, prasugrel or



ticagrelor. Prasugrel should not be prescribed if you have had a stroke or a transient ischemic attack (TIA). Your doctor will prescribe the best one for you based on your risk of blood clots and bleeding.

Do I need an emergency medical ID?

Yes, always keep it with you. It needs to include:

- The name of the drugs you're taking.
- Your name, phone number and address.
- The name, address and phone number of your doctor.

HOW CAN I LEARN MORE?

- 1** Call 1-888-4-STROKE (1-888-478-7653) or visit stroke.org to learn more about stroke or find local support groups.
- 2** Sign up for *Stroke Connection*, a free e-newsletter for stroke survivors and caregivers, at StrokeConnection.org.
- 3** Connect with others who have also had an experience with stroke by joining our Support Network at stroke.org/SupportNetwork.

Do you have questions for your doctor or nurse?

Take a few minutes to write down your questions for the next time you see your health care provider.

For example:

What kind of aspirin or other antiplatelet agent should I take?

What is the right dose for me?

MY QUESTIONS:

We have many other fact sheets to help you make healthier choices, manage your condition or care for a loved one. Visit stroke.org/LetsTalkAboutStroke to learn more.

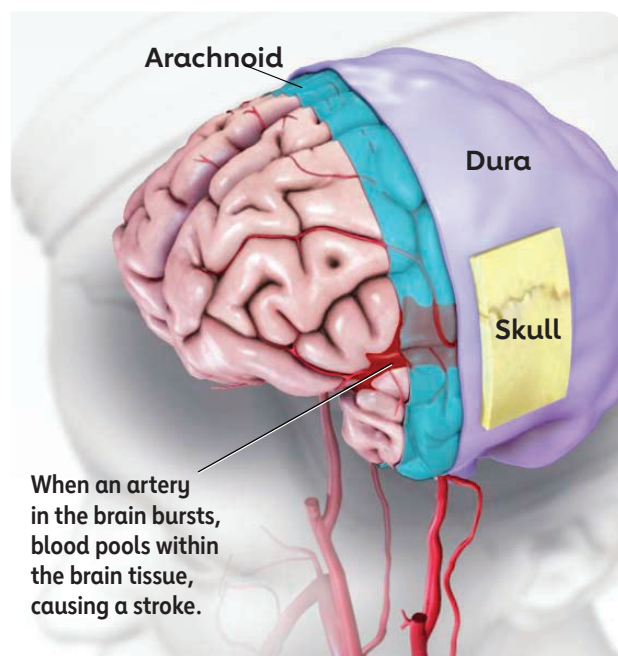


let's talk about

Hemorrhagic Stroke

About 13 percent of strokes happen when a blood vessel ruptures in or near the brain. This is called a hemorrhagic stroke as shown at right.

When a hemorrhagic stroke happens, blood collects in the brain tissue. This is toxic for the brain tissue, causing the cells in that area to weaken and die.



A type of hemorrhagic stroke, known as a subarachnoid hemorrhage, can occur when an aneurysm (a blood-filled pouch that balloons out from an artery) on or near the surface of the brain ruptures, flooding the space between the skull and the brain with blood.

Are all hemorrhagic strokes the same?

There are two kinds of hemorrhagic stroke. In both, a blood vessel ruptures, disrupting blood flow to part of the brain.

Intracerebral hemorrhages (most common type of hemorrhagic stroke):

- Occur when a blood vessel bleeds or ruptures into the tissue deep within the brain.
- Are most often caused by chronically high blood pressure or aging blood vessels.
- Are sometimes caused by an arteriovenous malformation (AVM). An AVM is a cluster of abnormally formed blood vessels. Any one of these vessels can rupture, also causing bleeding into the brain.

Subarachnoid hemorrhages:

- Occur when an aneurysm (a blood-filled pouch that balloons out from an artery) on or near the surface of the brain ruptures and bleeds into the space between the brain and the skull.

In addition to high blood pressure, factors that increase the risk of hemorrhagic strokes include:

- Cigarette smoking
- Excessive alcohol intake
- Use of illegal drugs

How are hemorrhagic strokes diagnosed?

When someone has shown symptoms of a stroke or a TIA (transient ischemic attack), a doctor will gather information and make a diagnosis. They will review the events that have occurred and will:

- Get a medical history.
- Do a physical and neurological examination.
- Have certain laboratory (blood) tests done.
- Get a CT or MRI scan of the brain.
- Study the results of other diagnostic tests that might be needed.

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Diagnostic tests examine how the brain looks, works and gets its blood supply. They can outline the injured brain area. Diagnostic tests fall into two main categories.

- Imaging tests give a picture of the brain similar to X-rays.
- Blood flow tests show any problem that may cause changes in blood flow to the brain.

How are hemorrhagic strokes treated?

Because hemorrhages may be life-threatening, hospital care is required. Medication is used to control high blood pressure. Other medications may be given to reduce the brain swelling that follows a stroke.

Surgery may be needed depending on the cause and type of the hemorrhage. Surgery is often recommended to either place a metal clip at the base of an aneurysm or to remove the abnormal vessels that make up an AVM.

Some procedures are less invasive and use a catheter that goes in through a major artery in the leg or arm. The catheter is guided to the aneurysm or AVM, where it places a device, such as a coil, to prevent rupture.

Caregivers play a vital role in stroke survivor's recovery. Emotional and practical support and training for the caregiver can be helpful to improve the patients' balance and activity level.

Rehabilitation and recovery are important determinants of post-stroke outcomes and quality of life.

F.A.S.T.

Face
Drooping

Arm
Weakness

Speech
Difficulty

Time to
Call 911

Dizziness, loss of balance, a sudden, severe headache or difficulty swallowing are some other common warning signs of a stroke.

HOW CAN I LEARN MORE?

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- 2 Sign up for our monthly *Stroke Connection e-news* for stroke survivors and caregivers at StrokeConnection.org.
- 3 Connect with others who have also had an experience with stroke by joining our Support Network at stroke.org/SupportNetwork.

Do you have questions for your doctor or nurse?

Take a few minutes to write down your questions for the next time you see your health care professional.

For example:

What can I do to help prevent another stroke?

How can I control high blood pressure?

MY QUESTIONS:

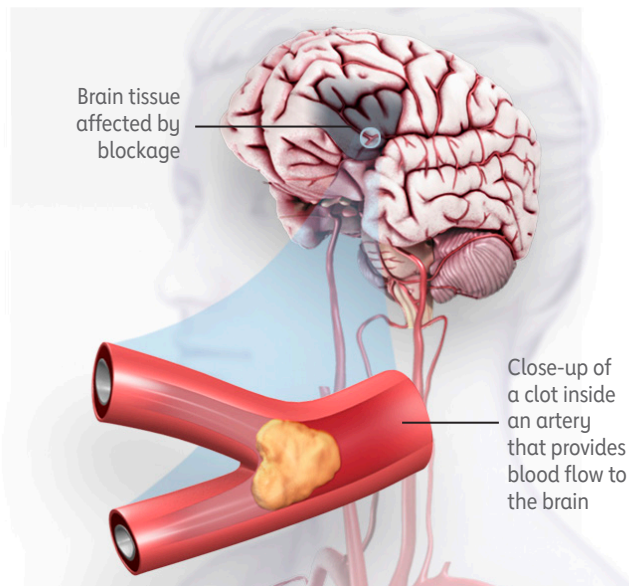
We have many other fact sheets to help you make healthier choices, manage your condition or care for a loved one. Visit stroke.org/LetsTalkAboutStroke to learn more.



let's talk about

Ischemic Stroke

The majority of strokes (87%) occur when blood vessels to the brain become narrowed or clogged with fatty deposits called plaque. This cuts off blood flow to brain cells. A stroke caused by lack of blood reaching part of the brain is called an ischemic stroke. High blood pressure is a leading risk factor for ischemic stroke.



An ischemic stroke occurs when a clot or a mass blocks a blood vessel, cutting off blood flow to a part of the brain.

Are all ischemic strokes the same?

There are two main types of ischemic stroke.

- **Cerebral thrombosis** is caused by a blood clot (thrombus) in an artery going to the brain. The clot blocks blood flow to part of the brain. Blood clots usually form in arteries damaged by plaque.
- **Cerebral embolism** is caused by a wandering clot (embolus) that's formed elsewhere (usually in the heart or neck arteries). Clots are carried in the bloodstream and block a blood vessel in or leading to the brain. A main cause of embolism is an irregular heartbeat called atrial fibrillation.

How are ischemic strokes diagnosed?

When someone has shown symptoms of a stroke or a TIA (transient ischemic attack), a doctor will gather information and make a diagnosis. They will review the events that have occurred and will:

- Ask when the symptoms of stroke started.
- Get a medical history from you or a family member.
- Do a physical and neurological examination.
- Have certain lab (blood) tests done.
- Get a CT (computed tomography) or MRI (magnetic resonance imaging) scan of the brain.
- Study the results of other diagnostic tests that might be needed.

How are ischemic strokes treated?

Acute treatment is the immediate treatment given by the health care team when a stroke happens. The goal of acute treatment is to keep the amount of brain injury as small as possible. This is done by restoring blood flow to the part of the brain where the blockage was quickly.

There is a clot-busting drug called alteplase (IV r-tPA) used to treat ischemic stroke. It can reduce disability from stroke by breaking up a blood clot that is stopping the blood flow to the brain. To be eligible to receive alteplase, a doctor must diagnose your stroke as an ischemic stroke and treat you within **3 to 4.5 hours** of onset of stroke symptoms. Medication may also be used to treat brain swelling that sometimes occurs after a stroke.

For people with larger blood clots, alteplase may not dissolve them completely. In this case, a procedure, called **mechanical thrombectomy**, may be considered. In eligible patients with large clots in an artery, the procedure should be done as soon as possible within up to 24 hours of stroke symptom onset. Patients eligible for alteplase should receive it prior to undergoing mechanical thrombectomy.

To remove the clot, doctors thread a catheter (thin tube) with a stent through an artery in the groin up to the blocked artery in the brain. The stent opens and grabs the clot. The doctors then remove the stent with the trapped clot. If necessary, other devices may also be used. Patients must meet certain criteria to be eligible for this procedure.

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What other treatments may I receive?

