Stroke Education

Guidebook

FloridaHospitalNeuro.com

This guidebook is provided to the general public to disseminate health-related information. The information is not intended to be used for diagnosing or prescribing. Please consult your physician before undertaking any form of medical treatment and/or adopting any exercise program or dietary guidelines.

American Heart Association®

life is why®

FLORIDA HOSPITAL and the **AMERICAN HEART ASSOCIATION** collaborate on community initiatives that bring awareness to preventative heart care, heart attack and stroke warning signs, and healthy lifestyle education. Florida Hospital is also an authorized provider of American Heart Association certification courses.

Table of Contents

Welcome

On behalf of our entire care team, I would like to welcome you to Florida Hospital. Officially formed in 1998, the Florida Hospital Neuroscience Institute is a recognized leader in neurological and neurosurgical care and treatment in Florida. Our multidisciplinary team of experts ensures excellence in treatment, research, and care. Florida Hospital's mission — to extend the healing ministry of Christ — has inspired us to build a unique health network dedicated to providing comfort, healing and the discovery of new treatments and cures.

We're honored that you have entrusted us with your health. We look forward to caring for you.

Sincerely,

Wendy Elliott
Assistant Vice President
Florida Hospital Neuroscience Institute

The Scott Coopersmith Stroke Awareness Foundation

This guidebook was inspired and funded by the Scott Coopersmith Stroke Awareness Foundation (SCSAF). On July 15, 2009, Scott suffered a massive ischemic stroke of the brain stem. Despite numerous surgeries, he passed away on July 22 at the age of 32. During the week following Scott's stroke, his family spent endless hours by his bedside and in the Neuro Critical Care Unit waiting room. Their questions and fears overwhelmed them and they were desperate for answers. It is the hope of Scott's family and the Scott Coopersmith Stroke Awareness Foundation that this booklet will provide other families with information, answers and comfort while they navigate through this process.

SCSAF's Mission

The Scott Coopersmith Stroke Awareness Foundation was created in 2010 and is dedicated to connecting with those affected by stroke through community outreach. This includes raising funds to further the awareness of stroke in young individuals, encouraging the rehabilitation of survivors, and providing assistance to survivors and caregivers.

Services

Since 2010, the funds that SCSAF has raised have helped survivors in the following ways:

- Helped local survivors with a variety of needs, including but not limited to funding occupational therapy, physical therapy, and speech therapy
- Sponsored two survivors' grants funding intensive treatment at the Aphasia House at UCF
- Purchased medical equipment including a Walk Aid for survivors
- Assisted and funded home renovations to make survivors' homes handicap accessible
- Provided meals and transportation to and from therapy sessions for survivors
- Provided ongoing mental health counseling services for survivors and their caretakers
- Funded informational video brochures that are distributed to stroke patients and their families as they are brought into the Florida Hospital Emergency Department to explain what is happening to their loved one
- Funded a family waiting room located on the Neuro Critical Care Unit at Florida Hospital Orlando complete with game kiosks for children and serene murals on the walls to provide a peaceful environment for families while their loved ones are in the unit
- Committed to educating the community by making presentations at hospitals, businesses, and City Hall on stroke awareness and the meaning of F.A.S.T. while sharing the many faces and stories of stroke
- Hosting an annual charity gala every July in order to raise funds to continue to fulfill our mission and support survivors

Testimonials

"SCSAF has increased the community's awareness that stroke is no respecter of age. They have also provided a platform for us, as a service provider of speech/ language therapy, to reach more stroke survivors and their families."

– Dr. Janet Whiteside, Founder
UCF Aphasia House

"SCSAF has provided resources to design a warm and relaxing area in our very busy Neuro Critical Care Unit where family members of stroke patients can access information about what is going on with their loved one. The foundation has also supported Florida Hospital Neuroscience Institute's outreach to the community by spreading awareness of the signs and symptoms of stroke. They are currently collaborating with us on our new "Train Orlando" campaign which is aimed at teaching 100,000 people about how to recognize the signs of a stroke and what to do if they see someone who is having one. We are fortunate to have the Scott Coopersmith Stroke Awareness founder, Deanna, as a key supporter of our crusade to educate the public and hopefully reduce the incidence and side effects of stroke."

– Wendy Elliott, Assistant Vice President
Florida Hospital Neuroscience Institute

"SCSAF has done a tremendous amount to help me and my family. When Deanna read about my story, she immediately reached out to my family. From then on there was a real special connection made. Because of generous donations made to the foundation, they were able to help me with medical expenses. I'll be forever grateful for them. SCSAF has made a big impact on my life."

