

**Erlanger Southeast
Regional Stroke Center**

**Ischemic & Hemorrhagic
Stroke Education Booklet**



B.E. F.A.S.T. for Stroke

Stroke is a sudden disorder of the blood supply to the brain, which can cause irreversible damage and disability.

Time is critical when treating strokes. It is always important to identify when the symptoms started. Sometimes treatment may cause harm if given too late. Because treatment is time sensitive and there are many causes of stroke, always ask to be treated at a certified stroke treatment center.

BALANCE



Sudden loss
of balance?

EYES



Loss of vision in
one or both eyes?

FACE



Face look uneven?

ARM



Arm or leg weak or
hanging down?

SPEECH



Speech slurred?
Trouble speaking
or seem confused?

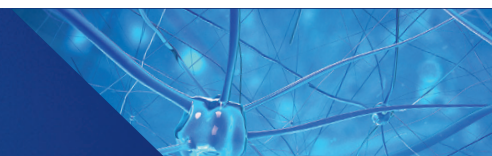
TIME



**Time to
call 911.**

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Southeast Regional Stroke Center at Erlanger Health System

The Erlanger Southeast Regional Stroke Center is proud to be Southeast Tennessee's **first and only accredited comprehensive Stroke Center.***

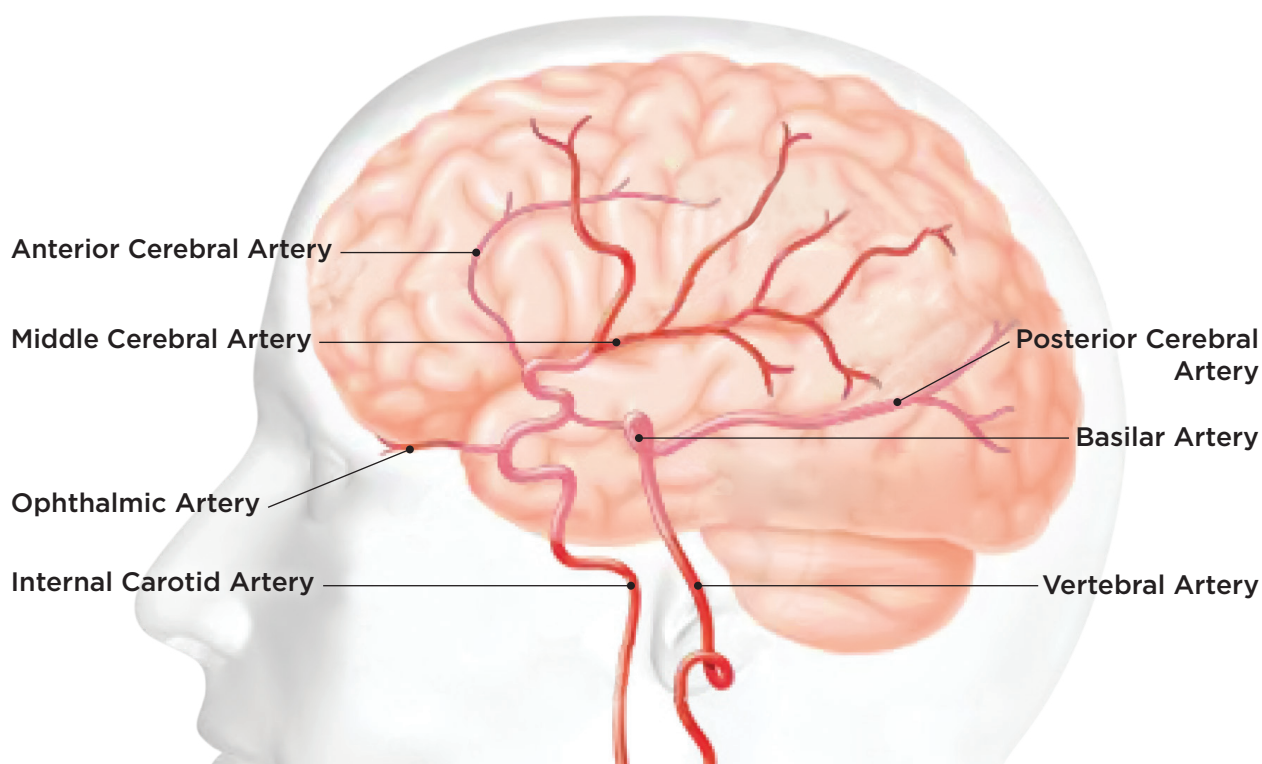
We provide this booklet for you and your family and/or caregivers as an educational resource on stroke. Please take time to read through the booklet as it will provide you with valuable information as you continue on the road to recovery. If you have any questions, please call your Stroke Program Coordinators at 423-778-9942 or 423-778-6443 or your Stroke Navigator at 423-778-5542. You will likely receive a follow up call from an Erlanger representative after you leave the hospital.

What is Stroke?

Stroke is the #5 cause of death in the US and the leading cause of serious, long-term disability in America. Stroke is a disease that affects the arteries of the brain. A stroke occurs when a blood vessel bringing blood and oxygen to the brain gets blocked or ruptures so brain cells don't get the flow of blood that they need. Without oxygen, nerve cells can't function and die within minutes. And when nerve cells don't function, the part of the body they control can't function either. The devastating effects of stroke are often permanent because dead brain cells can't be replaced. That is why stroke education and awareness of early stroke symptoms are so important.

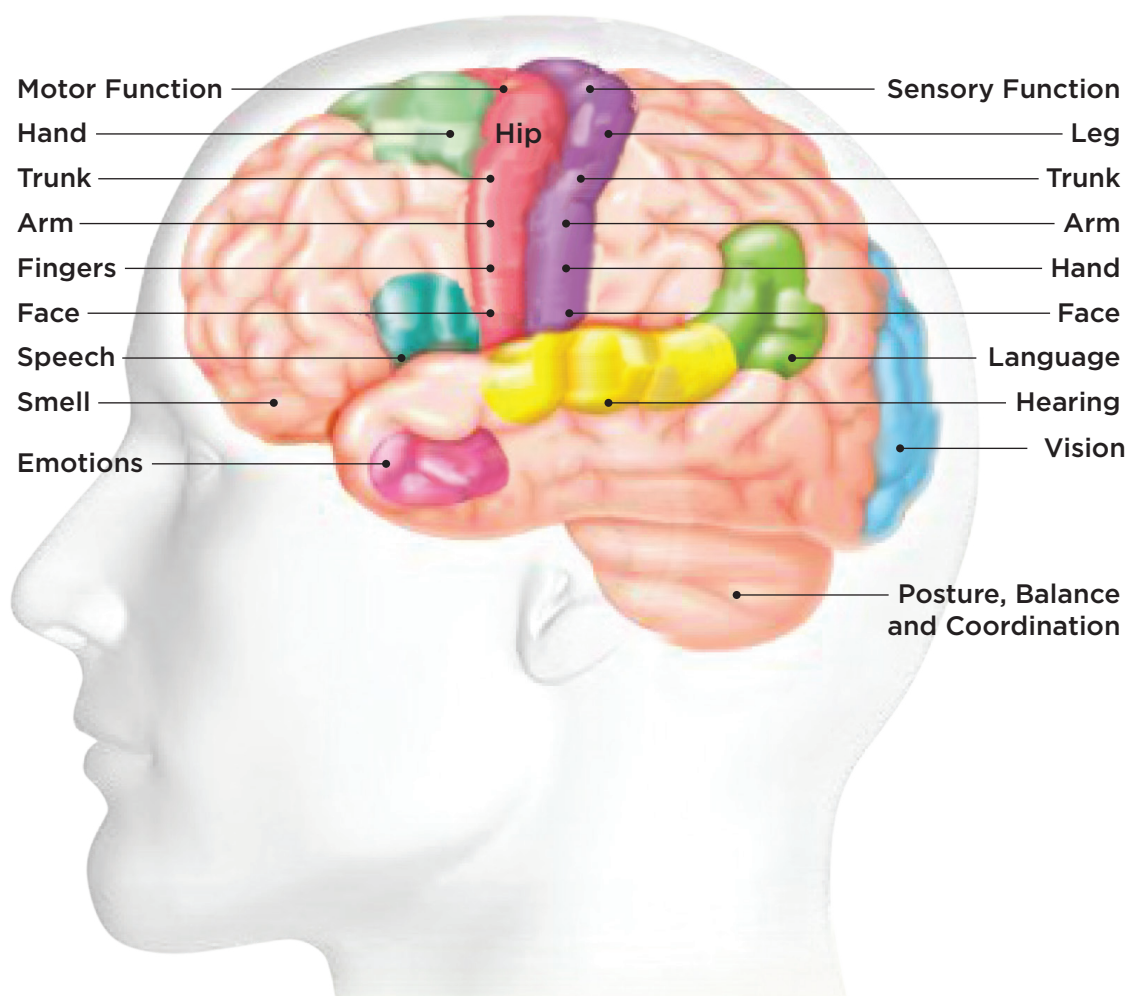
Blood Supply to the Brain

Blood vessels that carry blood to the brain from the heart are called arteries. The brain needs a constant supply of blood, which carries the oxygen and nutrients it needs to function. Each artery supplies blood to specific areas of the brain. A stroke occurs when one of these arteries to the brain is either blocked or bursts. As a result, part of the brain does not get the blood it needs, so it starts to die.



Motor and Sensory Function

The human brain is divided into several areas that control movement and sensory function, or how the body moves and feels. This picture of the left side of the brain shows some of these areas. When a stroke damages a certain part of the brain, that area may no longer work as well as it did before the stroke. This can cause problems with walking, speaking, seeing, or feeling.



Left and Right Sides of the Brain

The left side of the brain controls how the right side of the body moves and feels, and is responsible for how well we can figure out problems with science, understanding what we read and what we hear people say, number skills such as adding and subtracting, and reasoning. The right side of the brain controls the movements and feelings on the left side of the body and is in charge of how artistic we are, including musical and creative talents.

Left Hemisphere Controls the Following:

- Right hand
- Scientific functions
- Written language
- Spoken language
- Number skills
- Reasoning



Right Hemisphere Controls the Following:

- Left hand
- Spatial orientation
- Art awareness
- Creativity
- Insight

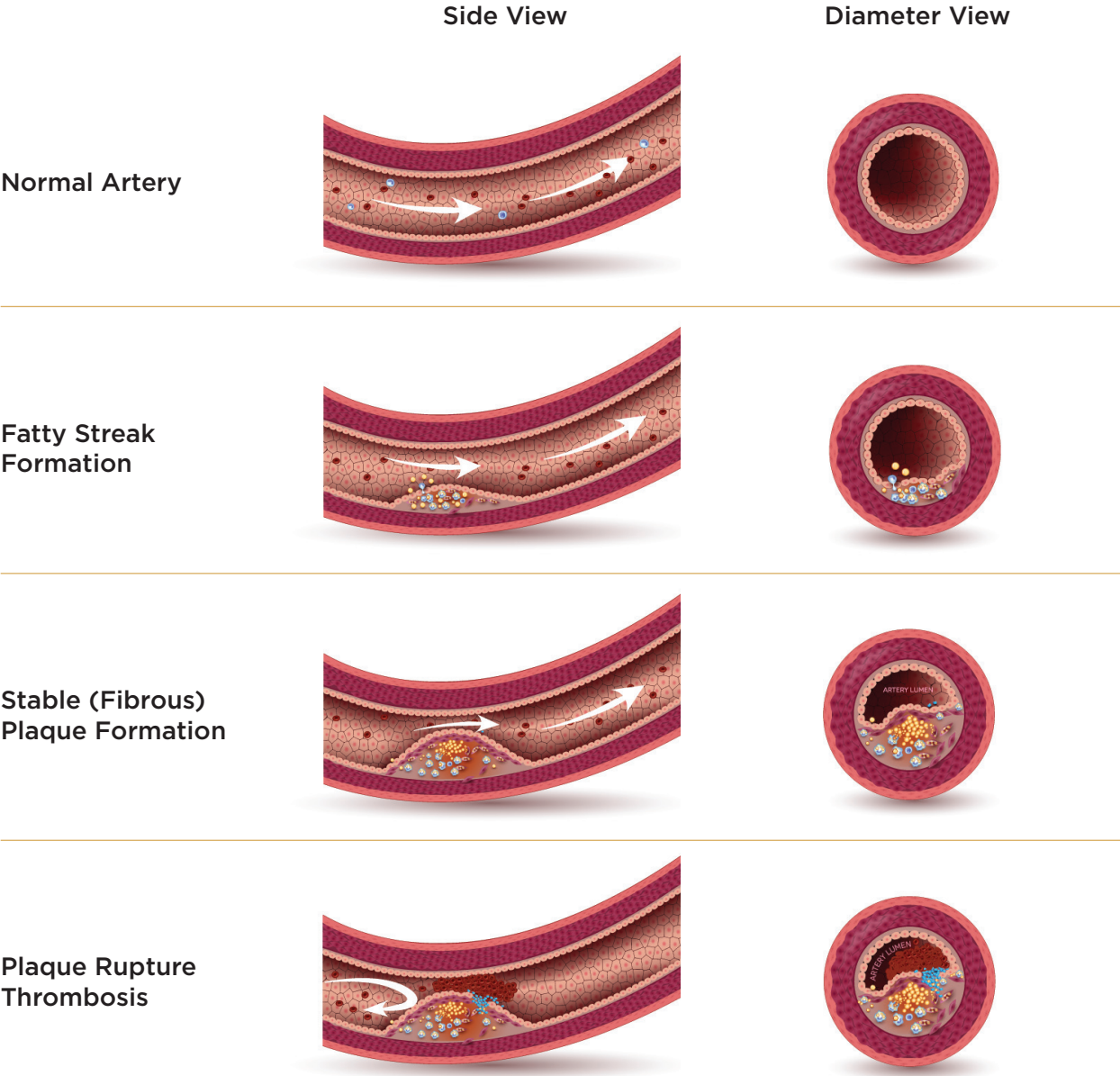


Normal & Blocked Arterial Blood Flow

Normal Artery - Blood flows easily through a clear artery.

Blockage - An artery can become blocked by plaque (a fatty substance that clogs the artery) or a blood clot, which reduces blood flow to the brain and may cause a stroke. In this picture, atherosclerosis, a hardening of the arteries, is caused by cholesterol or plaque build-up.

Blockage Cleared - The plaque or blood clot breaks up quickly and blood flow is restored to the brain. This may happen during a TIA, where brain cells recover with no permanent brain damage.