When someone has a stroke, they are at risk of another. Once the medical team identifies what caused the stroke, they may prescribe treatments or procedures to reduce the risk of a second stroke, such as:

- **Medications** such as aspirin and clopidogrel (antiplatelets) and anticoagulants interfere with the blood's ability to clot. This can play an important role in preventing a stroke.
- **Carotid endarterectomy** is a procedure in which blood vessel blockage (blood clot or fatty plaque) is surgically removed from the carotid artery in the neck. This reopens the artery and the blood flow to the brain. This is only done in people who have a large blockage.
- Doctors sometimes use **angioplasty** and **stents** to treat and reduce fatty buildup clogging a blood vessel. The fatty plaques may make it easier for clots to form.

Sometimes a stroke is the first sign a person has of other health conditions, such as high blood pressure, diabetes, atrial fibrillation (a heart rhythm disorder) or other vascular disease. If any of these are diagnosed, the health care team will prescribe appropriate treatment.



Aspirin can play an important role in preventing stroke because it helps keep blood from clotting.

HOW CAN I LEARN MORE?

- 1 Call **1-888-4-STROKE** (1-888-478-7653) or visit stroke.org to learn more about stroke or find local support groups
- 2 Sign up for **Stroke Connection**, a free digital magazine for stroke survivors and caregivers, at strokeconnection.org.
- 3 Connect with others who have also had an experience with stroke by joining our Support Network at stroke.org/supportnetwork.

Do you have questions for your doctor or nurse?

Take a few minutes to write down your questions for the next time you see your health care provider.

For example:

What can I do to help prevent another stroke?

What medications may I be given?

MY QUESTIONS:

We have many other fact sheets to help you make healthier choices, manage your condition or care for a loved one. Visit stroke.org/letstalkaboutstroke to learn more.



let's talk about

Lifestyle Changes to Prevent Stroke

A stroke occurs when a blood vessel that carries oxygen and nutrients to the brain is either blocked by a clot or bursts (or ruptures). Stroke affects the arteries leading to and within the brain. The good news is that many strokes may be prevented through blood pressure control, a healthy diet, regular physical activity and smoking cessation. Each plays a big part in decreasing your risk for stroke, disability or even death.



What steps can I take to be healthier and reduce my risk of stroke?

- Don't smoke or vape and avoid secondhand smoke.
- Eat healthy foods low in saturated fat, trans fat and sodium (salt). Reduce sugary drinks.
- Do regular physical activity.
- Keep a healthy weight.
- Limit alcohol to one drink a day for women; two drinks per day for men.
- Take your medications as directed.
- Know your blood pressure. Optimal blood pressure is less than 120/80 mm Hg. Get your blood pressure checked regularly and work with your health care professional to manage it if it's high. High blood pressure is a leading cause of stroke.
- Reduce stress, which may contribute to behaviors such as overeating, lack of physical activity, unhealthy diet and smoking.
- Have regular medical checkups, including assessment of your risk for stroke.
- Get adequate sleep, 7-9 hours of sleep per night for adults; more for children and kids.

How do I stop smoking or vaping?

- Make a decision to quit — and stick to it.
- Ask a health care professional for information, programs and/or medications that may help you quit.
- Call a quit line coach at 1-800-QUIT-NOW.
- Sign up for free texting programs or use a mobile app.
- Know your triggers and eliminate them if possible.
- Deal with urges by keeping busy, getting active, engaging in a new hobby, journaling or meditating.
- Remind yourself that smoking causes many diseases, can harm others and is deadly.
- Ask your family and friends to support you and keep you accountable.

How do I change my eating habits?

- Ask your doctor, nurse, a licensed nutritionist or registered dietitian about how you can come up with a plan that's mindful of your special health needs.
- Eat moderate amounts of food and cut down on saturated fat, trans fat, sugar and salt.

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- Bake, broil, roast and boil foods instead of frying.
- Read nutrition labels on packaged meals. Look for the AHA Heart-Check mark on packaging.
- Eat more fruits, vegetables, whole grains, healthy sources of protein, low-fat dairy and healthy oils.
- Use a diary, or if available, a mobile app to track what you're eating. Try to incorporate healthy substitutions or alternatives.

What about physical activity?

- Set goals and keep reaching for them. Gradually increase your activity to gain even more health benefits.
- Throughout the week, try to do 150 minutes of moderate-intensity physical activity, 75 minutes of vigorous-intensity physical activity, or a combination of both.
 - Moderate-intensity physical activities include a brisk walk or water aerobics. Vigorous-intensity activities could include running, hiking or cycling.
- Also, strive for moderate- to high-intensity muscle-strengthening activity, such as resistance bands or weights, on at least two days per week.



- Short on time? Don't just skip it; instead, break up your activity into smaller times to fit your schedule.
- Look for even small chances to be more active. Take the stairs instead of an elevator, walk to the mailbox, and park farther from your destination.
- If you have a chronic medical condition, check with your health care professional before you start an exercise program.

HOW CAN I LEARN MORE?

- 1** Call 1-888-4-STROKE (1-888-478-7653) or visit stroke.org to learn more about stroke or find local support groups.
- 2** Sign up for our monthly *Stroke Connection* e-news for stroke survivors and caregivers at StrokeConnection.org.
- 3** Connect with others who have also had an experience with stroke by joining our Support Network at stroke.org/SupportNetwork.

Do you have questions for your doctor or nurse?

Take a few minutes to write down your questions for the next time you see your health care professional.

For example:

What stroke risk factors can I modify?

What kind of physical activity can I do safely?

MY QUESTIONS:

We have many other fact sheets to help you make healthier choices, manage your condition or care for a loved one. Visit stroke.org/LetsTalkAboutStroke to learn more.



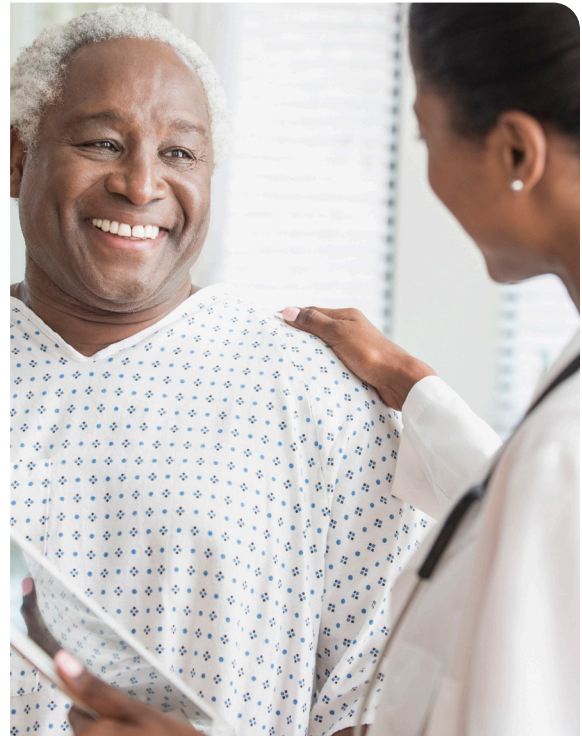
let's talk about

Risk Factors for Stroke

Risk factors are traits and lifestyle habits that increase your chance of disease. Being aware of these risk factors and knowing your personal risk is the first step in preventing a stroke.

There are two types of risk factors: the kind not within your control (uncontrollable) and the kind you can control, treat and improve (controllable). By having regular medical checkups you can know your risk factors, and create a plan to lower your risk of stroke.

Work with your health care team to identify your personal risk factors and make a plan to treat, change or control them.



What risk factors can I control, change or treat?

- **High blood pressure.** A leading risk factor for stroke and a leading cause of stroke. Know your blood pressure and have it regularly checked every year. Normal blood pressure is below 120/80.
- **Smoking and vaping.** These can lead to damages within the blood vessels, causing a stroke. Quit smoking and vaping, don't start and avoid secondhand smoke.
- **Diabetes.** By impacting your body's ability to make or use insulin correctly, diabetes can cause glucose (sugar) to build up in your blood. High glucose levels can damage the body's blood vessels, increasing the chance of stroke.
- **High cholesterol.** High cholesterol increases the risk of blocked arteries. If an artery leading to the brain becomes blocked, it can result in a stroke.
- **Physical inactivity and obesity.** Being inactive, obese or both can increase risk for heart disease and stroke. Aim to reach and maintain a healthy weight.
- **Carotid or other artery disease.** A stroke can occur when a carotid artery, which leads to the brain, becomes damaged or blocked by a fatty build up of plaque inside the artery wall limiting or stopping blood flow.
- **Transient ischemic attacks (TIAs).** Recognizing and treating TIAs can reduce the risk of a major stroke. TIAs produce stroke-like symptoms, but most have no lasting effects. Know the warning signs of a TIA and seek emergency medical treatment immediately.
- **Atrial fibrillation (AFib) or other heart disease.** In AFib, the heart's upper chambers quiver rather than beat in an organized, rhythmic way. This can cause the blood to pool and clot, increasing the risk of stroke. AFib increases risk of stroke five times. People with other types of heart disease have a higher risk of stroke, too.
- **Certain blood disorders.** A high red blood cell count makes clots more likely, raising the risk of stroke. Sickle cell anemia increases stroke risk because the "sickled" cells stick to blood vessel walls and may block arteries.
- **Excessive alcohol intake.** Drinking an average of more than one drink per day for women or more than two drinks a day for men can raise blood pressure. Binge drinking can lead to stroke.
- **Illegal drug use.** Drugs including cocaine, ecstasy, amphetamines, and heroin are associated with an increased risk of stroke.

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- **Sleep apnea.** Sleep disordered breathing contributes to risk of stroke. Increasing sleep apnea severity is associated with increasing risk.

What are the risk factors I can't control?

- **Increasing age.** Stroke affects people of all ages. But the older you are, the greater your stroke risk.
- **Gender.** Women have a higher lifetime risk of stroke than men do. Pregnancy, certain forms of birth control, history of preeclampsia/eclampsia or gestational diabetes, and certain types of hormone therapy pose special stroke risks for women.
- **Heredity and race.** People whose close blood relatives have had a stroke have a higher risk of stroke. Black and Hispanic people are at a higher risk of death and disability because they often have high blood pressure, a leading risk factor for stroke.
- **Prior stroke.** Someone who has had a stroke is at higher risk of having another one.