– Robert Pritchard,
Stroke Survivor

"The Scott Coopersmith Stroke Awareness Foundation has been LIFESAVING. I can talk!!! I can write!!! I'm almost whole again. I can communicate with my family and friends again and you have brought hope, inspiration, love, and reality within reach ... I feel good; it's nice to be "back."

– Amber Miller, Stroke Survivor
who was granted treatment
at the Aphasia House

If you are in need of assistance, please contact info@StrokeAwarenessFoundation.org.

Information for Stroke Survivors and Their Caregivers

As a national leader in neurological care, we have created this guidebook to educate our patients and the community about one of the leading causes of death in the U.S. – stroke. Our goal is to increase awareness in our community on how to prevent, recognize and help care for those who experience stroke and transient ischemic attack (TIA).

Stroke Facts:

- Each year, approximately 795,000 Americans will experience a new or recurrent stroke.
- Every 40 seconds, someone in the United States has a stroke.
- One American dies from a stroke every four minutes.
- Stroke is the fifth most frequent cause of death and the leading cause of disability in the United States.

Understanding Stroke

TIA and Stroke: Warning Signs

Stroke is the fifth most frequent cause of death and the leading cause of serious, long-term disability in the United States.

A stroke (sometimes called a "brain attack") occurs when a blood vessel bringing blood and oxygen to the brain gets blocked or ruptures. When this happens, brain cells don't get the blood and oxygen that they need to survive. This causes nerve cells to stop working and die within minutes. Then, the part of the body they control can't function either. The effects of stroke may be permanent depending on how many cells are lost, where they are in the brain, and other factors.

Transient Ischemic Attack (TIA) – a Wakeup Call

A TIA is a "mini-stroke" that occurs when a blood clot blocks an artery for a short time. The symptoms of a TIA are the same as those of a stroke, but they usually last only a few minutes.

About 15 percent of major strokes are preceded by TIAs, so don't ignore a TIA.

Call 9-1-1 or seek emergency medical attention immediately if you or a loved one experience short-lived symptoms of a stroke.

Signs and Symptoms

Symptoms of stroke often develop very quickly – although in some cases they may develop over hours or days. The signs of stroke may depend on the type of stroke and the area of the brain that is affected.

You and your family should recognize the warning signs of stroke. Note the time when symptoms start and call 9-1-1 or the emergency medical number in your area if you notice these signs in yourself or a loved one. **STROKE IS A MEDICAL EMERGENCY.**

Don't ignore these warning signs, even if they go away. You must act quickly.

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

THINK F.A.S.T.

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

Before you need to take emergency action, create a list of emergency phone numbers and keep a copy next to your phone and with you at all times.

F = Facial Droop

A = Arm Weakness

S = Speech Difficulty

T = Time to call 911

Stroke: There is Hope

Stroke is largely preventable. You can reduce your stroke risk by living a healthy lifestyle. This means controlling high blood pressure, not smoking, eating a healthy diet that's low in saturated and trans-fats, being physically active, maintaining a healthy weight, managing diabetes, and drinking alcohol in moderation or not at all.

Also, much has been done to fight the effects of stroke. There is a clot-dissolving drug called tissue plasminogen activator (tPA) to treat stroke. This drug can stop a stroke in progress and reduce disability from stroke by breaking up a blood clot that might be stopping the flow of blood to the brain. But to be eligible for tPA, you must seek emergency treatment right away and have a clot-caused stroke. It must be given within 3 to 4.5 hours after symptoms start. The sooner tPA is given, the greater the possibility of a better outcome after stroke.

For people with blood clots in larger arteries, tPA often does not dissolve them completely. In this case, a procedure called mechanical thrombectomy should be performed within six hours of the first symptoms of stroke. In most cases this is done only after the patient receives IV tPA. To remove the clot, doctors thread a catheter with a stent through an artery in the groin up to the blocked artery in the brain. The stent opens and grabs the clot. The doctors then remove the stent with the trapped clot. If necessary, other devices may be used.

Risk Factors for Stroke

Knowing your risk factors for stroke is the first step in helping to prevent one. You can change or treat some risk factors, but not all. Having regular medical checkups and understanding your risks will allow you to focus on what you can change and reduce your likelihood of experiencing a stroke.

Risks You Can Control

High blood pressure: This is the single most important risk factor and No. 1 cause of stroke. Know your blood pressure and have it checked at least once every two years. Normal blood pressure is below 120/80. If it's consistently 140/90 or above, it's too high. Talk to your doctor about how to manage it.

Tobacco use: Tobacco use damages blood vessels. This can lead to blockages within those blood vessels, causing a stroke. Don't smoke, and avoid second-hand smoke.

Diabetes: Having diabetes increases your risk of stroke because it can cause disease of blood vessels in the brain. Work with your doctor to manage diabetes.