Stroke Diagnosis & Treatment

It's very important to diagnose a stroke in progress because the treatment for stroke is time sensitive and depends on the type, cause, and in some cases, the location of the injury to the brain. Other conditions with similar symptoms to stroke and TIA will need to be ruled out to diagnose stroke. Some of these include seizures, fainting, low blood sugar, migraine headaches, heart problems, or other general medical conditions. The type of stroke must also be determined. Treatment for each type of stroke is unique. Types of strokes include **hemorrhagic** and **ischemic**. Both of these will be explained in detail throughout this education booklet. Remember, timing is most important. Two million neurons (brain cells) die every minute that a stroke goes untreated. **TIME IS BRAIN!**

In the E.R. you may encounter the following:

You will be asked:

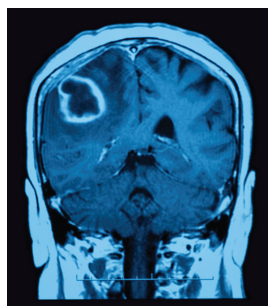
- About your medical history
- The last time you were seen well, without symptoms
- When the onset of symptoms occurred
- The last time you took anticoagulant medications (blood thinners), if any, and the name of the medication
- To undergo a neurological exam which may include a physical exam and lab/blood tests

You may receive the following:

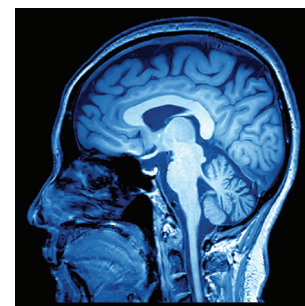
- CT scan and EKG scan
- Other tests you may have during your hospital stay for an acute stroke work-up may include: EEG, Echo, MRI, TEE, carotid ultrasound, and bilateral lower extremity ultrasound

You will have a neurological exam which may include:

- Physical exam
- Lab/blood tests
- CT scan (Computed Tomography) - uses radiation to take a picture of the brain
- tPA (alteplase) - Clot busting medication given through an IV



CT Scan
(showing hemorrhage)



MRI Scan

Arteriogram

An arteriogram (or angiogram) is an X-ray test of your blood vessels. You will be awake during the test. This test looks for:

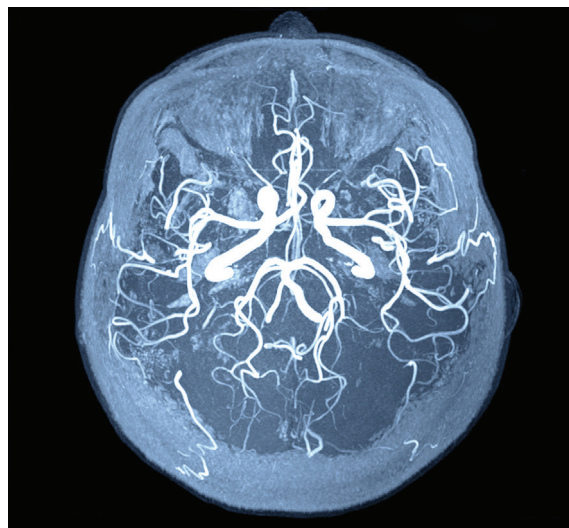
- Blocked blood vessels
- Blood vessels that are not normal

Before the Procedure:

- You may not be allowed to eat or drink anything after midnight.

Procedure:

- You will lie on the X-ray table.
- An IV tube is inserted in your arm, if not already in place.
- Your blood pressure and heart rate are checked during the test.
- The upper part of your leg (groin) is shaved and washed with special soap.
- You are then covered with a germ free (sterile) sheet. Keep your arms at your side under the sheet at all times so that germs do not get on the sheet.
- The physician will numb the skin and make a small incision, or cut, where the thin tube (catheter) is inserted into your upper leg. The thin tube is guided within the blood vessels that your doctor wants to see.
- Dye is put in through the tube. You may have a feeling of heat as the dye moves into your body.
- X-ray pictures of your blood vessels are taken. Do not move while the dye goes in and pictures are taken.



Arteriogram X-ray

Arteriogram *(Continued)*

After the Procedure:

- The thin tube will be taken out of your upper leg.
- The nurse will check:
 - Your blood pressure
 - The place where the thin tube was taken out to make sure it is not bleeding
 - The blood flow to your feet
- Lie flat in bed
- Keep your leg straight for 6 hours after the thin tube is taken out

Post Arteriogram Care:

- Do not bathe, swim, or use a hot tub until directed by your doctor. You can shower.
- Do not lift anything heavier than 10 pounds (about a gallon of milk) for 2 days.
- Limit your activity for two days, including walking, running or driving.

Notify Your Nurse Right Away If:

- You have fever greater than 100.5°.
- You have more pain in your leg.
- The leg that was cut is:
 - Bleeding
 - Puffy (swollen) or red
 - Cold
 - Pale or changes color
 - Tingly or numb
 - Weak

tPA (alteplase) – the “Clot-buster Drug”

Tissue plasminogen activator (tPA) is a medicine that can dissolve blood clots. This treatment may be used for a person who is having a stroke caused by clots that block blood flow to the brain (ischemic stroke). tPA can help treat a stroke if given early and under the right conditions. tPA does not lessen the chances of a stroke happening in the future.

When the nurse or physician is collecting your medical history information, the following are important:

- Any allergies you have
- All medicines you are taking, including vitamins, herbs, eye drops, creams, and over-the-counter medicines
- Any blood disorders you have
- History of blood clots (thrombophlebitis)
- Previous surgeries you have had
- Broken bones or other injuries in the past 14 days
- Stroke within the last 3 months
- History of a hemorrhagic stroke
- Head injury in the last 3 months
- High blood pressure
- Blood in the urine (hematuria) in the last 21 days
- Brain tumors
- Abnormality (such as aneurysms or malformations) of the blood vessels inside the head
- Possibility of pregnancy, if this applies
- Any other serious medical condition

Risks and Complications

Generally, this is a safe procedure. However, problems can occur and include:

- Bleeding into the brain
- Bleeding in other parts of the body

Before Administering Alteplase (tPA):

- Physical exam may be needed, as well as a detailed medical history
- Blood pressure, pulse, and breathing rate will be monitored and medicines given to adjust blood pressure if needed
- Blood tests will be done
- A CT scan of your head will be done to make sure there is no bleeding in your brain
- tPA may be given through an IV access tube that is put in one of your veins
- Frequent assessments and tests of your brain function will be performed by the nurses and doctors

Note: It is very important to identify when your stroke symptoms started. This will help determine if tPA might help you.

tPA (alteplase) – the “Clot-buster Drug” *(Continued)*

Administration of Alteplase (tPA):

tPA is typically given through an IV access tube that is put into one of your veins. In some cases, this medicine may be given directly into the affected artery through a thin, flexible tube (catheter) usually inserted through the groin during an arteriogram, or angiogram, procedure. This is called intra-arterial, or IA, tPA administration. While you are receiving the medicine, your vital signs will be monitored closely, and you may be given medicine to control blood pressure if needed. Frequent assessments and tests of your brain function will be performed by the nurses and physicians. If bleeding occurs from tPA, the infusion will be stopped and appropriate therapy will be started.

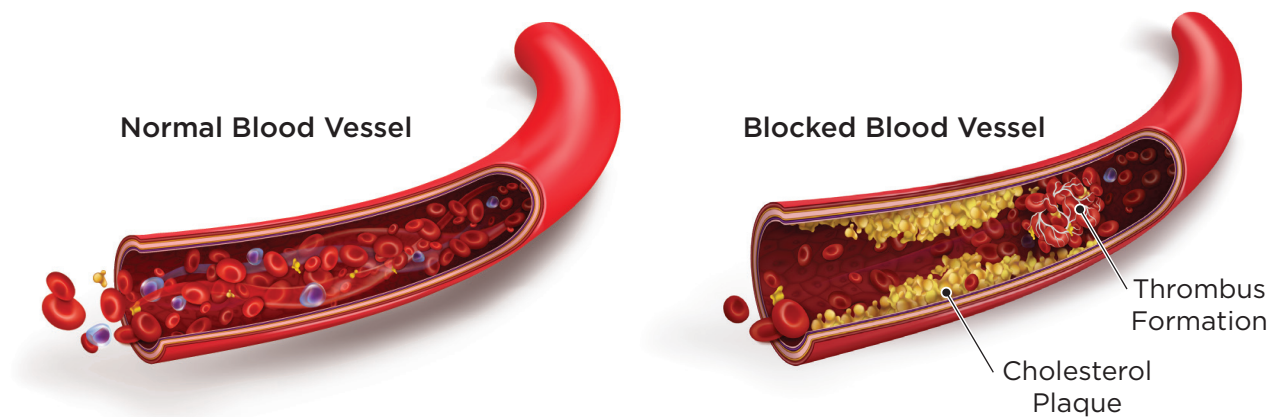
After Administration of Alteplase (tPA):

- You will be observed very closely, usually in an intensive care unit (ICU) or a stroke unit
- You may need to stop taking other medicines that affect how your blood clots for 24 hours after getting recombinant tPA
- A CT scan of the head may be done 24 hours after the procedure
- Your brain function will be checked often during your stay in the hospital
- It may take several days, weeks, or even months to fully determine how you responded to the tPA treatment. This is the case with any type of stroke therapy

Embolectomy and Thrombectomy – Advanced Ischemic Stroke Treatment

An **embolectomy** is the removal of an embolus. In a stroke, an **embolus** is a blood clot that has traveled or moved from one place to another within the body. When a blood clot forms and stays in the same area where it is located, it is called a **thrombus**. The removal of a thrombus is called a thrombectomy.

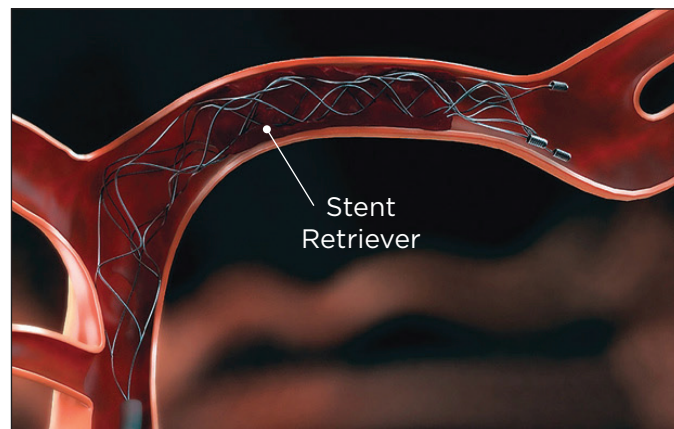
Thrombus Formation
(Blood Vessel with Thrombus)



Types of Thrombectomy Devices

Stent-retriever

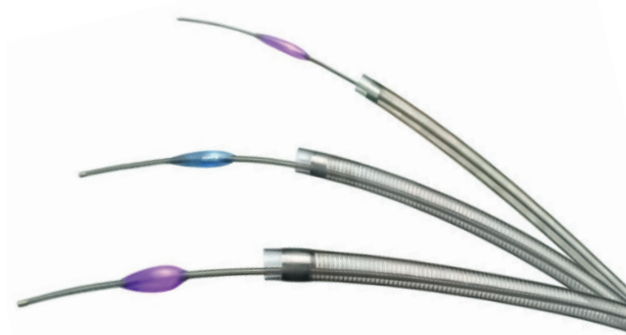
The image below shows an example of a **stent retriever** used during a thrombectomy procedure. The stent surrounds and envelops the clot which can then be pulled out of the blood vessel in the brain, stopping the stroke from getting worse. This allows for blood flow to return to the affected area of the brain. Depending on how much brain tissue damage has already occurred, patients may begin to improve immediately!



Aspiration Thrombectomy

A different technique for mechanical thrombectomy in the brain is direct aspiration. It is performed by pushing a soft aspiration catheter into the occluded vessel and applying direct aspiration to retrieve the thrombus. This technique can be used alone or combined with the stent retriever to restore blood flow to the area of the brain that has been deprived due to the clot.

Aspiration Catheters



Embolectomy and Thrombectomy Procedure

This procedure is done like an arteriogram or angiogram. The location of the blood clot will help determine if a patient is a candidate for this procedure. The blood clot is located in a large artery in the brain, which can be reached with a thin tube (catheter) placed in an artery in the groin that is guided up to the brain. There are also other devices which may be used in certain circumstances to suck the clot out of the artery or remove it (aspiration catheters and stent retrievers, for example). After making sure that the blood is flowing again and the clot is removed as much as possible, the tube is removed from the groin.

Let Your Caregiver Know About:

- Allergies to food or medicine
- Medicines taken, including vitamins, herbs, eyedrops, over-the-counter medicines and creams
- Use of steroids (by mouth or creams)
- Previous problems with anesthetics or numbing medicines
- History of bleeding problems, blood clots, vomiting of blood, or bloody bowel movements
- Previous surgery
- Breathing problems
- History of ulcers, including any treatment
- History of hemorrhoids
- Recent history of trauma
- Heart problems or history of chest pain
- Other health problems, especially diabetes and kidney problems
- Possibility of pregnancy, if this applies

Risks and Complications:

- Infection
- Bleeding
- Anesthetic side effects
- The embolus may break loose and travel to another area of the body during attempts to remove it.
- Anytime parts of your body have been without blood for a long time, they may be damaged beyond repair. Sometimes, the tissues will swell.
- A clot can reform in a vessel. This will require another procedure.
- If you are elderly or in poor health, the risk of developing complications is greater.

Post Embolectomy and Thrombectomy Care

Please take the following precautions:

- You may be prescribed blood thinners. Take them as directed.
- Tell your health care provider about any unusual bruising or bleeding, including nosebleeds, blood in your urine, blood in your stools, or if you are vomiting blood. Blood in the stools may be black and tarry or red.
- Keep your follow-up appointments to check how thin your blood is.
- Change your bandages (dressings) as instructed.
- Do not swim, bathe, or shower except as allowed by your health care provider.
- Do not smoke.
- Do not drink alcohol.
- Do not use any tobacco products including cigarettes, chewing tobacco, or electronic cigarettes.
- You may remain in ICU for 24 hours.