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Do you have questions for your doctor or nurse?

Take a few minutes to write down your questions for the next time you see your health care professional.

For example:

What are my risk factors for stroke I can control or manage?

What are my risk factors for stroke I can't control?

What are the warning signs of TIA and stroke?

MY QUESTIONS:

We have many other fact sheets to help you make healthier choices, manage your condition or care for a loved one. Visit stroke.org/LetsTalkAboutStroke to learn more.



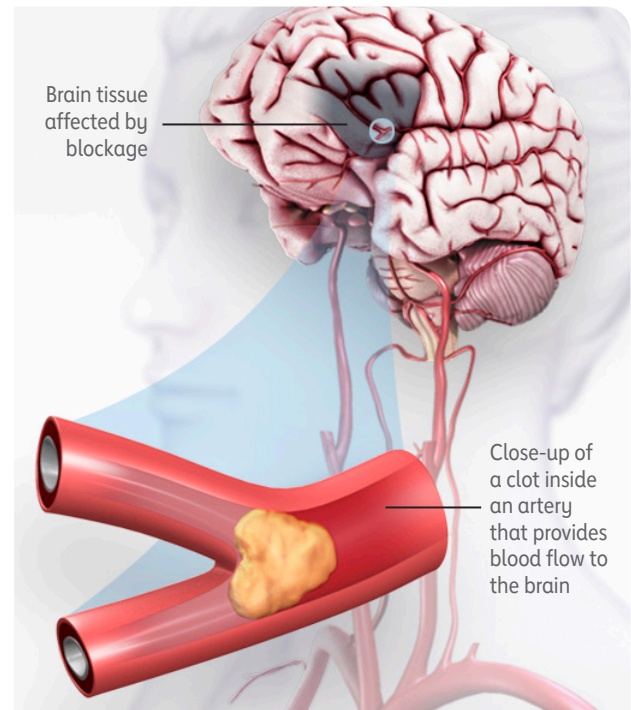
let's talk about

Stroke, TIA and Warning Signs

Stroke occurs when a blood vessel bringing blood and oxygen to the brain gets blocked by a clot or ruptures. When this happens, brain cells don't get the blood and oxygen that they need to survive. This causes nerve cells to stop working and die within minutes. Then, the part of the body they control are affected. The effects of stroke may be permanent depending on how many cells die, where they are in the brain, and other factors.

Strokes can cause weakness (paralysis), affect language and vision, and cause other problems.

Stroke is the No. 5 cause of death and a leading cause of serious, long-term disability in America.



Your brain cells need a constant supply of blood, oxygen and nutrients to work. When blood flow is blocked, you can have a stroke or TIA.

What is a TIA?

TIA, or transient ischemic attack, is a "warning" stroke that occurs when a blood clot blocks an artery for a short time. The symptoms of a TIA are the same as those of a stroke, but they usually last only a few minutes. About 12% of all strokes are preceded by TIAs, so don't ignore a TIA. **Call 911 or seek emergency medical attention immediately!**

Is stroke preventable?

Yes. Stroke is largely preventable. You can reduce your stroke risk by living a healthy lifestyle — controlling high blood pressure; not smoking; eating a healthy diet low in saturated and trans fats; being physically active; maintaining a healthy body weight; managing diabetes; and drinking alcohol moderately or not at all.

Can stroke be treated?

If you're having a stroke, time is critical. Immediate treatment may reduce the long-term effects of a stroke and even prevent death. Treatment will vary depending on what type of stroke you had.

There is a clot-busting drug called alteplase (IV r-tPA) used to treat ischemic stroke. It can reduce disability from stroke by breaking up a blood clot that might be stopping the blood flow to the brain. To be eligible to receive alteplase, a doctor must diagnose your stroke as an ischemic stroke and treat you within **3 to 4.5 hours** of onset of stroke symptoms. The sooner it is given, the greater the possibility of a better outcome.

Another treatment option is called a **mechanical thrombectomy**. In eligible patients with large clots in an artery, the procedure should be done as soon as possible within up to 24 hours of stroke symptom. Patients eligible for alteplase should receive it prior to undergoing mechanical thrombectomy.

In this procedure, specially trained doctors try to remove the blood clot by using a wire-cage device called a **stent retriever**. To remove the clot, doctors thread a catheter (thin tube) with a stent through an artery in the groin up to the blocked artery in the brain. The stent opens and grabs the clot. The doctors then remove the stent with the trapped clot.

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What are warning signs of stroke?

You and your family should recognize the warning signs of stroke. You may have some or all of these signs. Note the time when symptoms start and call 911 or the emergency response number in your area immediately. Stroke is a medical emergency!

Don't ignore these warning signs, even if they go away.

STROKE WARNING SIGNS:

- Sudden numbness or weakness of the face, arm or leg, especially on one side of the body
- Sudden confusion, trouble speaking or understanding
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness, loss of balance or coordination
- Sudden severe headache with no known cause

F.A.S.T. is an easy way to remember how to recognize a stroke and what to do. Spot a stroke FAST.



F.A.S.T.

Face
Drooping

Arm
Weakness

Speech
Difficulty

Time to
Call 911

HOW CAN I LEARN MORE?

- 1 Call 1-888-4-STROKE (1-888-478-7653) or visit stroke.org to learn more about stroke or find local support groups
- 2 Sign up for *Stroke Connection*, a free digital magazine for stroke survivors and caregivers, at strokeconnection.org.
- 3 Connect with others who have also had an experience with stroke by joining our Support Network at stroke.org/supportnetwork.

Do you have questions for your doctor or nurse?

Take a few minutes to write down your questions for the next time you see your health care provider.

For example:

Which facility close to me is best equipped to treat me if I am having stroke symptoms?

How can I reduce my risk for stroke?

MY QUESTIONS:

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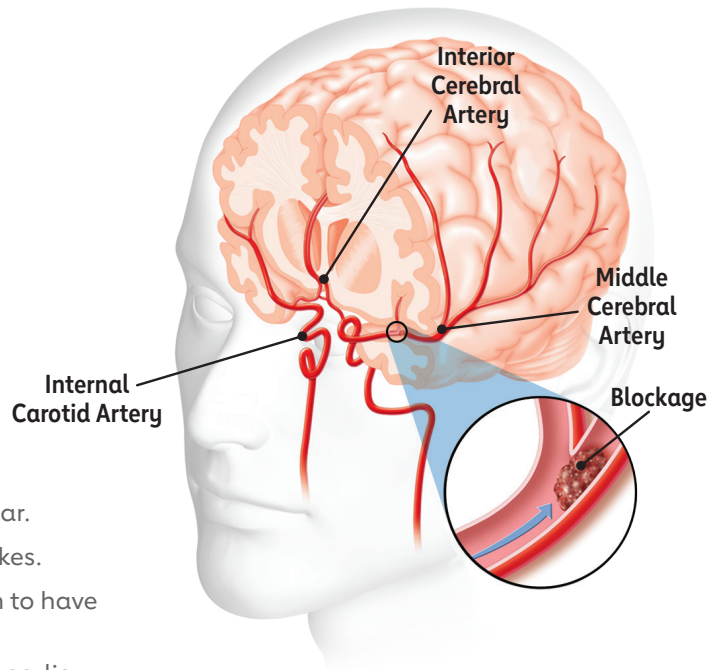


let's talk about

Transient Ischemic Attack (TIA)

A transient ischemic attack (TIA) is often called a mini-stroke, but it's really a warning stroke. TIA and stroke symptoms are the same, although most TIA symptoms last only a few minutes (but up to 24 hours). While TIAs generally do not cause permanent brain damage, they are major warnings and should not be ignored.

- A TIA occurs before about 15 percent of all strokes.
- About 240,000 Americans experience a TIA every year.
- Mini-strokes are often followed by more severe strokes.
- About one-third of the people who have a TIA go on to have a more severe stroke within a year.
- People who have severe strokes often report having earlier warning strokes.



What is a stroke?

A stroke is a "brain attack" that occurs when the blood bringing oxygen to your brain stops flowing and brain cells die. On average, someone in the United States has a stroke every 40 seconds.

What causes a TIA?

When a blood vessel in the brain becomes blocked for a short period of time, the blood flow to that area of the brain slows or stops. This lack of blood (and oxygen) often leads to temporary symptoms such as slurred speech or blurry vision. TIAs are usually caused by one of three things:

- Low blood flow in a major artery carrying blood to the brain.
- A blood clot in another part of the body (such as the heart) that breaks off, travels to the brain and blocks a blood vessel.
- The narrowing of a smaller blood vessel in the brain, usually caused by plaque (a fatty substance) build-up.

What are the symptoms of a TIA?

The symptoms of a TIA are the same as a stroke and often include sudden onset of any of the following:

- Weakness, numbness or paralysis of the face, arm or leg, usually on one side of the body.
- Trouble speaking or difficulty understanding others.
- Loss of vision in one or both eyes or double vision.
- Loss of balance or coordination.
- Severe headache with no known cause.

You may have a series of TIAs, and the repeated signs and symptoms may be similar or different, depending on which area of the brain is involved.

To help you remember some of the signs of a TIA or stroke, use F.A.S.T.:

F.A.S.T.

Face Drooping	Arm Weakness	Speech Difficulty	Time to Call 911
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(continued)



How is a TIA diagnosed and treated?

You cannot tell whether you are having a stroke or a TIA, so you should call 911 right away. A diagnosis of TIA can only be determined after an assessment by a health care provider, which can include blood tests, X-rays, ultrasound scanning, a magnetic resonance imaging (MRI), a computed tomography (CT) scan and tests to find out whether there are heart-related problems, such as an irregular heartbeat.

Since TIA symptoms resolve on their own, your health care provider will likely work with you to address the underlying causes to prevent additional TIAs or a stroke. Treatment options will depend upon the cause or causes, your medical history, and the results of any testing. Treatment often includes medication and lifestyle changes and could include surgery. Effective treatment may help reduce your risk for stroke or another TIA.

TIA risk factors:

Anyone can have a TIA, but the risk increases with age. Some of the controllable risk factors for TIAs include high blood pressure, smoking, cardiovascular disease, diabetes, blood clots and alcohol abuse.



If you've previously had a stroke, pay careful attention to the signs of TIA, because they could signal a second stroke in your future. If you've already had at least one TIA, you are almost 10 times more likely to have a stroke than someone of the same age and sex who hasn't.