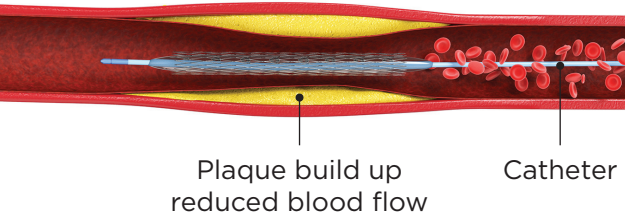
Notify Your Nurse Immediately If:

- You have bleeding from the surgical site
- You have a sudden pain in the foot, leg, hand, or arm
- You have sudden abdominal pain
- You have a sudden facial droop, weakness on one side of your body, or trouble speaking
- You have bloody stools
- You vomit blood
- You suddenly feel short of breath, weak, or dizzy
- You have chest pain
- You have drainage, redness, swelling, or pain at the surgery site
- You have a fever

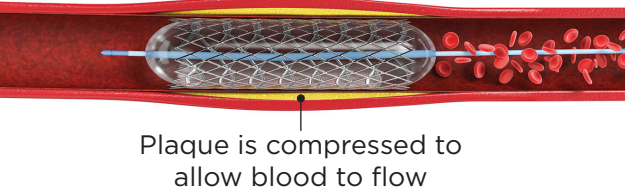
Carotid Angioplasty with Stent

Carotid angioplasty is a procedure to widen or open a narrowed artery in the neck (carotid artery) using a small, metal, mesh tube (stent). The stent acts as a splint inside your artery to provide support. The carotid arteries supply blood to the brain and can become blocked by cholesterol buildup (plaque). This buildup decreases blood flow to the brain. The stent remains in place to keep the carotid artery open.

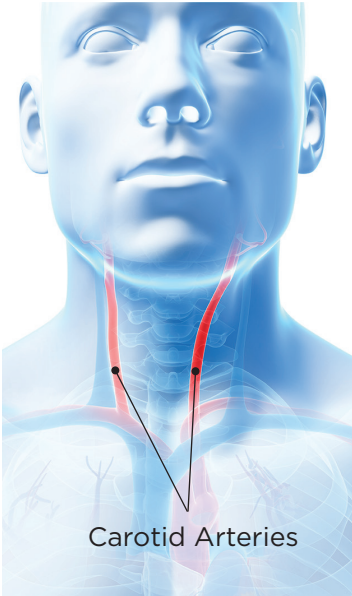
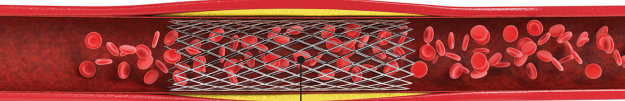
Stent being placed within the plaque of the internal carotid artery



Balloon is expanded



Blood flows freely



Let Your Caregiver Know About:

- Any allergies you have
- All medicines you are taking, including vitamins, herbs, eye drops, creams, and over-the-counter medicines
- Previous problems you or members of your family have had with the use of anesthetics
- Any blood disorders you have
- Previous surgeries you have had
- Medical conditions you have had, such as heart, kidney, or respiratory conditions, and diabetes
- Possibility of pregnancy, if this applies

Risks and Complications:

Generally, this is a safe procedure. However, as with any procedure, problems can occur.

Possible problems include:

- Stroke
- Infection
- Bleeding at the incision site
- A reaction to the contrast dye, such as rash, hives, or difficulty breathing
- The stented carotid artery can become blocked again

Note: If you take metformin, you may have to temporarily stop this medicine if you are undergoing a procedure that uses an iodine-based contrast dye. Metformin is cleared from the body by the kidneys. Contrast dye can temporarily affect kidney function. In rare cases, it can permanently affect kidney function. Be sure to talk to your health care provider before this procedure if you take metformin.

Before the Procedure:

- You will not be allowed to eat or drink anything after midnight on the night before the surgery (if it is scheduled) or as told by your health care provider

Carotid Angiography Procedure:

Carotid angiography with stent placement is an X-ray imaging procedure done in a catheterization laboratory.

- A numbing medicine (local anesthetic) will be used to numb the groin or arm area where a thin, flexible, hollow tube (catheter) will be inserted.
- A small incision will be made in the groin or arm where the numbing medicine is given. The catheter will be put into an artery where the incision is made. The catheter will then be guided to the carotid arteries with the help of an X-ray machine (fluoroscope).

- When the catheter is in the carotid artery, contrast dye will be injected through the catheter. The dye allows the inside of the carotid artery to show up on X-ray.
- Once the narrowed portion of the artery is located, the stent can be placed. The stent will be placed beyond the area of narrowing in the carotid artery using a guidewire with a filter. The filter, also known as a distal protection device, is used to capture plaque that is released during the procedure. It helps to prevent plaque from going to the brain and causing a stroke. A small balloon will be inflated for a few seconds to dilate the artery. The stent will then be placed in the artery. A second balloon inflation will be done to make sure the stent has completely expanded in the carotid artery. The stent will stay in place permanently. After several weeks, the tissue within the artery will heal and grow around the stent.
- After the stent is in place, the catheter will be removed. Bleeding from the incision site will be controlled by direct pressure. This can be either by a technician holding manual pressure to the area with his or her hand or by a closure device tool.

After the Carotid Angiography Procedure:

- You will be on bed rest for a few hours after the procedure. You will need to remain flat during this time. The arm or leg that was used for the incision site will need to remain still. Do not bend, flex, or move the arm or leg because this can cause bleeding at the incision site.
- The incision site will be watched and checked frequently for bleeding or swelling.
- You will likely be placed on antiplatelet medicine after this procedure. Be sure you understand the antiplatelet dose and how long you will need to take this medicine. Do not stop taking this medicine without talking to your health care provider. Suddenly stopping antiplatelet medicine puts you at risk for developing a clot.
- Bruising at the catheter site usually fades within 1-2 weeks.
- Blood collecting in the tissue (hematoma) may be painful to the touch. It should decrease in size and tenderness within 1-2 weeks.
- You may shower 24-48 hours after the procedure or as directed by your health care provider.
- Remove the bandage (dressing) and gently wash the site with plain soap and water. Pat the area dry with a clean towel. Do not rub the site, because this may cause bleeding.
- Do not take baths, swim, or use a hot tub until your health care provider approves.
- Check your insertion site every day for redness, swelling, or drainage.
- Do not apply powder or lotion to the site.
- Do not lift over 10 lb (4.5 kg) for 5 days after your procedure or as directed by your health care provider.
- Eat a heart healthy diet.

After the Carotid Angiography Procedure *(continued)*:

- When you are discharged from the hospital, ask your health care provider when it is okay to:
 - Return to work or school
 - Resume usual physical activities or sports
 - Resume sexual activity
 - Eat a heart-healthy diet. This should include plenty of fresh fruits and vegetables. Meat should be lean cuts. **Avoid the following types of food:**
 - Food that is high in salt
 - Canned or highly processed food
 - Food that is high in saturated fat or sugar
 - Fried food
- Make any other lifestyle changes as recommended by your health care provider. These may include:
 - Stopping all tobacco products, including cigarettes, chewing tobacco, or electronic cigarettes. If you need help quitting, ask your health care provider.
 - Managing your weight
 - Getting regular exercise
 - Managing your blood pressure
 - Limiting your alcohol intake
 - Managing other health problems, such as diabetes and sleep apnea
 - It is important to keep all follow-up visits as directed by your healthcare provider

Notify Your Nurse Immediately If:

- You have a fever
- You have chills
- You have vision changes or loss of vision
- You have numbness or weakness on one side of your body
- You have difficulty talking, or you have slurred speech or cannot speak (aphasia)
- You feel confused or have difficulty remembering
- You have unusual pain, redness, warmth, or swelling at the catheter insertion site
- You have drainage (other than a small amount of blood on the dressing) from the catheter insertion site
- The catheter insertion site is bleeding, and the bleeding does not stop after 30 minutes of holding steady pressure on the site

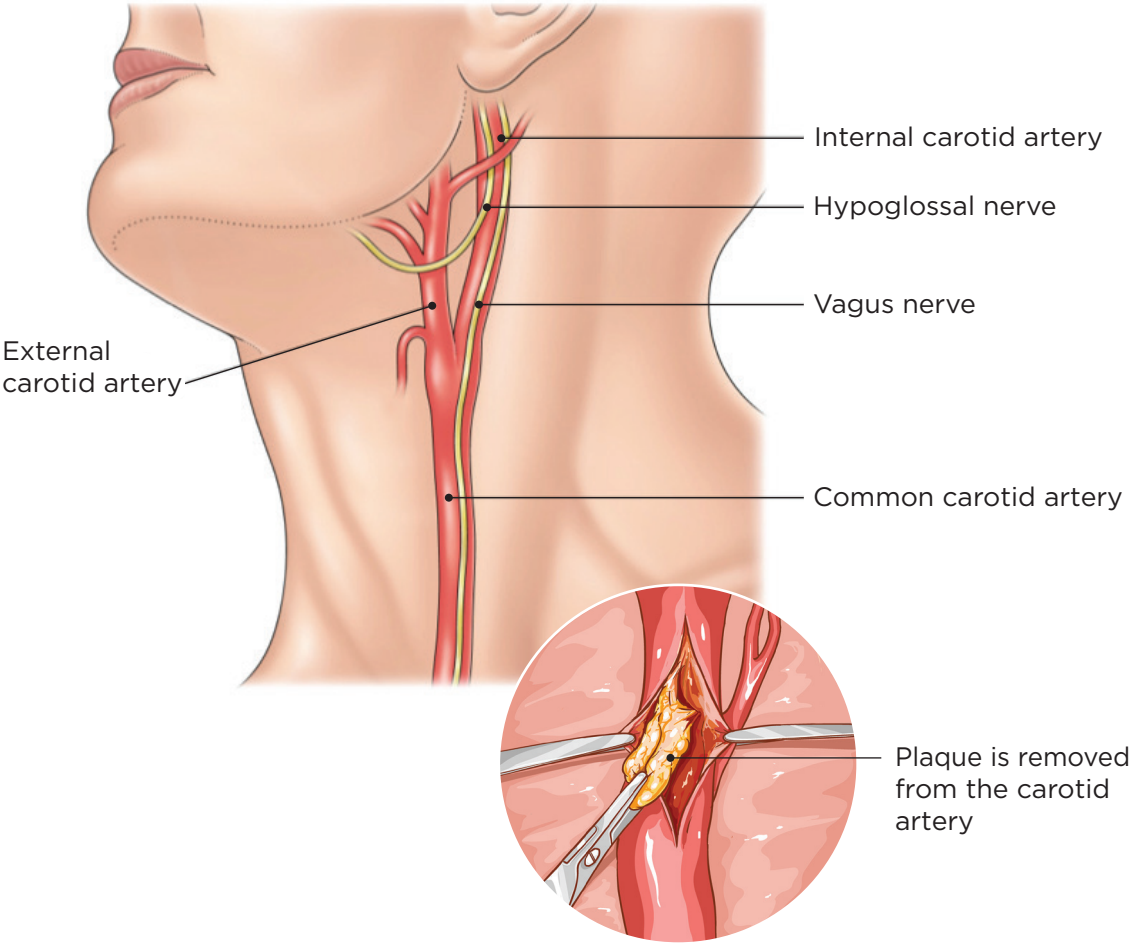
Reference:

<http://mns.elsevierperformancemanager.com/NursingSkills/PatientEducationHome.aspx>

Carotid Endarterectomy

A **carotid endarterectomy** is a surgery to remove a blockage in the carotid arteries. The carotid arteries are the large blood vessels on both sides of the neck that supply blood to the brain. Carotid artery disease, also called **carotid artery stenosis**, is the narrowing or blockage of one or both carotid arteries. Carotid artery disease is usually caused by atherosclerosis, which is a buildup of fat and plaque in the arteries. Some plaque buildup normally occurs with aging. The plaque may partially or totally block blood flow or cause a clot to form in the carotid arteries. This clot can cause an ischemic stroke.

Diagram of Major Neck Arteries and Nerves



Carotid Endarterectomy *(Continued)*

Let Your Caregiver Know About:

- Any allergies you have
- All medicines you are taking, including vitamins, herbs, eye drops, creams, and over-the-counter medicines
- Use of steroids (by mouth or creams)
- Previous problems you or members of your family have had with the use of anesthetics
- Any blood disorders you have
- Previous surgeries you have had
- Medical conditions you have, including diabetes and kidney problems
- Possibility of pregnancy, if this applies

Risks and Complications:

Generally, carotid endarterectomy is a safe procedure. However, problems can occur and include:

- Bleeding
- Infection
- Transient ischemic attack (TIA). A TIA results from poor blood flow to the brain, but there is no permanent loss of brain function.
- Stroke
- Heart attack (myocardial infarction)
- High blood pressure (hypertension)
- Injury to nerves near the carotid arteries

Before the procedure:

- You will not be allowed to eat or drink anything after midnight on the night before the procedure or as directed by your health care provider.
- Do not smoke for as long as possible before the surgery. Smoking will increase the chance of a healing problem after surgery.
- You may need to have blood tests, a test to check heart rhythm (electrocardiography), or a test to check blood flow (angiography) before the surgery.

Carotid Endarterectomy Procedure:

- You will be given a medicine that makes you fall asleep (general anesthetic).
- After you receive the anesthetic, the surgeon will make a small cut (incision) in your neck to expose the carotid artery.
- A tube may be inserted into the carotid artery above and below the blockage. This tube will temporarily allow blood to flow around the blockage during the surgery.
- An incision will be made in the carotid artery at the location of the blockage, and the blockage will then be removed. In some cases, a section of the carotid artery may be removed and a graft patch used to repair the artery.
- The carotid artery will then be closed with stitches (sutures).
- If a tube was inserted into the artery to allow blood flow around the blockage during surgery, the tube will be removed. With the tube removal, blood flow to the brain will be restored through the carotid artery.
- The incision in the neck will then be closed with sutures.

After the Carotid Endarterectomy Procedure:

You may have some pain or an ache in your neck for up to 2 weeks. This is normal. Recovery time varies depending on your age, condition, general health, and other factors.

Home Care Instructions:

- Take showers if your health care provider approves. Do not take baths, swim, or use a hot tub until your health care provider approves.
- Take medicines only as directed by your health care provider. If a blood thinner (anticoagulant) is prescribed after surgery, take this medicine exactly as directed.
- Change bandages (dressings) as directed by your health care provider.
- Avoid heavy lifting or strenuous activity until your health care provider says it is okay. Resume your normal activities as directed.
- Stop smoking if you smoke. This is a risk factor for poor wound healing.
- Stop taking the pill (oral contraceptives) unless your health care provider recommends otherwise.
- Maintain good control of your blood pressure.
- Exercise regularly or as instructed by your health care provider.
- Eat a heart-healthy diet. Talk to your health care provider about how to lower blood lipids (cholesterol and triglycerides).
- Keep all follow-up visits as directed by your health care provider. Make an appointment for the removal of stitches (sutures) or staples.