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- 3** Connect with others who have also had an experience with stroke by joining our Support Network at stroke.org/supportnetwork.

Do you have questions for the doctor or nurse?

Take a few minutes to write your questions for the next time you see your health care provider.

For example:

Which facility close to me is best equipped to treat me if I am having TIA symptoms?

What medical conditions do I have that put me at higher risk for TIA?

How can I reduce my risk for TIA?

MY QUESTIONS:

We have many other fact sheets to help you make healthier choices to manage your condition or care for a loved one. Visit stroke.org/letstalkaboutstroke to learn more.



let's talk about a

Stroke Diagnosis

It's critical to diagnose a stroke in progress because the treatment for stroke depends on the type of stroke, and, in some cases, the location of the injury to the brain.

Other conditions with similar symptoms to stroke and transient ischemic attack (TIA) will need to be ruled out to diagnose stroke. Some of these include seizures, fainting, migraine headaches, drug overdose, heart problems or other general medical conditions.



A CT or "CAT" scan is usually one of the first tests used to diagnose stroke.

How is a stroke diagnosed?

The type of stroke must be determined for proper treatment. Ischemic strokes are caused by a blocked artery in the brain. A ruptured blood vessel causes a hemorrhagic stroke. Treatment for ischemic stroke is different than it is for a hemorrhagic stroke.

In the emergency room, your stroke emergency team may:

- Ask you when the symptoms of the stroke started. This is critical in determining what treatment is best for you.
- Ask you about your medical history.
- Do a physical and neurological examination.
- Have certain lab (blood) tests done.
- Do a CT (computed tomography) or MRI (magnetic resonance imaging) brain scan. This determines what kind of stroke a person has had.
- Study the results of other diagnostic tests that might be done.

What are the types of diagnostic tests?

Diagnostic tests examine how the brain looks, works and gets its blood supply. Most are safe and painless. These tests fall into two categories: 1) imaging tests and 2) blood flow tests.

IMAGING TESTS

- **CT (computed tomography) or CAT scan.** It uses radiation to create a picture (like an X-ray) of the brain. It's usually one of the first tests given to a patient with stroke symptoms. CT test results give information about the cause of stroke and the location and extent of brain injury.
- **MRI (magnetic resonance imaging).** This test uses a large magnetic field to produce an image of the brain. Like the CT scan, it shows the location and extent of brain injury. The image produced by MRI is more detailed than a CT scan, so it's often used to diagnose small, deep injuries to the brain.
- **CTA (computed tomographic angiography).** In CTA, a special contrast material (dye) is injected into a vein and images are taken of the blood vessels to look for abnormalities such as an aneurysm.

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- **MRA (magnetic resonance angiography).** In this test, the blood vessels are imaged through a magnetic resonance scanner to locate a blocked artery or to identify if a cerebral aneurysm is present.

Additional advanced tests that may be done include CT perfusion, diffusion-weighted MRI or MRI perfusion.

BLOOD FLOW TESTS

These tests give information about the condition of arteries in your head and neck that supply blood to your brain.

- **Cerebral angiography (or cerebral arteriography).** Special substances are injected into the blood vessels and an X-ray is taken. This test gives a picture of the blood flow through the vessels. This allows the size and location of blockages to be seen. This test helps in diagnosing aneurysms and malformed blood vessels.

How will I be treated?

The treatment you will receive will depend on the type of stroke you have been diagnosed with.



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Do you have questions for your doctor or nurse?

Take a few minutes to write down your questions for the next time you see your health care provider.

For example:

Do these tests cause any complications?

MY QUESTIONS:

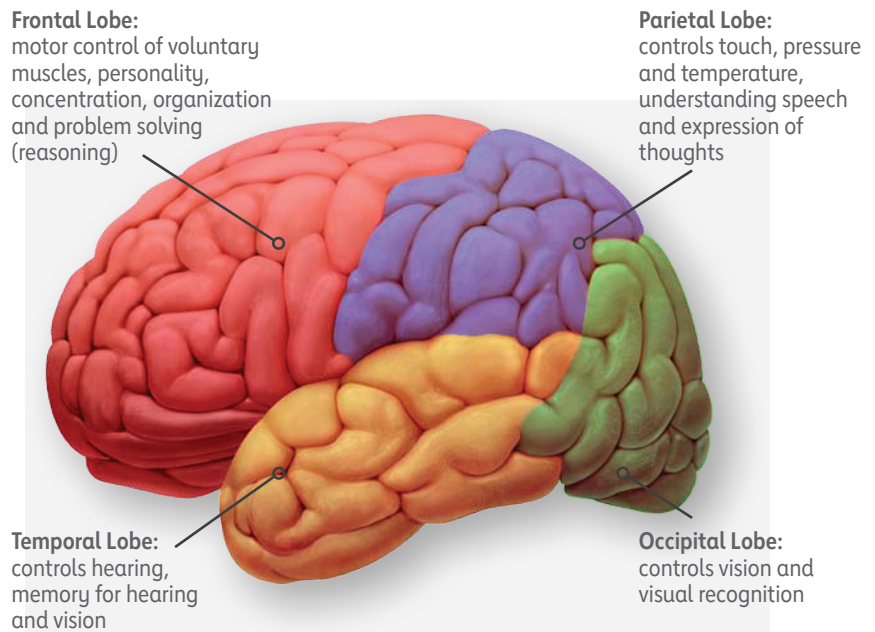
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let's talk about

Changes Caused by Stroke

Your brain controls how you move, feel, communicate, think and act. Brain injury from a stroke may affect any of these abilities. Some changes are common, no matter where the injury occurs in the brain. Others are based on which side of the brain the stroke injures.



What are the most common general effects of stroke?

- Hemiparesis (weakness on one side of the body) or hemiplegia (paralysis on one side of the body)
- Dysarthria (difficulty speaking or slurred speech) or dysphagia (trouble swallowing)
- Fatigue
- Loss of emotional control and changes in mood
- Cognitive changes (problems with memory, judgment, problem-solving or a combination of these)
- Behavior changes (personality, improper language or actions)
- Decreased field of vision (inability to see peripheral vision) and trouble with visual perception

What are common changes with a left-brain injury?

- Paralysis or weakness on the right side of the body

- Aphasia (difficulty getting your words out or understanding what's being said)
- Behavior that may be more reserved and cautious than before

What are common changes with a right-brain injury?

- Paralysis or weakness on the left side of the body
- One-sided neglect, which is a lack of awareness of the left side of the body (It may also be a lack of awareness of what's going on to the survivor's left. For example, they may only eat from the right side of their plate, ignoring the left side of the plate.)
- More impulsive behavior and less cautious than before
- Difficulty understanding facial expressions and tone of voice and possibly having less expression and tone of voice when communicating

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What are common emotional effects of stroke?

- Depression
- Apathy and lack of motivation
- Frustration, anger and sadness
- Pseudobulbar affect, or PBA, also called reflex crying or emotional lability (emotions may change rapidly and sometimes not match the mood)
- Denial of the changes caused by the brain injury

Will I get better?

Every person and every stroke is unique. In most cases, people get better over time. The effects of a stroke are greatest right after the stroke. From then on, how fast and how much you improve depend on the extent of the brain injury and your rehabilitation.

- Some improvement occurs spontaneously and relates to how the brain works again after it's been injured.
- Stroke rehabilitation programs help you improve your abilities and learn new skills and coping techniques.



- Rehabilitation begins often within a day or two after the stroke once you're medically stable.
- Depression after stroke can interfere with rehabilitation. So it's important to treat it.
- Improvement often occurs most quickly in the first months after a stroke. Then it continues over years, perhaps at a slower pace, with your continued efforts.

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Do you have questions for your doctor or nurse?

Take a few minutes to write down your questions for the next time you see your health care professional.

For example:

Can other areas of the brain help the damaged part of the brain?

How has my stroke affected me?

MY QUESTIONS:

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let's talk about

Complications After Stroke

The treating doctor's highest priorities are to prevent complications that can occur as a result from the stroke and to prevent another stroke. Your doctor must determine that you are medically stable and able to resume some self-care activities. This means that all complications must be treated and under control.

Some things happen as a direct result of injury to the brain due to stroke. Others are because of a change in your abilities. For example, being unable to move freely can result in bedsores. Clinical depression can also occur with a stroke.



What are common complications of stroke?

The most common complications of stroke are:

- Brain edema — swelling of the brain after a stroke.
- Pneumonia — causes breathing problems, a complication of many major illnesses. Pneumonia occurs as a result of not being able to move as a result of the stroke. Swallowing problems after stroke can sometimes result in things 'going down the wrong pipe', leading to aspiration pneumonia.
- Urinary tract infection (UTI) and/or bladder control. UTI can occur as a result of having a foley catheter placed to collect urine when the stroke survivor cannot control bladder function.
- Seizures — abnormal electrical activity in the brain causing convulsions. These are common in larger strokes.
- Clinical depression — a treatable illness that often occurs with stroke and causes unwanted emotional

and physical reactions to changes and losses. This is very common after stroke or may be worsened in someone who had depression before the stroke.

- Bedsores — pressure ulcers that result from decreased ability to move and pressure on areas of the body because of immobility.
- Limb contractures — shortened muscles in an arm or leg from reduced ability to move the affected limb or lack of exercise.
- Shoulder pain — stems from lack of support of an arm due to weakness or paralysis. This usually is caused when the affected arm hangs resulting in pulling of the arm on the shoulder.
- Deep venous thrombosis (DVT) — blood clots form in veins of the legs because of immobility from stroke.

What can be done?

If you need medical treatment, your doctor will prescribe it.

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- Medical treatment often involves medical supervision, monitoring and drug therapies.
- Physical treatment usually involves some type of activity that may be done by you, a healthcare provider or by both of you working together. Types of treatment may include:
 - Range-of-motion exercises and physical therapy to avoid limb contracture, shoulder pain and blood vessel problems.
 - Frequent turning while in bed to prevent pressure sores and good nutrition.
 - Bladder training programs for incontinence.
- Swallowing and respiratory therapy, and deep-breathing exercises. These all help to decrease the risk of pneumonia.
- Psychological treatment can include counseling or therapy for feelings that result from clinical depression. Types of treatment may include antidepressant medication, psychotherapy or both. You may also be referred to a local stroke support group.