Carotid Endarterectomy *(Continued)*

Seek Medical Care If:

- You have increased bleeding from the incision site
- You notice redness, swelling, or increasing pain at the incision site
- You notice swelling in your neck or have difficulty breathing or talking
- You notice a bad smell or pus coming from the incision site or dressing
- You have a fever
- You develop a rash
- You develop any reaction or side effects to medicine given

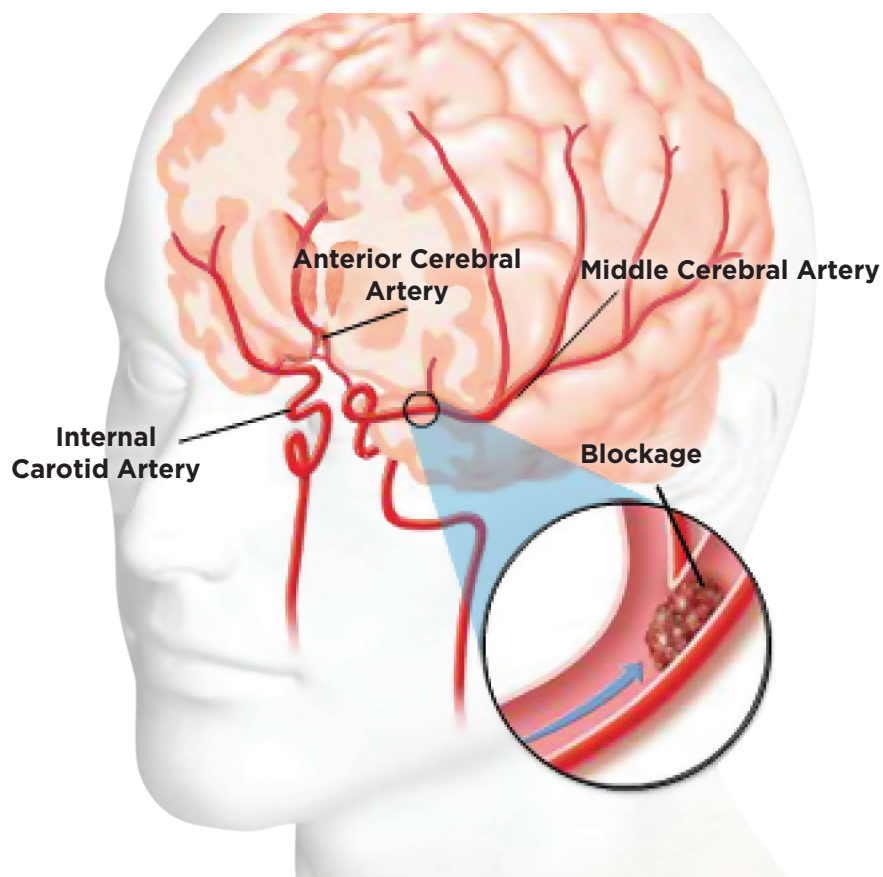
Seek Immediate Medical Care If:

- Your initial symptoms are getting worse rather than better
- You develop any abnormal bruising or bleeding
- You have difficulty breathing
- You develop chest pain, shortness of breath, or pain or swelling in your legs
- You have a return of symptoms or problems that caused you to have this surgery
- You develop a temporary loss of vision
- You develop temporary numbness on one side
- You develop a temporary inability to speak (aphasia)
- You develop temporary weakness

Types of Strokes

Transient Ischemic Attack

If an artery leading to the brain, or inside the brain, becomes blocked for a short period of time, the blood flow to an area of the brain slows or stops. This lack of blood (and oxygen) can cause a Transient Ischemic Attack (TIA) or mini-stroke, with symptoms such as numbness, trouble speaking, weakness and loss of balance or coordination. It is common for these symptoms to last for a very short period of time and then disappear. While TIAs cause no permanent brain damage, they are a serious warning sign of stroke and should not be ignored.



Transient Ischemic Attack *(Continued)*

Signs and Symptoms of TIA

- Symptoms are typically sudden
- Weakness or numbness on one side of the body, including the face
- Loss of vision in one eye or double vision
- Dizziness or difficulty with balance
- Clumsiness on one or both sides of the body
- Difficulty speaking or understanding

Immediate treatment is needed to determine the proper diagnosis.

How Long Do TIA Symptoms Last?

- Half of all TIAs go away completely within one hour
- 90% resolve within four hours
- Symptoms that persist for longer than even a few minutes could mean that a stroke occurred.

Risk of Stroke After TIA Rises Considerably

- 40% of TIA sufferers will experience a stroke
- Half of those will occur within two days of having a TIA

The following conditions increase the risk of TIA or stroke:

- Hypertension
- High cholesterol levels
- Diabetes
- Some heart conditions
- Smoking
- Family history of stroke

To help prevent another TIA or stroke, the doctor will determine the best preventative plan of care.

Ischemic Stroke

One way a stroke occurs is that blood vessels to the brain become narrowed or clogged, cutting off blood flow to brain cells. Stroke caused by lack of blood reaching part of the brain is called an **ischemic stroke**.

- High blood pressure is the most important risk factor that can be changed
- Ischemic is the most common type of stroke and accounts for over 87% of all strokes
- Symptoms develop suddenly

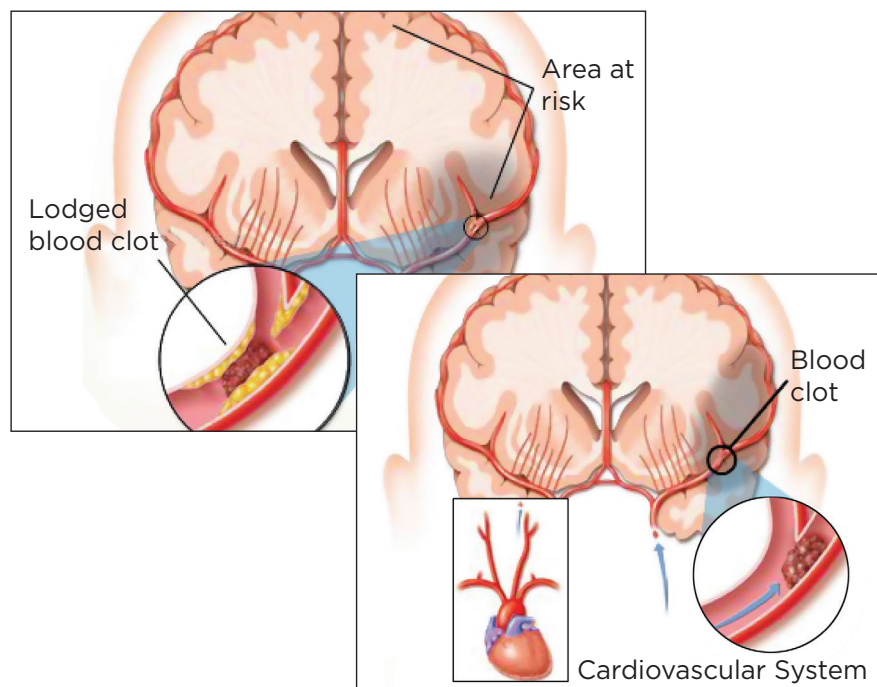
There are two types of ischemic strokes: **embolic** and **thrombotic**.

In an **embolic stroke**, a blood clot or plaque fragment forms somewhere in the body (usually the heart or in the large arteries leading to the brain) and moves through the bloodstream to the brain. Once in the brain, the clot blocks a blood vessel and leads to a stroke.

A **thrombotic stroke** is a blood clot that does not travel but forms inside an artery that supplies blood to the brain. The clot may interrupt the blood flow and cause a stroke.

Front View of a Brain with a Blocked Artery

An **ischemic stroke** occurs when a blood clot blocks an artery, cutting off the flow of oxygen-rich blood to a part of the brain. Unless nearby blood vessels can deliver enough blood to the affected area, brain cells will begin to die and stroke survivors will start to have problems using certain parts of their bodies or completely lose some abilities. Ischemic stroke is the most common type of stroke.



Hemorrhagic Strokes

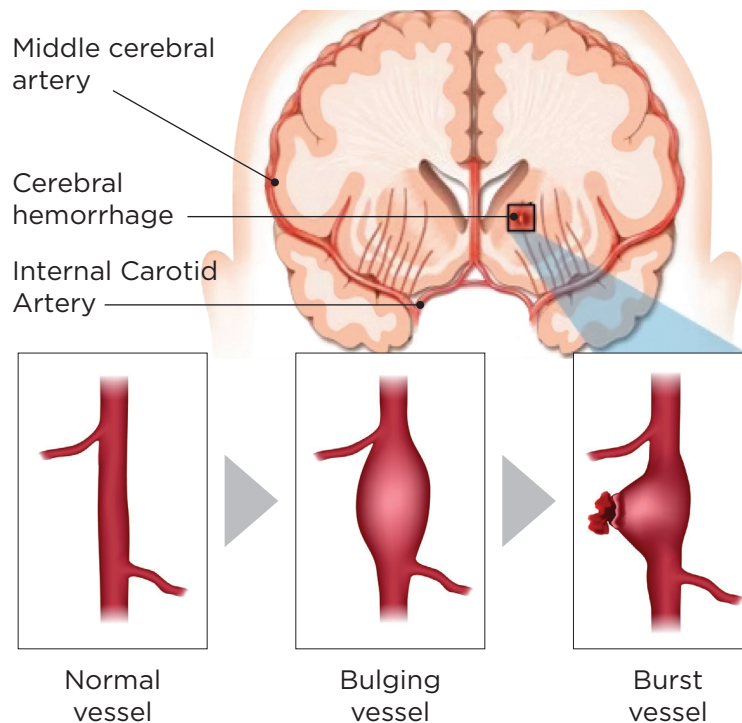
Strokes caused by a bursting blood vessel that spills blood into the brain are called hemorrhagic strokes. High blood pressure and brain aneurysms can both cause the blood vessel to be weak and possibly cause this type of stroke.

13% of strokes are hemorrhagic strokes.

There are two types of hemorrhagic strokes: intracerebral hemorrhage and subarachnoid hemorrhage.

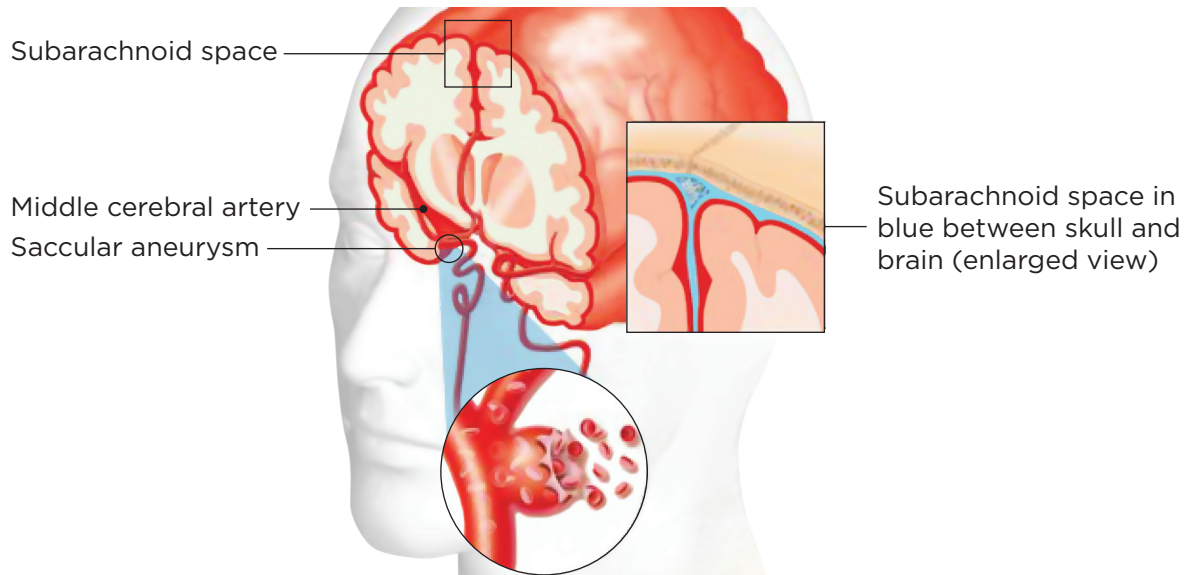
Intracerebral Hemorrhage

An intracerebral hemorrhage, a type of hemorrhagic stroke, is caused when a burst blood vessel bleeds into the brain. High blood pressure, also called hypertension, is the most common cause of this type of stroke. The bleeding causes brain cells to die, and that part of the brain no longer works correctly.



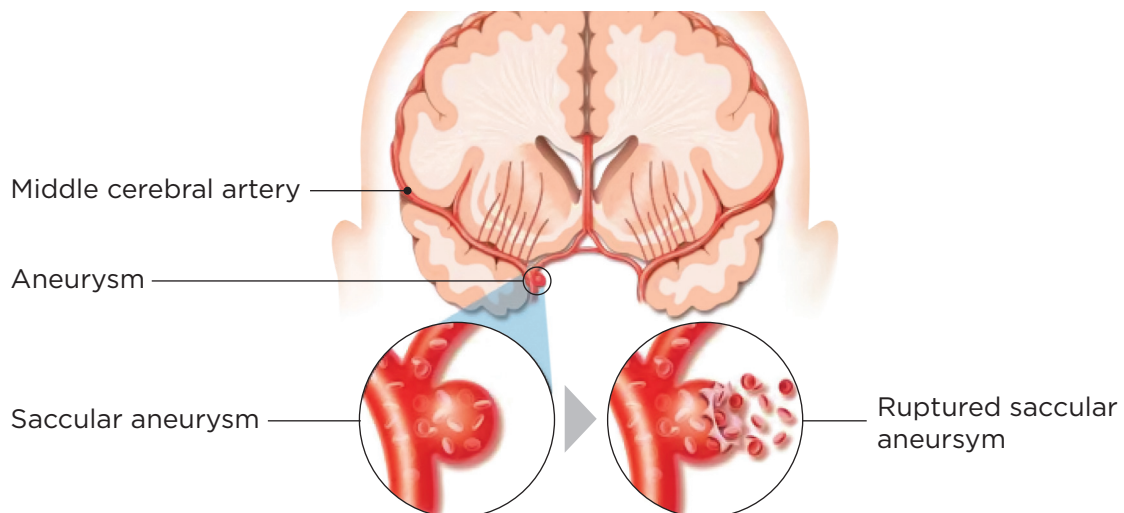
Subarachnoid Hemorrhage

In a subarachnoid hemorrhage, the other type of hemorrhagic stroke, a blood vessel bursts near the surface of the brain and blood pours into the area around the outside of the brain. This bleeding may increase pressure in the brain, injuring brain cells. This type of stroke has many possible causes, but is usually the result of a burst aneurysm.



Brain Aneurysm

A brain aneurysm is a weak spot on the wall of an artery that may balloon out, forming a thin-walled bubble. As it gets bigger, the aneurysm gets weaker and can burst, leaking blood into or around of the brain.



The Effects of Stroke

Stroke affects everyone in different ways. The effects depend on the type of stroke, the area of the brain affected and the extent/size of the brain injury. Brain injury from a stroke can affect the senses, strength, movement, attention to the weak side, speech, and the ability to understand speech. Stroke can also affect behavior, thinking, memory and emotions. Paralysis or weakness on one side of the body is also common.

Physical Changes

A stroke can affect sight, touch, mobility, and thought, which alters a stroke survivor's perception. Changes in or partial loss of vision (visual field cut) may cause the survivor to spill at the table or collide when walking because their perception of space changes. They may not be able to recognize or understand the function of familiar objects the way they did before the stroke because of changes in understanding and thinking.

The loss of feeling or visual field requires a stroke survivor to change their way of thinking and performing activities. Simple actions that they were once able to complete easily and automatically now require planning and thinking to execute. These changes can range from mild to severe. Physical and occupational therapy often work together in targeting the physical changes that occur following a stroke.

A stroke survivor will likely have **hemiparesis** (hem-ee-puh-ree-sis). This is the loss of feeling and/or strength in one side of their body, including their arm and/or leg. These changes can result in a change in their ability to balance while sitting, standing, or walking. A person may require the use of assistive equipment to remain mobile or to help with moving from one seat to the next. A cane, walker, or wheelchair may be appropriate to help increase the survivor's mobility for daily activities. Modifications can be made to the equipment as needed in order to meet the person's individual needs and to increase safety. A physical therapist can assess and provide treatment in order to help increase a stroke survivor's physical independence. The occupational therapist may provide a splint to help reduce the risk of contractures and increase comfort of the survivor's arm.

Visual field cuts, left neglect, and weakness change the way a stroke survivor is able to complete basic daily activities. Completing basic tasks including bathing, dressing, and eating are new challenges. An occupational therapist is able to help them learn to complete these tasks safely while keeping in mind their physical changes. They may also suggest adaptive equipment that may help with the stroke survivor's independence.

Therapy Following a Stroke

Soon after admission to the hospital, your doctor will order Physical Therapy, Occupational Therapy and Speech Therapy. These therapies will begin the rehabilitation process, and make recommendations for continued rehab needs after discharge from the hospital. The stroke survivor and their family will work with a case manager to set up further rehabilitation.

Often pain or feeling tired may lead the stroke survivor to refuse to participate in therapy. It is very important to understand that not participating in therapy will only delay recovery and may cause even more health problems. Recovery from stroke will be a lifelong journey. Continuing to participate in activities that involve strength, endurance and flexibility will help keep a stroke survivor from getting worse after going home. It is important that family members and close friends encourage participation in therapy and proper use of any equipment.

Physical Therapy

Physical therapists, (PT) and physical therapist assistants, (PTA), will assist patients in early mobilization to include: bed mobility, transfer training, and ambulation with and/or without an assistive device. Physical Therapy also provides education and instruction in an exercise program for range of motion and strengthening of muscles. Physical Therapy will perform activities to improve overall quality of mobility, sitting, standing balance, and arm and leg coordination. Physical Therapy will determine the need for an assistive device for use in transfers and ambulation as appropriate.

Bed Mobility

Rolling in bed, move side to side and come from lying to a sitting position at the edge of the bed.

Cognition

The mental action or process of acquiring knowledge and understanding through thought, experience, and the senses.

Coordination

The ability to use different parts of the body together smoothly and efficiently.

Deficits

A lack of or impairment of a functional capacity.

Gait training/Ambulation

Walking

Mobility

The ability to move or be moved freely and easily

Transferring

Transferring refers to moving from one surface to another, for example standing from a seated position or moving from a bed to a chair.

Occupational Therapy

Occupational Therapist (OT), works with individuals to address deficits related to functional tasks, also known as occupations, or anything a person does to occupy their time. (For example; dressing, bathing, toileting, eating, cooking, cleaning and leisure activities.) When a person survives a stroke, OT focuses on using exercises and activities to restore the use of upper extremities, balance, vision, and functional cognition in order to improve functional independence. OT's are uniquely qualified to evaluate and assess individuals to determine deficits and areas of weakness that may impact an individual's ability to engage in daily tasks both physically and cognitively.

Arm Weakness

Weakness or loss of movement on one side of the body is called "hemiparesis". The arm and/or leg may be affected following a stroke. At times the arm may be weaker than the leg and may require additional time to recover compared to the leg. The OT will work with the survivor to improve the strength, range of motion, coordination, and motor control of the arm for functional use. Usually, by not always, the shoulder and elbow may begin to move and regain strength before the hand. It is important for the survivor to engage the use of their arm even if there is little to no movement noted. By engaging and attempting to move the arm, the survivor is causing their brain to try to "talk" with the arm, which increases the brain's awareness of the arm.

Contractures

A contracture happens when the muscles or tendons stay too tight for too long from not being used or moved. Some strokes are so severe that the survivor never regains movement or use of the involved arm. It is extremely important for a survivor's weak arm to be frequently moved to prevent the development of contractures.



Edema

Edema is caused by a collection of fluid which results in swelling. After a stroke, the survivor may experience edema of the arms and/or legs. This is usually a result of the lack of movement in the arm and/or leg. If the involved arm begins to look swollen, you may prop it at heart level using pillows. The hand should be propped higher than the elbow so that gravity can help move the fluid back out of the arm.

Impaired Sensation

At times, the survivor may notice impaired sensation after a stroke. They may report a heavy, numb or tingling sensation in certain areas of the affected arm, or the entire arm is completely numb. If the survivor experiences loss of sensation or feeling in the arm, extra care must be taken. They may have difficulty recognizing changes in temperature, pressure required for grasp/release, and awareness of the arm itself.

Spasticity

Spasticity occurs when the brain reflexively (not on purpose) sends signals to the muscles of the arm causing them to tense. This is not an intentional movement. Sometimes the arm will tense and bend at the elbow or draw the hand into a fist even when the person is not trying to move the arm. A rolled up washcloth can be placed in the hand to open the fist and extend the finger to prevent skin issues. Pillows may be placed between the arm and the body to help block the arm from drawing up onto the stomach.



Shower chair



Reacher



Walker



Hemi-walker



Bedside commode



Quad cane



Platform



Wheelchair

Some Equipment or Devices Used to Help Stroke Survivors:

- **Shower chair** – a bath safety mobility device. The user sits on to get into a bathtub
- **Reacher** – a device that enables a person to pick up objects that are difficult to reach
- **Walker and rolling walker** – a walking aide with four-footed frame with legs or wheels
- **Hemi-walker** – an easily maneuverable lightweight walker with more stability than a quad cane
- **Bedside commode** – a portable toilet
- **Cane** – walking stick with a handle used for balance and stability
- **Quad Cane** – walking stick with a handle and four feet for a more stable base
- **Platform** – an attachment to either a walker or crutch that shifts one's weight from a hand or wrist to the forearm or elbow
- **Wheelchair** – a wheeled chair for transportation, often with arm and leg rests

Speech Therapy (ST)

The Speech Language Pathologist (SLP) is a therapist that evaluates and treats problems related to language. This includes comprehension, reading, writing, and producing sounds. The SLP is also heavily involved in the cognitive aspects of rehab. These include memory, reasoning, decision making, attention span and social interaction.

Effects of Stroke on Speech

Dysarthria [dis-ahr-three- uh] commonly occurs after a stroke and is often called “slurred speech.” A stroke can affect muscles used in talking including the tongue, palate, and lips. Stroke survivors can be hard to understand as their speech may be slow, slurred, or distorted. Dysarthria may occur after a stroke anywhere in the brain. Speech therapy can help increase the survivor’s ability to speak clearly.

How Caregivers Can Help:

- Encourage the survivor to slow down when talking
- Ask the stroke survivor to over-pronounce each word
- Remind the survivor to take a deep breath before talking
- Be sure the survivor is sitting up well to help improve breathing

Effects of Stroke on Eating and Drinking

Dysphagia [dis-fey-juh] is the term used to define swallowing problems. Following a stroke, a person may have difficulty chewing and/or swallowing food. Dysphagia may occur after a stroke in either hemisphere/side of the brain or brainstem. The stroke survivor may hold food on one side of their mouth and not realize it is there. Dysphagia can be caused by weak muscles, changes in sensation, and/or changes in cognition (mental status).

A person with dysphagia is at risk for aspiration of food and drinks. Aspiration occurs when food, drink, or medication goes into the lungs. This can also occur when a person vomits or has reflux. Aspiration is a serious problem that may result in pneumonia among other complications. There are multiple symptoms to be aware of that may indicate a stroke survivor is aspirating. Sometimes aspiration can occur without clear indication that there is something wrong with the swallow. This is called silent aspiration.

Effects of Stroke on Eating and Drinking *(Continued)*

Symptoms of Aspiration May Include:

- Coughing while eating or drinking
- Throat clearing during eating or drinking
- Having to swallow repeatedly for a single bite or sip
- Shortness of breath while eating
- Wet sounding voice during or after eating or drinking
- Coughing or wheezing after eating
- Feeling congested after eating or drinking
- Fever 30 minutes after eating
- Too much saliva
- Trouble starting a swallow
- Sensation of food sticking in the throat or coming back into the mouth
- Shortness of breath or fatigue while eating

Complications Resulting From Aspiration Include:

- Pneumonia
- Difficulty breathing
- Dehydration
- Malnutrition
- Death

Dysphagia can be evaluated and treated in multiple ways. A Speech Language Pathologist specializes in dysphagia and can identify the problems and how to treat them. An evaluation may be completed at bedside or in X-ray. A modified diet may be recommended so that a person may continue to eat safely following a stroke.

It is very important that they follow these modifications in order to reduce the risk of aspiration. Recommendations may include changing foods to a softer consistency or thickening liquids. Unfortunately, a person's swallow may be severely affected by a stroke and they may not be able to eat safely. The doctor is able to explain options available to provide nutrition to the stroke victim when he/she is not able to eat or drink by mouth.

Dysphagia can often improve in an average of eight weeks. In some cases, however, it can last longer. Stroke survivors can receive swallow therapy with a speech language pathologist to help improve their ability to eat and drink safely.

Left Brain Stroke

Aphasia [uh-fey-zhuh] – a language disorder which affects the ability to communicate and is most often caused by a stroke that affects the left side of the brain, which controls language. Speech may be jumbled, fragmented, impossible to understand, or absent. It may be difficult for someone who has had a stroke to talk and/or understand what is said. Some survivors will have difficulty reading, writing, or completing basic math problems. Their difficulty with speech and/or language may range from mild to severe. Commonly used conversational speech may still exist, such as, “Hi how are you?” While more complex, less automatic speech, may be impaired. Stroke survivors with aphasia are often frustrated and confused because they cannot speak or understand things the way they did before their stroke. Speech therapy can help stroke survivors regain the ability to communicate.

Stroke and Aphasia *(Difficulty Speaking)*

Types of Aphasia

- **Global Aphasia** may result in an inability to speak, name objects, repeat phrases or follow commands. Global aphasia is a complete loss of language.
- **Expressive Aphasia** is the loss of the ability to produce written or verbal language. The stroke survivor knows what they want to say but cannot find the right words in some cases or the wrong words may come out.
- **Receptive Aphasia** occurs when the stroke survivor is unable to understand written or spoken language.

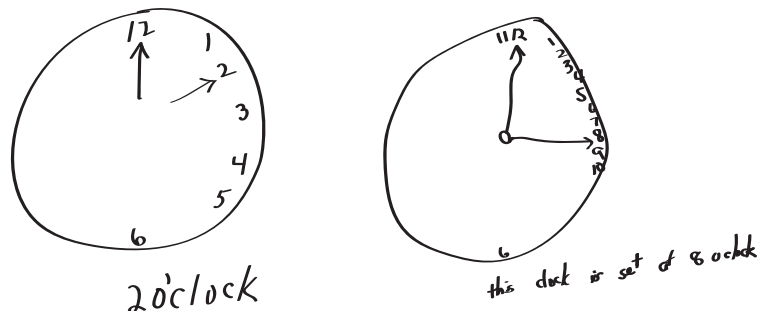
How Caregivers Can Help:

- Treat the survivor as an adult
- Always assume the survivor can hear
- Check understanding with yes/no questions
- Set up daily routine with rest and time to practice speech
- Speak clearly and slowly
- Use short and concise sentences
- Keep noise level down and stand where survivor can see you
- Allow him/her to participate in decision making
- Help survivor cope with feelings of frustration and depression
- Use visual cues to assist with communication
- When having a conversation with a stroke survivor, stand on their unaffected side
- Use pictures and hand motions to help with communication
- Encourage ANY kind of communication (pointing, gesturing, demonstrating what is needed)
- Ask your speech/language pathologist for available resources/apps

Right Brain Stroke

Cognitive changes may also occur after a stroke. **Cognition** [kog-nish-uhn] includes memory, problem solving, decision making, attention, and reasoning. Insight, or awareness of deficits, may also be affected. These changes may occur after a left brain stroke but are most severe following a right brain stroke and are often more difficult to identify.

Below are copies of pictures drawn by stroke survivors when instructed to draw a clock. Clock drawings are commonly used to assess cognition.



Often a stroke on the right side of the brain will not affect the stroke survivor's ability to speak and they can often carry on a regular conversation. However, their insight and ability to acknowledge the changes since the stroke, including physical and cognitive, are impaired. A stroke in the right side of the brain will likely result in poor safety awareness and impulsivity.

Right Hemisphere Dysfunction occurs following a stroke that affects the right side of the brain and the left side of the body. A stroke that damages the right side of the brain can cause a condition known as neglect. Neglect can also occur with a left hemisphere stroke but is most common with a right hemisphere stroke. The stroke survivor experiences a loss of awareness of the left side. They may forget or ignore items on the affected side which may be described as inattention to the weak side. Left neglect/inattention may lead to difficulty reading, dressing only one side of their bodies believing that they are fully dressed or eating from only one side of the plate. Bumping into furniture, walls, or door jams is also common.

Below in the first row are the original diagrams. The second row shows copies of the original diagrams drawn by stroke survivors with left neglect. The survivor does not fully attend to the left side of each diagram and their copy will likely be drawn on the right side of the paper. The severity of neglect varies between survivors.