Physical therapy and range-of-motion exercises are effective ways to strengthen limbs and prevent muscular contracture.

HOW CAN I LEARN MORE?

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- 3 Connect with others sharing similar journeys with stroke by joining our Support Network at **strokeassociation.org/supportnetwork**.

Do you have questions for the doctor or nurse?

Take a few minutes to write your questions for the next time you see your healthcare provider.

For example:

What complications am I most at risk for?

What can I do to prevent complications?

My Questions:

We have many other fact sheets to help you make healthier choices to reduce your risk, manage disease or care for a loved one. Visit **strokeassociation.org/letstalkaboutstroke** to learn more.



let's talk about

Driving After Stroke

Driving is often a major concern after a stroke. It's not unusual for stroke survivors to want to drive. Getting around after a stroke is important — but safety is even more important.

Can I drive after a stroke?

Injury to the brain may change how you do things. Many stroke survivors may develop some type of cognitive changes after their stroke. This may include problems with memory, judgment, problem-solving or a combination of these. Some survivors may also experience trouble with vision due to their stroke. Certain medications used for management of pain, seizures or other post-stroke related conditions can also affect your level of alertness and may impact your ability to drive. So before you drive again, think carefully about how these changes may affect safety for you, your family and others.

How can a stroke affect the way I drive?

Often, survivors are unaware of all the effects of their stroke and their impact on their driving abilities. You may feel you're able to drive even when it's not safe for you to do so. It's important before you begin driving again that you've been cleared to do so by your health care professional. Driving against your doctor's advice can be dangerous and may be illegal. In some cases, your doctor may have to notify your state that you've been advised not to drive.

If you or someone you know has experienced any of these warning signs of unsafe driving, please consider taking a driving test:

- Drives too fast or too slow for road conditions or posted speeds
- Needs help or instructions from passengers
- Doesn't observe signs or signals
- Makes slow or poor distance decisions
- Gets easily frustrated or confused



- Often gets lost, even in familiar areas
- Has accidents or close calls
- Drifts across lane markings into other lanes

How can I tell if it's safe for me to drive?

- Talk to your doctor or occupational therapist. They will offer a professional opinion about how your stroke might change your ability to drive. Contact your State Department of Motor Vehicles and ask for the Office of Driver Safety. Ask what rules apply to individuals who've had a stroke.
- Take a driving test. Professionals such as driver rehabilitation specialists can evaluate your driving ability. You'll get a behind-the-wheel evaluation and be tested for vision perception, functional ability, reaction time, judgment and cognitive abilities (thinking and problem solving). Contact community rehabilitation centers or your local State Department of Motor Vehicles office.

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- Enroll in a driver's training program. For a fee, you may receive a driving assessment, classroom instruction and suggestions for modifying your vehicle (if necessary). These programs are often available through rehab centers.
- Ask your family if they've seen changes in your communication, thinking, judgment or behavior that should be evaluated before you drive again. Family members often see what others don't.

What if I can't drive after a stroke?

- Even if you're not able to drive your vehicle as it was before your stroke, the right modifications can help you regain confidence and independence on the road. Contact a rehabilitation specialist in your area to help assess your ability to operate a motor vehicle. Look for certified driver rehabilitation specialists who can also evaluate whether modifications will be necessary or helpful.
 - If you need help paying for recommended modifications, state and other government programs can help. For example, the National Mobility Equipment Dealers Association can help you explore mobility equipment options, locate dealers and funding sources and more.



- If safety demands you put down your car keys, there are still many resources available to help you get around. If your community has public transportation, it may also offer free paratransit services for those with disabilities. Many communities also have voucher or volunteer-based transportation programs that offer low- or no-cost transportation. To find more transportation options, search by your location through the National Aging and Disability Transportation Center (nadt.org).

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Do you have questions for your doctor or nurse?

Take a few minutes to write down your questions for the next time you see your health care professional.

For example:

When should I test my driving ability?

Is my driving restriction permanent?

MY QUESTIONS:

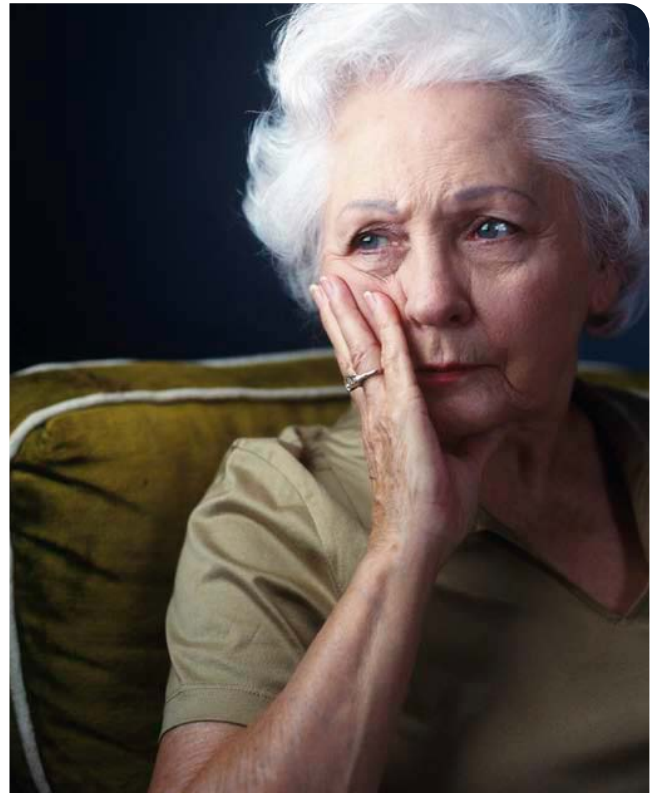
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let's talk about

Emotional Changes After Stroke

Right after a stroke, a survivor may respond one way, yet weeks later respond differently. Some survivors may react with sadness; others may be cheerful. These emotional reactions may occur because of biological or psychological causes due to stroke. These changes may vary with time and can interfere with rehabilitation.



How does stroke cause emotional changes?

Emotions may be hard to control, especially right after a stroke. Some changes are a result of the actual injury and chemical changes to the brain caused by the stroke.

Others are a normal reaction to the challenges, fears and frustrations that one may feel trying to deal with the effects of the stroke. Often, talking about the effects of the stroke and acknowledging these feelings helps stroke survivors deal with these emotions.

What are some common emotional changes after stroke?

Pseudobulbar Affect, also called “emotional lability,” “reflex crying” or “labile mood,” can cause:

- Rapid mood changes — a person may “spill over into tears” for no obvious reason and then quickly stop crying or start laughing.
- Crying or laughing that doesn’t match a person’s mood.
- Crying or laughing at unusual times or that lasts longer than seems appropriate.

Post-stroke depression is characterized by:

- Feelings of sadness
- Hopelessness or helplessness
- Irritability
- Changes in eating, sleeping and thinking

Treatment for post-stroke depression may be needed. If not treated, depression can be an obstacle to a survivor’s recovery. Don’t hesitate to take antidepressant medications prescribed by your doctor.

Other common emotional reactions include:

- Frustration
- Anxiety
- Anger
- Apathy or not caring what happens
- Lack of motivation
- Depression or sadness

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How can I cope with my changing emotions?

- Tell yourself that your feelings aren't "good" or "bad." Let yourself cope without feeling guilty about your emotions.
- Find people who understand what you're feeling. Ask about a support group.
- Get enough exercise and do enjoyable activities.
- Give yourself credit for the progress you've made. Celebrate the large and small gains.
- Learn to "talk" to yourself in a positive way. Allow yourself to make mistakes.
- Ask your doctor for help. Ask for a referral to a mental health specialist for psychological counseling and/or medication if needed.
- Stroke may cause you to tire more easily. Rest when you feel fatigued. Make sure you get enough sleep. Sometimes lack of sleep can cause emotional changes and cause you not to cope as well.



Connecting with friends or joining a stroke support group may help you cope with your changing emotions.

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- 3 Connect with others sharing similar journeys with stroke by joining our Support Network at **strokeassociation.org/supportnetwork**.

Do you have questions for the doctor or nurse?

Take a few minutes to write your questions for the next time you see your healthcare provider.

For example:

What can my family do to help me when I am emotional?

Will these emotional changes improve over time?

My Questions:

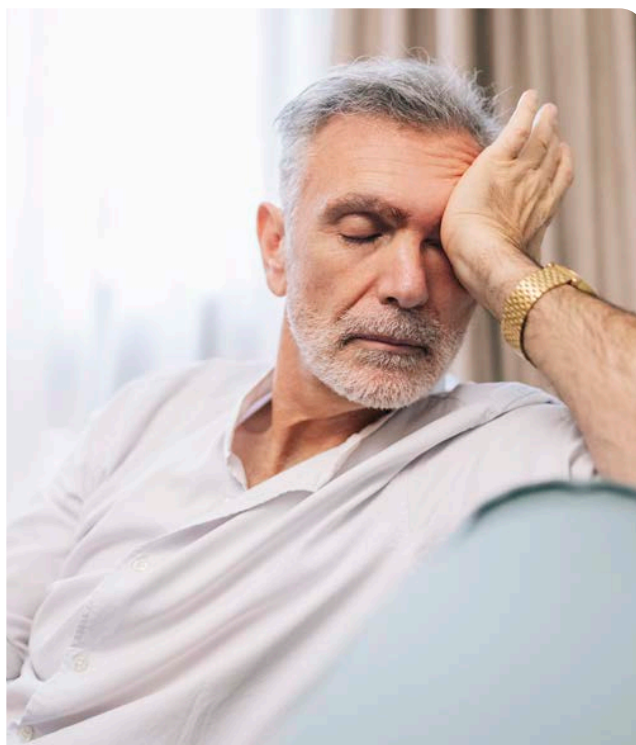
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let's talk about

Feeling Tired After Stroke

After a stroke, many survivors develop post-stroke fatigue, which means they may feel more tired or lack energy. They can experience this fatigue at any time after their stroke, regardless of what type of stroke they had. For some, this feeling may continue for years, but they usually find ways to make the most of the energy they have.



Why am I so tired?