Complications After Stroke

The highest priority is to prevent complications from the present stroke and to prevent another stroke. Complications include fatigue, depression, and Pseudobulbar Affect (PBA), as well as:

- **Bedsore** – pressure ulcers that result from decreased ability to move
- **Blood vessel problems** – blood clots form in veins
- **Clinical depression** – a treatable illness that often occurs with stroke and causes unwanted emotional and physical reactions to changes and losses
- **Edema** – brain swelling after injury
- **Increased muscle tone** – an interruption in the message from the brain to the muscles that increases muscle contraction/tightening that the person cannot control
- **Joint contractures** – shortened muscles in an arm or leg from reduced range of motion or lack of exercise
- **Pneumonia** – causes breathing problems, a complication of many major illnesses
- **Seizures** – abnormal electrical activity in the brain causing convulsions
- **Shoulder pain** – stems from lack of support or exercise of an arm
- **Urinary tract infection and bladder control** – urgency and incontinence

Complications After Stroke *(Continued)*

Fatigue

Many stroke survivors experience overwhelming fatigue, both physically and mentally. Fatigue following a stroke is different from simply feeling tired. Post-stroke fatigue can make someone feel like they completely lack energy or strength. Unlike typical tiredness, a nap or sleeping longer at night won't solve the problem. Symptoms can include difficulty with self-control, emotions and memory. Most report that fatigue occurs without warning and makes it harder to do routine activities.

The cause of fatigue after a stroke is unclear, but it is likely to be a mixture of physical and emotional factors. In the first weeks after a stroke, your brain and body are healing which takes a lot of energy and physical and mental activities require more effort, which also contributes to fatigue. So it is normal to feel very tired after your stroke.

Give yourself plenty of time. It can take many months before post-stroke fatigue starts to lift. The more you push yourself, the worse you are likely to feel. Accepting that it takes time to improve can help you cope better.

If you are experiencing fatigue, talk to your family and work with your health care team to determine the best plan of care for you.

What Can Help:

- If energy is better at a certain time of day, take advantage and plan activity around that time.
- For mental fatigue, sitting quietly keeping noise, light and activity in the area to a minimum, may be better than a nap.
- Schedule regular rest breaks or even a nap if needed.
- Factor in fatigue before any event or activity as well as recuperation time after event or activity.
- Try to eat healthy and exercise to prevent other health problems that can affect your energy level.
- Survivors with fatigue should be conscientious about maintaining energy reserves, rather than pushing themselves into exhaustion.
- Family support and understanding can also help. Let your family know post-stroke fatigue can be overwhelming.



Fatigue



Depression

Depression

Depression is common among stroke survivors. They may feel less than “whole”. These emotional changes may present within a short period of time after a stroke or last for longer periods of time. Emotional changes may also contribute to feelings of being tired or fatigued. Clinical depression may also occur after a stroke but it is treatable. Symptoms of depression include significant lack of energy, lack of motivation, a sense of hopelessness and problems concentrating or finding enjoyment in anything. You should contact the doctor if you feel that the stroke survivor may be depressed.

Some Tips to Help:

- Celebrate successes
- Tell the doctor about these feelings and make sure you have had an up-to-date physical
- Try naps, or schedule rest periods throughout the day
- Learn to relax
- Do something enjoyable every day
- Physical activity is important

Pseudobulbar Affect (PBA)

A stroke survivor may cry easily or have sudden mood swings, often for no apparent reason. This is called emotional lability or pseudobulbar affect (PBA). Laughing uncontrollably may also occur, but is not as common as crying. Emotions including happiness, sadness, frustration and anger may be difficult to control. Contact your doctor if the stroke survivor is experiencing signs of PBA, as this complication may be treated with medication.

What Happens Next?

The rehabilitation team, including doctors, nurses, case managers and physical, occupational, and speech therapists, work together to identify the survivor's needs after discharge, and will work to advise the survivor and families of the most appropriate level of care to meet those needs. A survivor may be discharged home or to another facility. There are different levels of rehabilitation which include:

- **Acute Inpatient Rehabilitation** which offers the most intense level of therapy, usually with a shorter length of stay
- **Skilled Nursing Facilities** which offer a less intense level of therapy, usually with a longer length of stay
- **Outpatient Therapy or Home Health** services are an option if the survivor goes home

Stroke and Rehabilitation

When the crisis of the stroke has passed and you are medically stable, it is important to initiate therapy as soon as possible. The case manager will assist the survivor and family in choosing the most appropriate rehab program based on the therapy recommendation.

Goals of Rehabilitation:

- Increase independence
- Improve physical functioning
- Help gain a satisfying quality of life after stroke
- Help prevent another stroke

Can One Live at Home After a Stroke?

Most stroke survivors are able to return home and resume many of the activities they were involved in before the stroke. Going home poses only a 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 some of the following factors:

- Ability to care for yourself
- Ability to follow medical advice
- Availability of a dependable caregiver
- Ability to move around
- Ability to communicate

Changes to Make at Home

Fall Prevention and Home Safety

Falls are a very common and dangerous problem with 25% of all hospital admissions being related to falls. Falls can cause injuries and can affect all age groups. It is possible to use preventative measures to significantly decrease the likelihood of falls. There are many simple measures which can make your home safer and prevent falls. Please use the following tips to help prevent a fall in your home.

Outdoors

- Repair cracks and edges of walkways and driveways
- Make a clear path into your home
- Have good outside lighting
- Clear walkways of tools, rocks, debris, and clutter
- Check that handrails are not broken and are secure. Both sides of steps should have hand rails
- Have leaves, snow, and ice cleared regularly
- Use sand or salt on walkways during winter months
- In the garage, clean up grease or oil spills

Bathroom

- Install night lights
- Install grab bars by the toilet and in the tub or shower
- Use non-skid mats or decals in the tub or shower
- Place a plastic non-slip stool in the shower to sit on, if needed
- Keep floors dry and clean up all water on the floor immediately
- Remove soap buildup in the tub or shower on a regular basis
- Secure bath mats with non-slip, double sided rug tape
- Remove throw rugs and tripping hazards from the floors

Bedroom

- Install night lights
- Make sure a bedside light is easy to reach
- Do not use oversized bedding
- Keep a telephone by your bedside
- Have a firm chair with side arms to use for getting dressed
- Remove throw rugs and tripping hazards from the floor

Changes to Make at Home *(Continued)*

Kitchen

- Keep handles on pots and pans turned toward the center of the stove. Use the back burners when you can
- Clean up spills quickly and allow for the wetness to dry
- Avoid walking on wet floors
- Avoid hot utensils and knives
- Position shelves so they are not too high or low
- Place commonly used objects within easy reach
- If necessary, use a sturdy step stool with a grab bar when reaching
- Keep electrical cables out of the way
- Do not use floor polish or wax that makes floors slippery
- Remove throw rugs and tripping hazards from the floor

Stairways

- Never leave objects on stairs.
- Place handrails on both sides of stairways and use them.
- Fix handrails if they are loose.
- Make sure the handrails are the same length as the stairs.
- Check carpeting to make sure it is firmly attached along stairs. Make repairs to worn or loose carpet immediately.
- Avoid placing throw rugs at the top or bottom of stairways, or properly secure the rug with carpet tape to prevent slippage.
- Get rid of throw rugs, if possible.
- Have an electrician put in a light switch at the top and bottom of the stairs.

Other Fall Prevention Tips

- Wear low-heel or rubber-soled shoes that are supportive and fit well. Wear closed toe shoes
- When using a stepladder, make sure it is fully opened and both spreaders are firmly locked. Do not climb a closed stepladder
- Add color or contrast paint or tape to grab bars and handrails in your home
- Place color strips on the first and last step
- Learn and use mobility aids as needed. Install an electrical emergency response system
- Turn on lights to avoid dark areas

- Replace light bulbs that burn out
- Get light switches that glow
- Arrange furniture to create a clear path
- Keep furniture in the same place
- Firmly attach carpet with non-skid or double-sided tape
- Eliminate uneven floor surfaces
- Select a carpet pattern that does not hide edges of the steps
- Be aware of all pets

Medications

For stroke prevention or decreased probability of having another stroke, there are different types of medications used to help improve blood flow by interfering with the blood's ability to clot.

Antiplatelet agents keep blood clots from forming by preventing blood platelets from sticking together. Antiplatelet drugs may be used for patients with atherosclerosis (hardening of the arteries). These types of medications are generally prescribed for prevention when atherosclerosis is evident but there is not yet a large obstruction in the artery. Examples include aspirin, Plavix (clopidogrel), and Aggrenox (dipyridamole).

Anticoagulant drugs are typically used for patients to prevent clots produced in the heart from irregular heartbeats or mechanical valves. Examples include Coumadin (warfarin), and some newer groups called factor II inhibitors and direct Xa inhibitors such as Pradaxa (dabigatran), Xarelto (rivaroxaban) and Eliquis (apixaban).

Always Remember:

- Follow physician orders
- Have blood tests performed as scheduled
- Make sure you tell other health care providers that you are taking anticoagulants
- Check with your physician before taking other medications or food supplements
- Discuss diet and nutrition with your physician
- Tell family members how you take anticoagulant medicine and carry an emergency medical ID card

Medications *(Continued)*

Notify Your Physician If:

- Your urine turns pink or red
- Your stool turns red, dark brown, or black
- Bleeding during menstruation is increased
- Your gums bleed
- You feel nauseous, weak, faint, or dizzy
- Pregnancy is involved
- Bruises or blood blisters are present
- You have any accident that causes injury
- You experience persistent severe headache or stomach pain

Know Your Stroke Risk Factors

Knowing your risk is key to prevention. Have regular medical check ups and remain aware of the risk factors.

Treatable or Modifiable Risk Factors

- High blood pressure
- Tobacco use
- Diabetes mellitus
- Carotid or other artery diseases
- TIAs
- Atrial fibrillation
- Other heart disease
- Certain blood disorders
- High blood cholesterol
- Physical inactivity and obesity
- Excessive alcohol intake
- Illegal drug use
- Stress
- Sleep apnea
- Migraines with aura
- Oral contraceptives (in combination with smoking)

Non-modifiable Risk Factors

- History of a prior stroke
- History of smoking
- Increasing age
- Gender (females at greater risk than males)
- Family history of stroke
- African Americans, American Indians and Alaskan Natives are at a higher risk than Hispanics and Hispanics have a higher risk than Caucasians.

Reference:

<http://www.cdc.gov/stroke/facts.htm>

Stroke Risk Scorecard

Each box that applies to you equals 1 point. Total your score at the bottom of each column and compare with the stroke risk levels on the back.



RISK FACTOR	HIGH RISK	CAUTION	CAUTION
Blood Pressure	<input type="checkbox"/> >140/90 or unknown	<input type="checkbox"/> 120-139/80-89	<input type="checkbox"/> <120/80
Atrial Fibrillation	<input type="checkbox"/> Irregular heartbeat	<input type="checkbox"/> I don't know	<input type="checkbox"/> Regular heartbeat
Smoking	<input type="checkbox"/> Smoker	<input type="checkbox"/> Trying to quit	<input type="checkbox"/> Nonsmoker
Cholesterol	<input type="checkbox"/> >240 or unknown	<input type="checkbox"/> 200-239	<input type="checkbox"/> < 200
Diabetes	<input type="checkbox"/> Yes	<input type="checkbox"/> Borderline	<input type="checkbox"/> No
Physical Activity	<input type="checkbox"/> None	<input type="checkbox"/> 1-2 times a week	<input type="checkbox"/> 3-4 times a week
Weight	<input type="checkbox"/> Overweight	<input type="checkbox"/> Slightly overweight	<input type="checkbox"/> Healthy weight
Stroke in Family	<input type="checkbox"/> Yes	<input type="checkbox"/> Not sure	<input type="checkbox"/> No
TOTAL SCORE	<input type="checkbox"/> HIGH RISK	<input type="checkbox"/> CAUTION	<input type="checkbox"/> LOW RISK

Risk Scorecard Results

HIGH RISK ≥ 3:

Talk to your healthcare provider immediately and ask about a stroke prevention plan. **Make an appointment today.**

CAUTION 4-6:

You have several risks that if elevated will place you at a higher risk for stroke. Take control now and work towards reducing your risk.

LOW RISK 6-8:

You're doing well at controlling stroke risk! Continue to stay informed about your numbers. Get tips at www.stroke.org.

Ask your healthcare professional how to reduce your risk of stroke.

To identify your risk:

1. Know your blood pressure.
2. Find out whether you have atrial fibrillation.
3. If you smoke, stop.
4. Find out if you have high cholesterol.
5. If diabetic, follow recommendations to control your diabetes.
6. Include exercise in your daily routine.
7. Enjoy a lower-sodium (salt), lower-fat diet.

Cholesterol

Total Blood (or Serum) Cholesterol

Your total cholesterol score is calculated using the following equation:

HDL + LDL + 20 percent of your triglyceride level. A total cholesterol should read Less than 200, LDL Less than 100, and HDL Less than 40.

HDL (Good) Cholesterol

With HDL cholesterol, higher levels are better. Low HDL cholesterol puts you at higher risk for heart disease. People with high blood triglycerides usually also have lower HDL cholesterol. Genetic factors, type 2 diabetes, and certain drugs, such as beta-blockers and anabolic steroids, also lower HDL cholesterol levels. Smoking, being overweight and being sedentary can all result in lower HDL cholesterol.

LDL (Bad) Cholesterol

A low LDL cholesterol level is considered good for your heart health. However, your LDL number should no longer be the main factor in guiding treatment to prevent heart attack and stroke, according to new guidelines from the American Heart Association. For patients taking statins, the guidelines say they no longer need to get LDL cholesterol levels down to a specific target number. A diet high in saturated and trans fats raises LDL cholesterol.

Triglycerides

Triglyceride is the most common type of fat in the body. Normal triglyceride levels vary by age and sex. A high triglyceride level combined with low HDL cholesterol or high LDL cholesterol is associated with atherosclerosis, the buildup of fatty deposits in artery walls that increases the risk for heart attack and stroke.

Total Cholesterol Level	Total Cholesterol Category
Less than 200 mg/dl	Desirable
200-239 mg/dl	Borderline high
240 mg/dl and above	High
LDL Cholesterol Level	LDL Cholesterol Category
Less the 100 mg/dl	Optimal
100-129 mg/dl	Never optimal/above optimal
130-159 mg/dl and above	Borderline high
160-189 mg/dl and above	High
190 mg/dl and above	Very high
HDL Cholesterol Level	HDL Cholesterol Category
Less than 40 mg/dl	A major risk factor for heart disease
40-59 mg/dl	The higher the better
60 mg/dl and above	Considered protective against heart disease

Blood Pressure

Your healthcare providers will want to get an accurate picture of your blood pressure and chart what happens over time. Starting at age 20, the American Heart Association recommends a blood pressure screening at your regular healthcare visit or once every 2 years, if your blood pressure is less than 120/80 mm Hg.

Your blood pressure rises with each heartbeat and falls when your heart relaxes between beats. While BP can change from minute to minute with changes in posture, exercise, stress or sleep, it should normally be less than 120/80 mm Hg (less than 120 systolic AND less than 80 diastolic) for an adult age 20 or over.

**About 1 in 3 U.S. adults has
HIGH BLOOD PRESSURE!**

If your blood pressure reading is higher than normal, your doctor may take several readings over time and/or have you monitor your blood pressure at home before diagnosing you with high blood pressure.