Feeling tired after a stroke can be caused by:

- Lifestyle changes - You may have less energy than before because of sleeping poorly, not getting enough exercise, poor nutrition or the side effects of some of your medications.
- Emotional changes - Coping with frustration, anxiety, anger and sadness can be draining. These feelings are common after a stroke. Loss of energy, interest or enthusiasm can occur along with a depressed mood.
- Physical changes - Stroke survivors often must work harder to make up for the loss of normal functions. You may have as much energy as before, but you could be using it differently. Because of the effects of your stroke, things such as dressing, talking or walking take a lot more effort. Changes in thinking and memory take more concentration. You have to stay "on alert" all the time — and this takes energy.

- Depression - Depression is very common after a stroke, but the good news is that it's treatable. Depression can occur right away or months or even years later. Symptoms include significant lack of energy, enthusiasm, motivation, plus problems concentrating or finding enjoyment in anything. Talk to your health care professional about an evaluation for depression if tiredness continues.

Diagnosis

Your health care professional can evaluate any medical reasons for your tiredness. They can also check if your fatigue could be a side effect of your medication.

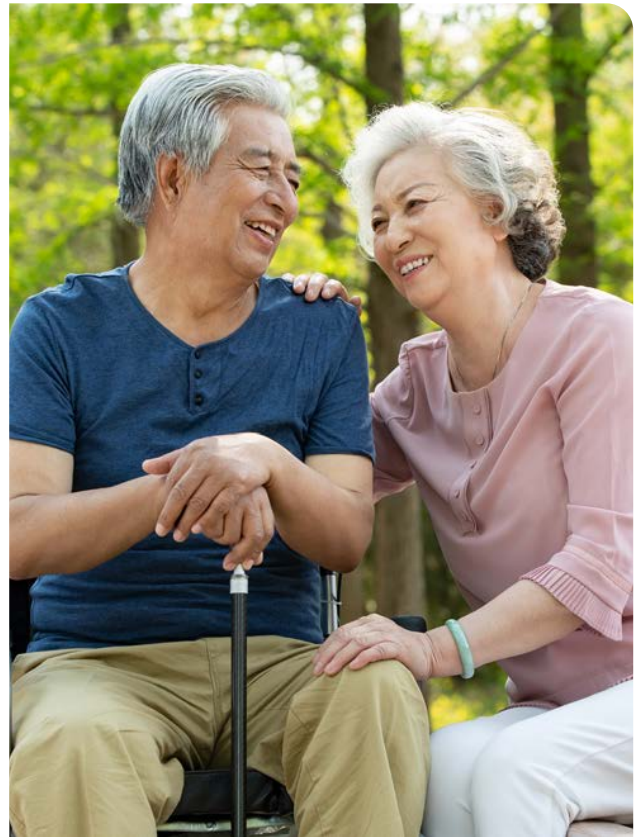
Tell your health care professional how you're feeling and make sure you have had an up-to-date physical. Be open and honest and explain that the symptoms you are experiencing started after your stroke.

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How can I increase my energy?

- Follow your health care team's recommendations closely and be sure to ask for help whenever needed.
- Celebrate your successes. Give yourself credit when you accomplish something. Look at your progress, not at what's left to be done.
- Talk to your health care provider about your energy level, try to get plenty of sleep at night.
- Learn to relax. Exerting too much energy may leave you tense, anxious and frustrated. All this takes more energy.
- Do something you enjoy every day. A positive attitude or experience helps boost energy levels.
- Be social. It's very important to get back into the "swing of things" and stay involved with the people you know. Go out into the community and interact with friends, family and other people.
- Physical activity is important. With permission from your health care professional, consider joining a health and wellness program.



HOW CAN I LEARN MORE?

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- 2** Sign up for our monthly *Stroke Connection e-news* for stroke survivors and caregivers at StrokeConnection.org.
- 3** Connect with others who have also had an experience with stroke by joining our Support Network at stroke.org/SupportNetwork.

Do you have questions for your doctor or nurse?

Take a few minutes to write down your questions for the next time you see your health care professional.

For example:

What can I do to decrease my tiredness?

Could clinical depression be causing my tiredness?

Are the medications I take causing my fatigue?

MY QUESTIONS:

We have many other fact sheets to help you make healthier choices, manage your condition or care for a loved one. Visit stroke.org/LetsTalkAboutStroke to learn more.



let's talk about

Living at Home After Stroke

Most stroke survivors are able to return home and resume many of the activities they did before the stroke. Leaving the hospital may seem scary at first because so many things may have changed. The hospital staff can help prepare you to go home or to another setting that can better meet your needs.



For your safety, you may need to have handrails installed in your bathroom.

How do I know if going home is the right choice?

Going home poses few problems for people who have had a minor stroke and have few lingering effects. For those whose strokes were more severe, going home depends on these four factors:

- **Ability to care for yourself.** Rehabilitation should be focused on being able to perform daily activities such as eating, dressing and bathing.
- **Ability to follow medical advice.** This is a critical step in recovery and preventing another stroke or other complications after stroke. It's important to take medication as prescribed and follow medical advice.
- **A caregiver.** Someone should be available who is willing and able to help when needed.
- **Ability to move around and communicate.** If stroke survivors aren't independent in these areas, they may be at risk in an emergency or feel isolated.

What changes do I need to make at home?

Living at home successfully also depends on how well your home can be adapted to meet your needs.

- **Safety.** Take a look around your home and remove anything that might be dangerous. This might be as simple as taking up throw rugs, testing the temperature of bath water or wearing rubber-soled shoes. Or it may be more involved, like installing handrails in your bathroom or other areas.
- **Accessibility.** You need to be able to move freely within the house. Changes can be as simple as moving the furniture or as involved as building a ramp.
- **Independence.** Your home should be modified so you can be as independent as possible. Often this means adding special equipment like grab bars or transfer benches.

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What if I can't go home?

Your doctor may advise a move from the hospital to another type of facility that can meet your needs for a short time or permanently. It's important that the living place you choose is safe and supports your continued recovery. Your social worker and case manager at the hospital can give you information about facilities that might work for you. Possibilities include:

- **Nursing facility.** This can be a good option for someone who has ongoing medical problems. This type of facility provides round-the-clock care.
- **Skilled nursing facility.** This is for people who need more than usual medical attention, continued therapy and more care than a caregiver can provide at home. This type of facility also provides round-the-clock care.
- **Intermediate care facility.** This is for people who don't have serious medical problems and can manage some level of self-care.
- **Assisted living.** This is for people who can live somewhat independently but need some assistance with things like meals, medication and housekeeping.



Many stroke survivors who are unable to immediately return home find the support they need at assisted living or nursing facilities.

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- 2 Sign up to get *Stroke Connection* magazine, a free magazine for stroke survivors and caregivers at **strokeconnection.org**.
- 3 Connect with others sharing similar journeys with stroke by joining our Support Network at **strokeassociation.org/supportnetwork**.

Do you have questions for the doctor or nurse?

Take a few minutes to write your questions for the next time you see your healthcare provider.

For example:

What living arrangement would you recommend for me?

Is there a caregiver or stroke support group available in my community?

My Questions:

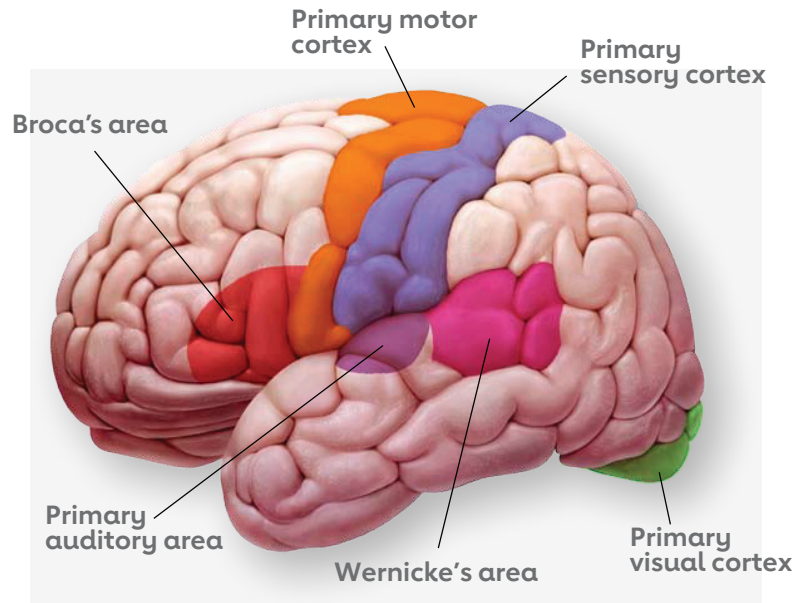
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let's talk about

Stroke and Aphasia

Aphasia is a language disorder that impairs the ability to communicate. It's most often caused by stroke-related injuries to certain areas of the brain (usually on the left side) that influence how we use and understand language.



What are the effects of aphasia?

Aphasia can cause a person's speech to be jumbled, fragmented or hard to understand. They may have:

- Difficulty getting words out
- Trouble finding words
- Difficulty understanding what others are saying
- Problems with reading, writing or math
- Trouble with long and/or uncommon words

Aphasia doesn't affect intelligence. People with aphasia usually remain mentally alert.

What is it like to have aphasia?

Aphasia often plunges alert, intelligent people into a world of jumbled communication. Imagine not being able to recognize the words in the headline of a story. It could be like trying to say, "Put the car in the garage." But it comes out, "Put the train in the house." Or, "widdle tee car ung sender plissen."

People with aphasia are often frustrated and confused because they can't speak as well and/or understand others the way they could before their stroke. They may act differently because of changes in their brain and show symptoms of depression. A person with aphasia will likely

undergo evaluation by a multifaceted team to determine the best treatment plan.

Are there different types of aphasia?

Yes. They include:

- **Global aphasia:** People have a severe impairment in forming and understanding words and sentences. Many are unable to read or write.
- **Broca's aphasia:** Speech is halting and difficult, marked by problems with grammar such as dropped words and sometimes impaired comprehension.
- **Wernicke's aphasia:** People often string together meaningless words that only sound like a sentence and have difficulty understanding others' speech.

What is the difference between aphasia and apraxia?

Aphasia, apraxia of speech and oral apraxia are all communication disorders that can result from a stroke. It can be hard to distinguish them, especially since all three may be present at the same time. Here's what the terms mean:

- **Aphasia** is an impairment in the ability to use and/or comprehend words.

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- **Apraxia of speech**, or **verbal apraxia**, involves difficulty moving muscles needed to speak, even though there is no paralysis or weakness of those muscles.
- **Oral apraxia**, or **nonverbal oral apraxia**, involves difficulty moving the muscles of the lips, throat, soft palate and tongue for purposes other than speech, such as smiling or whistling.

How can family and friends help?

Loved ones, who like stroke survivors, may need help and support of a doctor, counselor and speech pathologist, should:

- Be open about the problem so others understand the situation.
- Always assume the person with aphasia can hear. Confirm their understanding with yes/no questions.
- Set up a daily routine for the person with aphasia that includes rest and time to practice skills.
- Use sentences that are short and to the point.
- Keep the noise level down and stand where the person with aphasia can see you.



- Treat the person with aphasia as an adult and include them in conversations and decision-making whenever possible.
- Help the person with aphasia cope with frustration and depression.
- Be patient. Give people with aphasia time to communicate with you. You'll respect their dignity and help reduce their stress.

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Do you have questions for your doctor or nurse?

Take a few minutes to write down your questions for the next time you see your health care professional.

For example:

- How long will I need therapy?**
- Will my mother's aphasia improve?**
- How can I find a stroke or aphasia support group?**

MY QUESTIONS:

We have many other fact sheets to help you make healthier choices, manage your condition or care for a loved one. Visit stroke.org/LetsTalkAboutStroke to learn more.



let's talk about

Stroke Rehabilitation

There is life – and hope – after stroke. Rehabilitation (rehab) can build your strength, capability and confidence. It can help you continue our daily activities despite the effects of your stroke.

The American Stroke Association recommends an inpatient rehabilitation facility (IRF) when possible. In an IRF, the stroke survivor must be capable of doing three hours of therapy five days a week. They must be medically stable. IRF's provide hospital-level care that is physician directed with 24-hour specialized nursing care.

Some survivors may get rehab in skilled nursing facilities (SNF), long-term acute care facilities, nursing homes, outpatient clinics and in-home care through a home health agency. Patients may receive care in one or more settings during their recovery.



Stroke rehabilitation can be hard work. But survivors who've been there will tell you it's well worth it.

What is stroke rehabilitation?

After a stroke, you may have to change or relearn how you live day to day. Getting quality rehab from a strong team of therapists leads to better recovery. It can also make a positive difference in other areas of your health.

The goal of rehab is to become as independent as possible. To do so means working on physical and communication functions harmed by the stroke. Making healthy lifestyle changes to prevent another stroke is another goal.

Who will be a part of my rehabilitation program?

Rehabilitation is a team effort. This team communicates about and coordinates the care to help achieve your goals. Your physician and neurologist are on the team, others may include:

- **Physiatrist** — A medical doctor specializing in stroke rehab.
- **Physical therapist (PT)**— PTs work to get you as mobile and as independent as possible. They help improve major physical and sensory deficits. The focus on walking, balance and coordination.
- **Occupational therapist (OT)**— OTs help you with daily activity skills (bathing, toileting, eating, driving).
- **Rehabilitation nurse** — A nurse who coordinates your medical support needs throughout rehab.
- **Speech-language pathologists (SLP)** — SLPs help with speech and language skills and swallowing disorders.
- **Recreation therapist (RT)** — RTs help with adapting activities you enjoyed before the stroke. They may introduce new ones, too.
- **Psychiatrist or psychologist** — Stroke may bring emotional and life changes. These health care providers can help you adjust.
- **Vocational rehabilitation counselor** — This specialist evaluates your work-related abilities. They help you make the most of your skills to return to work.

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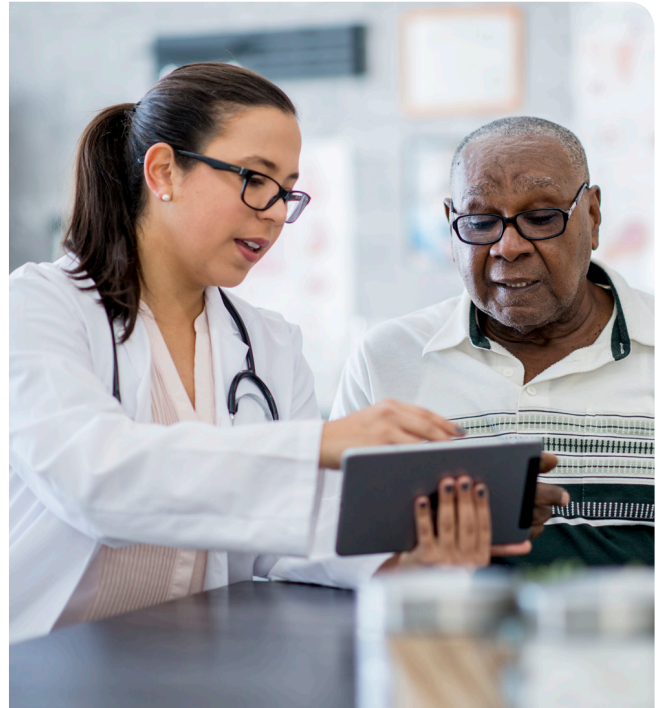


What will I do in rehabilitation?

Rehab programs focus on assessing and improving:

- Activities of daily living such as eating, bathing and dressing.
- Mobility (getting from bed to chair, walking, climbing stairs or using a wheelchair).
- Communication skills in speech and language.
- Cognitive skills such as memory or problem solving.
- Social skills, interacting with other people.
- Psychological functioning to improve coping skills and treatment to overcome depression, if needed.

The rehabilitation team meets weekly to check on progress. Part of rehab is working on recovery. Another part is learning to adapt for deficits that may not fully recover.



HOW CAN I LEARN MORE?

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- 3** Connect with stroke survivors and caregivers by joining our Support Network at strokeassociation.org/supportnetwork.

Do you have questions for the doctor or nurse?

Take a few minutes to write your questions for the next time you see your health care provider.

For example:

How can I continue to improve my skills after formal rehab ends?

MY QUESTIONS:

We have many other fact sheets to help you make healthier choices to reduce your risk, manage disease or care for a loved one. Visit strokeassociation.org/letstalkaboutstroke to learn more.



let's talk about

Being a Stroke Family Caregiver

People who assist stroke survivors are often called **caregivers**. It can be the spouse, family members or friends. Often, one person — spouse, adult child or parent — provides most of the care.

It's important that caregivers and stroke survivors be "care partners." The challenges to adjust to your new role may be easier if both share in decision-making. It's also important to share how you're feeling.



What should a stroke caregiver do?

There is no "job description" for caregivers. Each caregiver's responsibilities vary with the unique needs of the stroke survivor. Role changes and new skills may need to be learned.

Caregivers may:

- Provide physical help with personal care and transportation.
- Manage financial, legal and business affairs.
- Monitor behavior to ensure safety.
- Manage housework and make meals.
- Coordinate health care and monitor or give medications.
- Help the survivor maintain and improve learned rehab skills.
- Provide emotional support for the stroke survivor and family members.
- Encourage the stroke survivor to continue working toward recovery and be as independent as possible.

Is there assistance for caregivers?

Providing care for a stroke survivor can be very rewarding. But it also can be stressful and frustrating when you suddenly become a caregiver. To be successful, you must also take care of your needs.

Breaks are important for you and the stroke survivor.

Depending on the severity of the stroke, the role of caregiver may be too much for one person. It's important to rely on others when you need to. It can ease the stress of caring for your loved one.

Help may come from family, friends, your place of worship, government and nonprofit agencies and community resources.

These community resources may be helpful:

- **Adult day care** — professional supervision of adults in a social setting during the day
- **Adult foster homes** — supervised care in approved (licensed) private homes
- **Meal programs (Meals on Wheels)** — a federally sponsored nutrition program
- **Home health care aide service** — in-home, part-time medical services ordered by a health care professional
- **Homemaker and personal care support** — supervised, trained people who help prepare meals and do household chores
- **Respite care** — short-term relief for caregivers. It can be for a few hours, days or even weeks. Care may be provided at home, in a health care setting or adult day care.
- **Stroke support group** — education and emotional support for stroke survivors and their family caregivers

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Let's Talk About Being a Stroke Family Caregiver

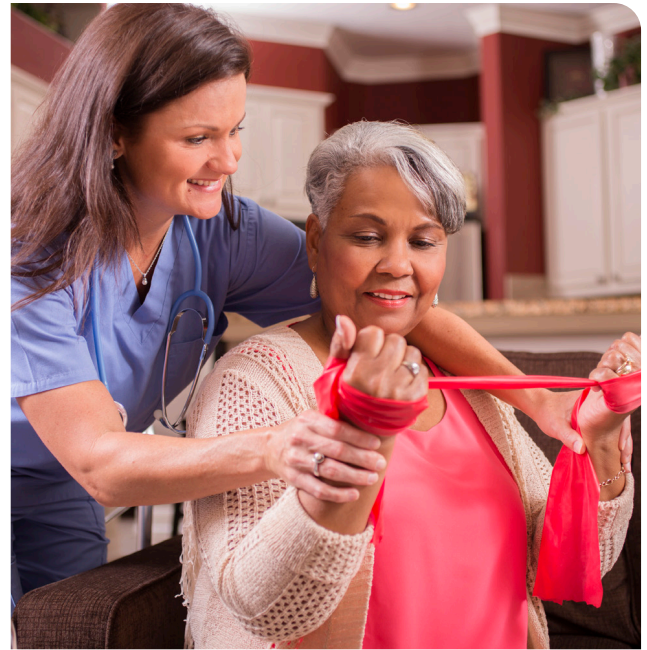
Is training available for family caregivers?

A good place to start is with your local Administration on Aging. Visit eldercare.acl.gov or call 800-677-1116 to find an office near you.

You can contact the Family Caregiver Alliance at 800-445-8106 or visit caregiver.org. They can provide information, education and support for family caregivers, including the Family Care Navigator, a state-by-state list of services and assistance.

The Family Caregiver Alliance also offers access to more than 40 free, recorded webinars on caregiver topics under categories of daily care, planning for care and self-care. Visit the [FCA webinar library](#) to view all webinars available. You can also visit the [FCA's YouTube channel](#), which offers numerous caregiving topics and videos in English and other languages, including Chinese, Mandarin, Spanish and Vietnamese.