A single high reading does not necessarily mean that you have high blood pressure. However, if readings stay at 140/90 mm Hg or above (systolic 140 or above OR diastolic 90 or above) over time, your doctor will likely want you to begin a treatment program. Such a program almost always includes lifestyle changes and often prescription medication for those with readings of 140/90 or higher.

If, while monitoring your blood pressure, you get a systolic reading of 180 mm Hg or higher OR a diastolic reading of 110 mm Hg or higher, wait a couple of minutes and take it again. If the reading is still at or above that level, you should seek immediate emergency medical treatment for a hypertensive crisis. If you can't access the emergency medical services (EMS), have someone drive you to the hospital right away.

Even if your blood pressure is normal, you should consider making lifestyle modifications to prevent the development of high blood pressure and improve your heart health.

Reference:

http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/AboutHighBloodPressure/Understanding-Blood-Pressure-Readings_UCM_301764_Article.jsp

Blood Pressure Chart

Blood Pressure Category	Systolic mm HG (upper#)		Diastolic mm Hg (lower #)
Normal	Less than 120	y	Less than 80
Prehypertension	120 - 139	o	80 - 89
High Blood Pressure (Hypertension 1)	140 - 159	o	90 - 99
High Blood Pressure (Hypertension) Stage 1	160 or higher	o	100 or higher
Hypertensive Crisis (Emergency care needed)	Higher than 180	o	Higher than 110

Diabetes and A1C

The A1C test gives you a picture of your average blood glucose (blood sugar) control for the past 2 to 3 months. The results give you a good idea of how well your diabetes treatment plan is working.

In some ways, the A1C test is like a baseball player's season batting average, it tells you about a person's overall success. Neither a single day's blood test results nor a single game's batting record gives the same big picture.

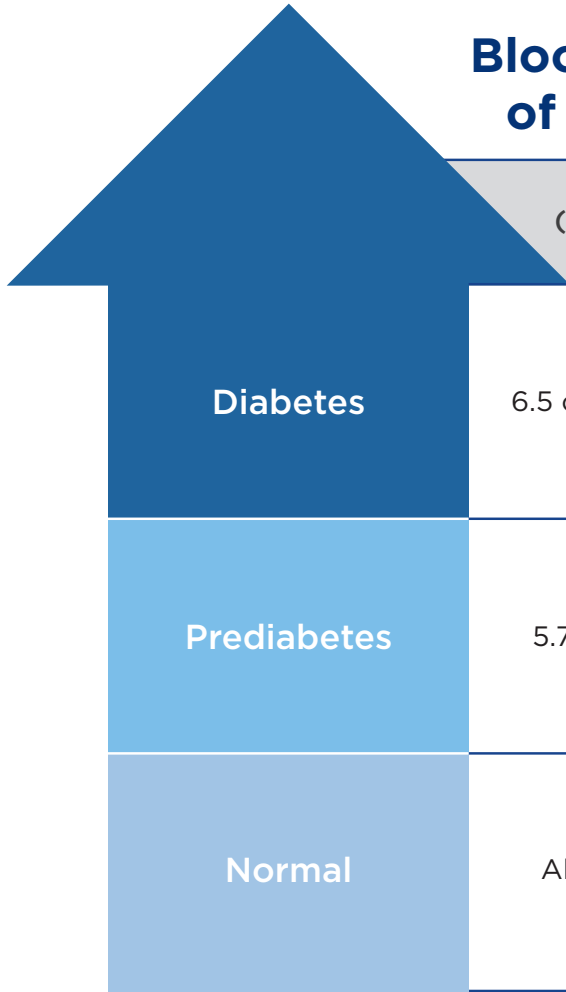
These are some ways the A1C test can help you manage your diabetes:

- Confirm self-testing results or blood test results by the doctor
- Judge whether a treatment plan is working
- Show you how healthy choices can make a difference in diabetes control

Reference

<http://www.diabetes.org/living-with-diabetes/treatment-and-care/blood-glucose-control/a1c/#sthash.KgMSVimG.dpuf>

Blood Test Levels for Diagnosis of Diabetes and Prediabetes



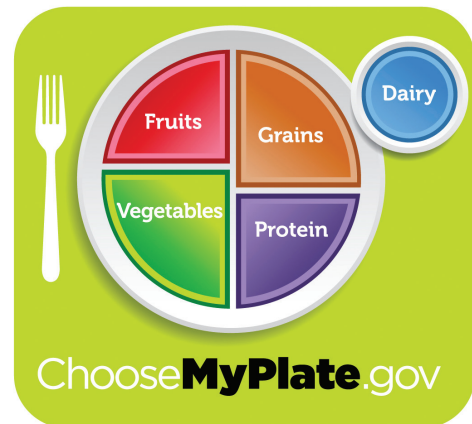
	A1C (percent)	Fasting Plasma Glucose (mg/dL)	Oral Glucose Tolerance Test (mg/dL)
Diabetes	6.5 or above	126 or above	200 or above
Prediabetes	5.7 to 6.4	100-125	140-199
Normal	About 5	99 or below	139 or below

Diet Recommendations

Healthy food habits can help you reduce three risk factors for stroke – poor cholesterol levels, high blood pressure and excess weight. Diets high in saturated fat and trans fat can raise blood cholesterol levels. Diets high in sodium can contribute to increased blood pressure, and high-calorie diets can contribute to obesity. A diet with five or more servings of fruits and vegetables per day may reduce the risk of stroke.

The American Heart Association/American Stroke Association offers these recommendations for a healthy diet:

- Eat a diet rich in a variety of vegetables and fruits
- Choose whole-grain, high fiber foods
- Eat 4 oz. of fish (not fried) at least twice a week. Try fish such as salmon, herring, and trout which are high in omega 3 fatty acids
- Limit saturated fat and avoid trans-fat intake by avoiding partially hydrogenated (margarine, shortening, etc.) and tropical oils (coconut and palm oils). Instead, include monounsaturated (olive, canola, etc.) and polyunsaturated (corn oil, sunflower oil, etc.) oils in the diet
- Choose lean meats and skinless poultry and prepare them without adding saturated or trans fats
- Consider low-fat dairy products, but check sugar and/or sodium content
- Choose and prepare foods with little sodium. Limit sodium intake to 1500-2300 mg/day
- Cut back on sugar-sweetened beverages & foods with added sugars. The AHA recommends daily added sugar intake to be less than 25g for women and less than 36g for men
- If you drink alcohol, do so in moderation: 1 drink for non-pregnant women and 2 drinks for men, aged 21 and older



Resources:

American Heart Association, HeartCheck.org, American Stroke Association, EatRight.org, Health.gov, Choosemyplate.gov, CalorieKing App

Recommendations provided by the American Heart Association, American Stroke Association, USDA Dietary Guidelines for Americans, <https://health.gov/dietaryguidelines/2015/guidelines/>

Erlanger Smoking Cessation Program

This program is committed to providing support and tools in a judgment free atmosphere to help individuals quit tobacco. The four-week FREE course helps participants learn how to overcome nicotine addiction so they can enjoy the benefits of a healthier lifestyle.

Locations:

- **Erlanger Baroness Hospital**
975 East Third Street | Chattanooga, TN 37403 | 423-778-7000
- **Erlanger East Hospital**
1751 Gunbarrel Road | Chattanooga, TN 37421 | 423-680-8000
- **Erlanger North Hospital**
632 Morrison Springs Road | Chattanooga, TN 37415 | 423-778-3300

For more information, to register, or other Erlanger locations that offer the Smoking Cessation Program, please call **423-778-3009** or **423-778-7745** Monday through Friday from 9:00 AM to 4:00 PM.

Other Cessation Resources:

Erlanger Respiratory Therapist Navigators also offer COPD, asthma, and other disease management classes. For more information, please call Pulmonary Rehabilitation at Erlanger North Hospital at **423-778-2916** or Erlanger Rehab & Wellness at Chattanooga LifeStyle Center at **423-778-9400**.

The Tennessee Tobacco QuitLine is a toll-free telephone service that provides personalized support for Tennesseans who want to quit smoking or chewing tobacco. The services provided by the QuitLine are free of charge to all residents of Tennessee. The telephone number is **1-800-QUIT-NOW** and the website is health.state.tn.us/tobaccoquitline.shtml. The QuitLine is available Monday through Friday, 8:00 AM – 11:00 PM, Saturday 9:00 AM – 6:00 PM, and Sunday 11:00 AM – 5:00 PM.

American Lung Association: The Freedom from Smoking free online program takes you through modules that you access on a protected website. The website is www.ffsonline.org. The American Lung Association also has a help line that is staffed by certified counselors who are registered nurses and respiratory therapists. The number is **1-800-548-8252**.

The American Cancer Society has a downloadable guide with information about smoking and how to quit. The website is www.cancer.org.

Dangers of Cigarette Smoking

Smoking can cause:

- Lung cancer, other related cancers
- Blood vessels to narrow
- Chronic lung diseases, more mucus produced
- Increases carbon monoxide in the lungs and blood

Smoking can damage your heart.

- Each of the above causes the heart to beat harder and faster.
- The heart has to work harder to get blood through the vessels.
- More smokers die of heart disease than lung disease.

More health problems caused by cigarette smoking:

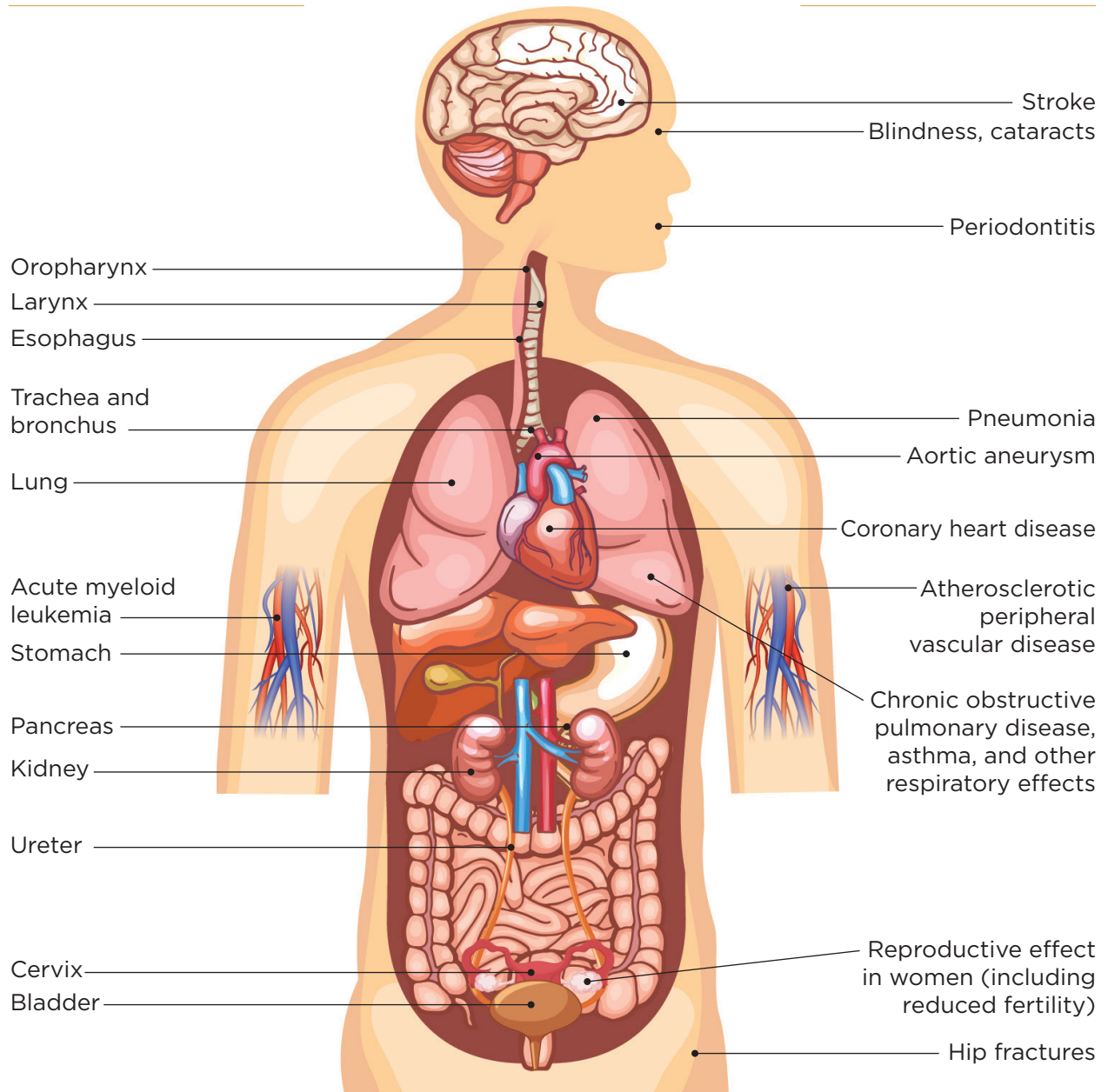
- Cigarette smoking and exposure to tobacco smoke has become the leading cause of premature deaths in the United States. Of those premature deaths, about 36% are from cancer, 39% are from heart disease and stroke, and 24% are from lung disease such as COPD and lung cancer.
- Tobacco smoke contains over 7,000 toxic chemicals, including carbon monoxide, formaldehyde, arsenic, and cyanide. These chemicals are transferred from your lungs into your blood stream which increases your risk of a stroke.

Secondhand smoke can hurt you.

- **Five minutes** in a smoky room can cause your aorta (the main artery carrying blood from the heart) to stiffen as much as smoking a cigarette making your heart work harder to pump blood.
- **At twenty minutes**, your blood platelets (the cells that help your blood clot) are similar to someone who smokes a pack-a-day. “Sticky” platelets damage your heart and arteries which can lead to blood clots.
- **After thirty minutes**, your heart arteries show the same damage as a smoker, and your body’s ability to handle bad cholesterol is decreased. Read other side of this card for helpful suggestions on how you can quit smoking.

Cancers

Chronic Diseases





Steps to Quit Cigarette Smoking

Phase I: Preparing to Quit

- Mark a “quit” date on your calendar one week in advance.
- Keep track of the cigarettes you smoke by a slash mark on paper tucked in your pack.
- Every time you have the urge to light up, wait 10 minutes.
- Collect your cigarette butts in a bottle to see how much you really smoke in a week.