Caregiver Action Network's Caregiver Video Resource Center has videos of caregivers talking about their experiences and what they've learned. In these videos, family members share discoveries and describe their journeys through caring for loved ones. The Caregiver Action Network also offers several **instructional videos** for hands-on care.



Hiring a home health care aide can give you a break as a full-time primary caregiver.

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Do you have questions for your doctor or nurse?

Take a few minutes to write down your questions for the next time you see your health care professional.

For example:

Is there a stroke survivor support group or caregiver support group in my area?

Do other organizations support caregivers?

MY QUESTIONS:

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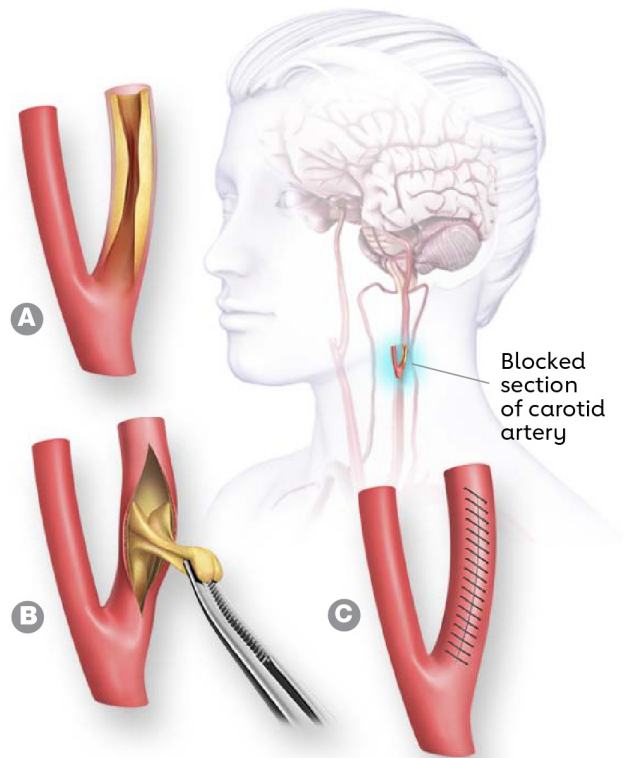


let's talk about

Carotid Endarterectomy

Atherosclerosis is a condition where the arteries become narrowed and hardened due to buildup of fatty substances (plaque) in the artery wall. When the carotid arteries in the neck are affected by this condition, blood flow to the brain and head is restricted, increasing the risk for stroke. Carotid endarterectomy is a surgical procedure to remove plaque buildup in the carotid arteries.

- A. Artery is opened at the blocked section, revealing plaque.
- B. Plaque is removed from the artery.
- C. Cleaned artery is sutured shut.



Stroke and Atherosclerosis

There are two types of ischemic strokes caused by blood clots or narrowing of blood vessels to the brain caused by atherosclerosis or other particles.

Atherothrombotic stroke is the most common. It occurs when a blood clot forms on an atherosclerotic plaque within a blood vessel in the brain and blocks flow to that part of the brain.

Cerebral embolism occurs when a wandering clot or some other particle, called an embolus, is carried by the bloodstream. It lodges in an artery leading to or in the brain and blocks the flow of blood. Most embolic strokes are due to blood clots that form in people with atrial fibrillation.

What to expect?

Evaluation of your carotid arteries by a health care professional is important if you have had a stroke or TIA. Carotid endarterectomy can be done under general anesthesia – which means you'll sleep through the procedure – or local anesthesia – which means you'll be awake but sedated, and you'll feel numbness only at the site of the surgery. The surgery usually takes about one to two hours.

- The doctor makes a small cut in your neck where your carotid artery is blocked or narrowed.
- The doctor opens the narrowed artery and removes the plaque.
- The doctor closes the artery and the cut will be sutured.
- Blood now flows through the artery to your brain.

What about afterward?

- You'll recover in the hospital for one or two days.
- Your neck may be sore or will hurt for a couple of days.
- You may have a bruise where the surgery was done.
- You may be prescribed medication to control your pain.
- Because it may be hard to swallow at first, you may need to eat a soft diet while you heal.
- You will receive instructions on what you can and cannot do after the surgery. For example, you may be told not to lift anything heavy for a few weeks.

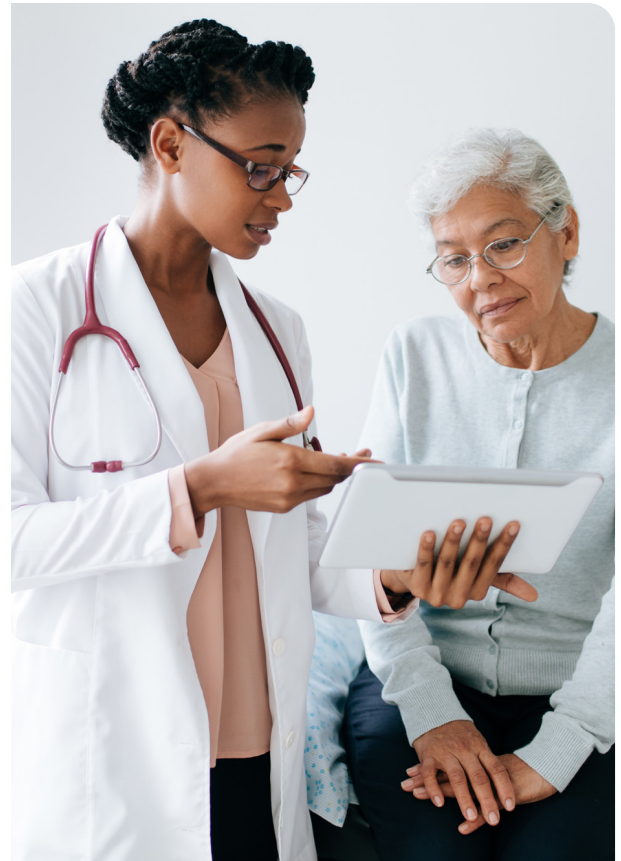
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- Ask your doctor when you can return to work.
- Your doctor will prescribe medications such as aspirin, clopidogrel or the combination of aspirin and dipyridamole to prevent further blood clotting.
- You should make healthy lifestyle changes to help reduce new plaque deposits and lower your risk of stroke.

How can I reduce my risk of stroke?

- Have your blood pressure checked often and manage high blood pressure.
- Don't smoke and avoid second-hand smoke.
- Reach and maintain a healthy weight.
- Get regular physical activity.
- Have your blood sugar tested, and control diabetes if you have it.
- Eat less salt, saturated fat and trans-fat such as fried foods.
- Limit alcohol to no more than two drinks a day for men, one drink a day for women.
- Take your medications exactly as prescribed.



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Do you have questions for your doctor or nurse?

Take a few minutes to write down your questions for the next time you see your health care professional.

For example:

Could I have a stroke during surgery?

Will I need a surgery again?

MY QUESTIONS:

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let's talk about

Personality Changes After Stroke

After a stroke, survivors often experience emotional, behavioral and cognitive changes. That's because stroke affects the brain, which controls our emotions, behavior and thinking. These changes are common and vary greatly.

Stroke survivors can experience:

- Impulsiveness
- Apathy
- Pseudobulbar affect
- Depression
- Anxiety
- Anger, irritability and aggression
- Confusion
- Forgetfulness
- Fatigue



Personality changes can be equally difficult for stroke survivors, caregivers and family members. They can be hard to identify and even unnoticed by health care professionals.

Types of Personality Changes

Pseudobulbar affect, or PBA, also known as emotional incontinence, causes sudden and unpredictable episodes of crying or laughing, often in socially inappropriate situations.

Depression is characterized by depressed mood, loss of interest, loss of energy, decreased concentration and mental, emotional and spiritual limitation.

Anxiety is characterized by extreme and unreasonable fear and difficulty managing daily tasks.

Anger, irritability and aggression occur in many people who get frustrated or lose their tempers more easily than before their stroke.

Impulsiveness is the inability to think ahead or understand consequences. It's more common with right-side or frontal lobe strokes.

Confusion can be better controlled when caregivers and family members minimize clutter and distractions, as well as reduce visual and sound stimulation of TV or music.

Forgetfulness and memory loss is caused by the loss of nerve cells in the brain. Stroke can affect two types of memory:

- Verbal: memory of names, stories and words
- Visual: memory of faces, shapes, routes and things seen

Apathy is described as lack of motivation or loss of interest in life by not wanting to participate in everyday activities.

Fatigue in stroke survivors is early extreme tiredness developed during mental activity.

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Diagnosis

Neuropsychological assessments can evaluate cognitive impairment and memory loss. Screening for and identifying post-stroke depression is vital for treatment and management.

Treatment

It's not uncommon for survivors to experience all of these personality changes. The good news is that several therapy options are available:

- **Solution Focused:** This goal-oriented therapy focuses on solutions instead of the problems.
- **Problem Solving:** Problems are identified and the therapist teaches the survivor a structured approach to solving them.
- **Cognitive Behavioral:** Looks at the relationships between thoughts, feelings and behavior.

- **Attitude and Commitment:** The survivor is taught to accept and embrace their thoughts, feelings, sensations and memories rather than try to control them.
- **Interpersonal:** Focuses on interpersonal relationships by improving how the survivor communicates and relates to express emotions in a healthy way.
- **Mindfulness:** Helps individuals with depression and chronic unhappiness.
- **Cognitive Rehabilitation Therapies (CRT)** work to restore functioning and independence after a stroke to improve survivors' quality of life and to help them more fully participate in society.
- **Cognitive Behavioral Therapy (CBT)** focuses on examining the relationships between thoughts, feelings and behavior, and may help survivors suffering from anxiety.

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Do you have questions for your doctor or nurse?

Take a few minutes to write down your questions for the next time you see your health care professional.

For example:

What can my family do to help me when I am emotional?

Will these personality changes improve over time?

MY QUESTIONS:

We have many other fact sheets to help you make healthier choices, manage your condition or care for a loved one. Visit stroke.org/LetsTalkAboutStroke to learn more.



For more information on Holy Cross Health's award winning stroke program scan the code or visit [HolyCrossHealth.org/stroke](https://www.holycrosshealth.org/stroke).

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