Phase II: Quitting *(this phase takes approximately two weeks)*

- Throw all cigarettes away and paraphernalia like matches, lighters, and ashtrays.
- Whenever you have an urge to smoke, take a deep breath through your mouth and slowly exhale through pursed lips. Repeat five to ten times.
- Change your routine. If you always light up when driving to work, take a different route. Substitute a walk for your usual coffee and cigarette break. Sit in a chair you don’t customarily use when relaxing or watching TV at home.
- Find activities you don’t associate with smoking. Enroll in a cooking class, visit a non-smoking friend, or go swimming.
- Keep your hands busy by holding something such as a pen, a ball, or a paper clip.
- Substitute cigarettes with other oral gratifications like gum or mints, toothpicks or coffee stirrers.
- Avoid drinking coffee and alcohol or eating foods high in sugar like candy or pastries. They cause changes in the body that increase your desire for a cigarette.

- Create a “ciggy bank” and put the money you used to spend on cigarettes in a jar and watch it add up.
- Place a rubber band on your wrist and snap it every time you get an urge to smoke.
- Challenge a close family member or friend who smokes to quit with you.

Phase III: Staying off Cigarettes *(allow three months for this final phase)*

- Always remember the craving to smoke will pass, whether you smoke or not.
- Renew your commitment to stay off cigarettes each day.
- Beware of saboteurs—usually other smokers—who may try to encourage you to light up. Assert your right not to smoke.
- Talk to a non-smoking friend for support.
- Make a list of good things you’ve noticed since you quit—food tastes better, you cough less, your clothes don’t smell bad, etc.
- Continue to practice the behavior modification techniques listed in the quitting phase.
- Decide, one day at a time, not to smoke.
- Ask family and friends not to smoke around you.
- Set goals that continue to cut down on the number of cigarettes you smoke daily.
- Watch your weight when you quit smoking.

Atrial Fibrillation

Atrial fibrillation (AFib) affects an estimated 2.2 million people in the U.S. AFib is a type of irregular heartbeat, often caused when the two upper chambers of the heart beat unpredictably and sometimes rapidly. These irregular heartbeats can cause blood to collect in the heart and potentially form a clot, which can travel to a person's brain and cause a stroke.

AFib is:

- A leading risk factor for stroke
- More common in people over age 60
- Often asymptomatic, making it difficult for people to know they have it

It is Important to Note:

- AFib can be successfully managed with the help of a healthcare professional
- About 15 percent of all people who have strokes also have AFib
- Knowing about and properly managing your AFib can prevent you from having a stroke
- Up to 80 percent of strokes in people with AFib can be prevented
- If the physician believes there is a possibility the patient's stroke was caused by atrial fibrillation (AFib), and it is not detected on the heart monitor while the patient is in the hospital, the physician may order one of the following:
 - MCOT heart monitor (mobile continuous outpatient telemetry) for the patient to wear for 30 days after discharge from the hospital
 - Implantable Loop Recorder (ILR)

A cardiology follow-up appointment will also be scheduled.

Reference: <http://www.stroke.org/understand-stroke/preventing-stroke/afib-stroke-connection>

Sleep Apnea

Plain old snoring can get a little annoying, especially for someone listening to it. But when a snorer repeatedly stops breathing for brief moments, it can lead to cardiovascular problems and potentially be life-threatening. It's a condition known as sleep apnea, in which the person may experience pauses in breathing five to 30 times per hour or more during sleep. These episodes wake the sleeper as he or she gasps for air. It prevents restful sleep and is associated with high blood pressure, arrhythmia, stroke and heart failure.

One in five adults suffers from at least mild sleep apnea, and it afflicts more men than women. The most common type is obstructive sleep apnea in which weight on the upper chest and neck contributes to blocking the flow of air. (Another type, called central sleep apnea, is far less common.)



CPAP Mask



CPAP Machine

Obstructive sleep apnea is associated with obesity, which is also a major risk factor for heart disease and stroke. Besides obesity contributing to sleep apnea, sleep deprivation caused by sleep apnea can, in an ongoing unhealthy cycle, lead to further obesity.

Through treatment known as continuous positive airway pressure, or CPAP, sleep apnea can be managed. The CPAP device involves wearing a mask while sleeping. It keeps air pressure in the breathing passages so they don't close down.

For a Good Night's Sleep:

- Get regular physical activity, but don't do it right before bed because that gets your adrenaline pumping and can keep you awake.
- Limit alcohol consumption to one drink per day for women and two drinks for men; too much alcohol interferes with sleep.
- Avoid caffeine before bed.
- Develop a pre-bedtime routine such as taking a warm bath, dimming the lights or having some herbal tea.

Reference:

heart.org/HEARTORG/Conditions/More/MyHeartandStrokeNews/Sleep-Apnea-and-Heart-Disease-Stroke_UCM_441857_Article.jsp

Carotid Artery Disease

Carotid artery disease occurs when the major arteries in your neck become narrowed or blocked. These arteries, called the carotid arteries, supply your brain with blood. Your carotid arteries extend from your aorta in your chest to your brain inside your skull.

You are more likely to develop carotid artery disease as you age. Only one percent of adults age 50 to 59 have significantly narrowed carotid arteries, but ten percent of adults age 80 to 89 have this problem.

Your arteries are normally smooth and unobstructed on the inside, but as you age, a sticky substance called plaque can build up in the walls of your arteries. Plaque is made up of cholesterol, calcium, and fibrous tissue. As more plaque builds up, your arteries narrow and stiffen. This process is called atherosclerosis, or hardening of the arteries. When enough plaque builds up to reduce or disturb blood flow through your carotid arteries, physicians call this problem carotid artery disease. Carotid artery disease is a serious health problem because it can cause a stroke.

Some plaque deposits are soft and are prone to cracking or forming roughened, irregular areas inside the artery. If this happens, your body will respond as if you were injured and flood the cracked and irregular areas with blood-clotting cells called platelets. A large blood clot may then form in your carotid artery or one of its branches. If the clot blocks the artery enough to slow or stop blood and oxygen flow to your brain, it could cause a stroke.

More commonly, a piece of the plaque itself, or a clot, breaks off from the plaque deposit and travels through your bloodstream. This particle can then lodge in a smaller artery in your brain and cause a stroke by blocking the artery. Fortunately, you may be able to prevent or slow carotid artery disease. Quitting smoking is the most important change you can make to avoid this disease.

Other Ways to Prevent Carotid Artery Disease Include:

- Exercising regularly
- Eating a healthy diet
- Maintaining a healthy weight
- Controlling factors that increase your chances of developing carotid artery disease, such as diabetes, high blood pressure, or high cholesterol

For more information on treatment options for carotid artery disease, please see pages 15 and 22.

Reference:

<http://www.vascularweb.org/vascularhealth/Pages/carotid-artery-disease-,-stroke-,-transient-ischemic-attacks-%28-tias-%29-.aspx>

Other Risk Factors

- Oral contraceptives
- Migraines with aura
- Drug and alcohol use

Numerous studies have been devoted to migraine as a risk factor for ischemic stroke. The majority showed a statistically significant relationship between migraine and ischemic stroke in women under 45 years.

The increase in risk is more marked for migraine with aura than in migraine without aura, for which there is less evidence. The risk is more than tripled by smoking and quadrupled by oral contraceptive pill use. The triple combination of migraine, oral contraceptive pill use and smoking further increases the risk. Here oral contraceptive refers to combination estrogen/progesterone pills with relatively high doses of estrogen.

Resource:

<http://www.migrainetrust.org/factsheet-stroke-and-migraine-10891>

Be Active

AHA Recommendations

For overall health benefits to the heart, lungs and circulation, perform any moderate to vigorous intensity aerobic activity using the following guidelines:

- For most healthy people, get the equivalent of at least 150 minutes (2 hours and 30 minutes) per week of moderate-intensity physical activity, such as brisk walking.
- If you need to lower your blood pressure or cholesterol, aim for 40 minutes of moderate to vigorous physical activity 3 to 4 times per week.
- You can incorporate your weekly physical activity with 30 minutes a day on at least 5 days a week.
- Physical activity should be performed in episodes of at least 10 minutes, and preferably, it should be spread throughout the week.
- Include flexibility and stretching exercises.
- Include muscle strengthening activity at least 2 days each week.

Reference:

http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/PreventionTreatmentofHighBloodPressure/Physical-Activity-and-Blood-PressureUCM_301882_Article.jsp

How Can I Learn More?

Talk to your doctor, nurse or other healthcare professionals to learn more about stroke. You can also call your Stroke Program Coordinators at **423-778-9942** and **423-778-6443** or your Stroke Navigator at **423-778-5542** if you have any questions or concerns.

For more general educational information on stroke, or to receive additional fact sheets, call the American Stroke Association at **1.888.4.STROKE (1.888.478.7653)** or visit them online at **www.strokeassociation.org**

Need to speak with a nurse? Call **423-778-LINK(5465)** to access our 24 hour assistance line.

Coping Resources

Aphasia Support Group at Encompass Health Rehabilitation Hospital of Chattanooga

2412 McCallie Avenue, Chattanooga, TN 37404
3rd Thursday of every month
11:30 AM - 1:00 PM
Guest speaker and lunch provider
To learn more, call Daye Click at: 423-697-9116

Encompass Health Rehabilitation Hospital of Chattanooga (formerly Health South) Support Group

2412 McCallie Avenue, Chattanooga, TN 37404
3rd Thursday of every month
11:30 AM - 1:00 PM
For additional information call Sonya Mace at: 423-697-9136

Siskin Hospital Stroke Support Group

1 Siskin Drive, Chattanooga, TN 37403
3rd Thursday of every month
5:30 PM - 6:30 PM
Siskin Hospital, Conference Center, across from main elevators on 2nd floor
David Barron: 423-634-1579

American Occupational Therapy Association

Phone: 301-652-2682

www.aota.org

American Physical Therapy Association (APTA)

www.apta.org

American Speech Language Hearing Association

Phone: 800-638-8255

www.asha.org

American Stroke Association, a Division of American Heart Association

7272 Greenville Avenue, Dallas, TX 75231

Phone: 888-478-7653 (888-4-STROKE)

www.strokeassociation.org

Depression Awareness, Recognition, and Treatment (D/ART)

National Institute of Mental Health

5600 Fishers Lane, Rockville, MD 20857

Phone: 800-421-4211

The Internet Stroke Center at Washington University

www.strokecenter.org

National Aphasia Association

www.aphasia.org

National Institutes of Health Stroke Webpage

www.stroke.nih.gov

National Rehabilitation Information Center

www.manc.com

National Stroke Association

www.stroke.org

Stroke Survivor and Caregiver Network

www.supportnetwork.stroke.org

Erlanger Resources

Erlanger Cardiology

Phone: 423-778-5661

Erlanger Community Health Center Dodson Avenue

1200 Dodson Avenue | Chattanooga, TN 37406

Phone: 423-778-2800

Erlanger Community Health Center Southside

3800 Tennessee Avenue, Suite 124 | Chattanooga, TN 37409

Phone: 423-778-2700

Erlanger Medical Records

Phone: 423-778-4185

Erlanger Neurology

Phone: 423-778-9001

Financial Resources

Social Security Administration

Phone: 800-772-1213 | Chattanooga office: 866-964-0029

www.socialsecurity.gov

Medication Assistance Resources

Eliquis (Apixiban)

Phone: 855-354-7847

Good Rx

Phone: 855-268-2822

Xarelto (Rivaroxaban)

Phone: 888-927-3586

Transportation Resources

Carta Special Fare Program

Phone: 866-836-6678

Dade County Transit

Phone: 706-657-8277

Georgia Medicaid Transportation

Phone: 866-388-9844

SETHRA

Phone: 423-949-2191

Other Resources

Goodwill HELPs – Health Equipment Link Program services

Assists residents of southeast TN and northwest GA, to obtain durable medical equipment, (DME).

Phone: 423-629-2501 | Fax: 423-242-0504

Email: GoodwillChattHELPS@gmail.com

State Health Insurance Program (SHIP)

Provides free local health coverage counseling to people with Medicare to help people to make informed healthcare benefits decisions. Open enrollment occurs every year from October 15th to December 7th. This is when all people with Medicare can change their Medicare health plans and prescription drug coverage for the following year to better meet their needs.

Visit www.SeniorsResourceGuide.com/National/SHIP to find your state's SHIP. Some states call their programs by a different name.

Tennessee State Health Insurance Program: 877-801-0044

Georgia State Health Insurance Program: 706-622-3635

Other Resources *(Continued)*

AAAD – Southeast Tennessee Area Agency on Aging and Disability

This agency advocates for, and assists older adults and people with disabilities, live with dignity and choices in their home and communities.

Phone: 866-836-6678

American Occupational Therapy Association

Phone: 301-652-2682

www.aota.org

American Physical Therapy Association (APTA)

www.apta.org

American Speech Language Hearing Association

Phone: 800-638-8255

www.asha.org

The Internet Stroke Center at Washington University

www.strokecenter.org

National Aphasia Association

www.aphasia.org

National Institutes of Health Stroke Webpage

www.stroke.nih.gov

National Rehabilitation Information Center

www.manc.com

National Stroke Association

www.stroke.org

Stroke Survivor and Caregiver Network

www.supportnetwork.stroke.org

Medical Abbreviations

A1C	Hemoglobin A1C
AFIB	Atrial Fibrillation
CAD	Coronary artery disease
CEA	Carotid Endarterectomy
CT	Computed Tomography
CTA	Computed Tomography Angiogram
CTP	Computed Tomography Perfusion
CVA	Cerebrovascular accident
DBP	Diastolic Blood Pressure
DM	Diabetes mellitus
DVT	Deep Vein Thrombosis
ECHO	Echocardiogram
EEG	Electroencephalogram
EKG	Electrocardiogram
HLD	Hyperlipidemia
HTN	Hypertension
ICH	Intracerebral Hemorrhage
IPH	Intraparenchymal Hemorrhage
IR	Interventional radiology
IVH	Intraventricular Hemorrhage
LDL	Low-density lipoprotein
LVO	Large Vessel Occlusion
MRA	Magnetic Resonance Imaging angiogram
MRI	Magnetic Resonance Imaging
NPO	Nothing by mouth
OT	Occupational Therapy
PFO	Patent Foramen Ovale
PT	Physical Therapy
SAH	Subarachnoid Hemorrhage
SBP	Systolic Blood Pressure
SDH	Subdural Hematoma
ST	Speech Therapy
TCD	Transcranial Doppler
TEE	Transesophageal Echocardiography
TIA	Transient Ischemic Attack
TPA	Tissue Plasminogen Activator
TTE	Transthoracic Echocardiogram

Understanding What Happened

What was the diagnosis?

What caused the stroke?

Am I at risk for another stroke? If so, what can I do to reduce that risk?



Where hospitals send their toughest cases.

Erlanger Southeast Regional Stroke Center
975 E. Third Street, Chattanooga, TN 37403
423-778-5542 • erlanger.org/stroke