High cholesterol: High cholesterol increases the risk of blocked arteries. If an artery leading to the brain becomes blocked, a stroke can result.

Physical inactivity and obesity: Being inactive, obese, or both, can increase your risk of cardiovascular disease.

Carotid or other artery disease: The carotid arteries in your neck supply most of the blood to your brain. A carotid artery damaged by a fatty buildup of plaque inside the artery wall may become blocked by a blood clot. This causes a stroke.

Transient ischemic attacks (TIAs): Recognizing and treating TIAs can reduce the risk of a major stroke. TIAs produce stroke-like symptoms but most have no lasting effects. Know the warning signs of a TIA and seek emergency medical treatment immediately.

Atrial fibrillation (AFib) or other heart disease: In AFib, the heart's upper chambers quiver (like a bowl of gelatin) rather than beating in an organized, rhythmic way. This causes the blood to pool and clot, increasing the risk of stroke. AFib increases the risk of stroke by five times. People with other types of heart disease have a higher risk of stroke, too.

Certain blood disorders: A high red blood-cell count makes clots more likely, raising the risk of stroke. Sickle cell anemia increases stroke risk because the "sickled" cells stick to blood vessel walls and may block arteries.

Excessive alcohol intake: Drinking an average of more than one drink per day for women or more than two drinks a day for men can raise blood pressure. Binge drinking can lead to stroke.

Illegal drug use: Intravenous drug use carries a high stroke risk. Cocaine use also has been linked to stroke. Illegal drugs commonly cause hemorrhagic strokes.

Risks You Can't Control

Increasing age: Stroke affects people of all ages. But the older you are, the greater your stroke risk.

Gender: In most age groups, more men than women have stroke, but more women die from stroke.

Heredity and race: People whose close blood relations have had a stroke have a higher risk of stroke. African Americans have a higher risk of death and disability from stroke than Caucasians. This is because they have a greater incidence of high blood pressure. The Hispanic population is also at higher risk of stroke.

Prior stroke: Someone who has had a stroke is at higher risk of having another one.

How to Quit Smoking

Smoking harms almost every tissue and organ in the body, including your heart and blood vessels. Smoking also harms nonsmokers who are exposed to second-hand smoke. If you smoke, you have good reason to worry about its effects on your health, your loved ones and others. Deciding to quit is a big step, and following through is just as important. Quitting smoking isn't easy, but others have done it, and you can too.

It's Never Too Late to Quit

No matter how much or how long you've smoked, when you quit, your risk of heart disease and stroke starts to drop. In the year after you quit smoking, your excess risk of coronary heart disease drops by 50 percent. After 15 years, your risk is as low as someone who has never smoked. While you may crave a cigarette after quitting, most people feel that quitting is the most positive thing they've ever done for themselves.

Ready, Set... Stop

You are more likely to quit smoking for good if you prepare for two things: your last cigarette, and the cravings, urges and feelings that come with quitting. Think about quitting in five steps:

1. ***Set a quit day.*** Choose a date within the next seven days when you will quit smoking. Tell your family members and friends who are most likely to support your efforts.
2. ***Choose a method for quitting.*** There are several ways to quit smoking. Some include:
   - Stop smoking all at once on your quit day.
   - Reduce the number of cigarettes per day until you stop smoking completely.
   - Smoke only part of your cigarette each time. If you use this method, you need to count how many puffs you take from each cigarette and reduce the number every two to three days.
3. ***Decide if you need medicines or other help to quit.*** Talk to your healthcare provider to discuss which medicine is best for you, and to get instructions about how to use it. These may include nicotine replacements (gum, spray, patch or inhaler) or prescription medicines such as bupropion hydrochloride or varenicline. You may also ask about referral to a smoking cessation program.
4. ***Plan for your quit day.*** Get rid of all cigarettes, matches, lighters and ashtrays in your house. Find healthy substitutes for smoking. Go for walks. Carry sugarless gum or mints. Munch on carrots or celery sticks.
5. ***Stop smoking on your quit day.***

IN ONE YEAR
after quitting smoking, your excess risk of coronary heart disease
DROPS BY 50%

Ischemic Stroke

Most strokes occur when blood vessels to the brain become narrowed or clogged with fatty deposits called plaque. This cuts off blood flow to brain cells. A stroke caused by a lack of blood reaching part of the brain is called an ischemic stroke. High blood pressure is the most important risk factor for ischemic stroke that you can change.

There are two types of ischemic stroke.

Thrombotic Stroke

- Caused by a blood clot (thrombus) in an artery going to the brain
- The clot blocks blood flow to part of the brain
- Blood clots usually form in arteries damaged by plaque

Embolic Stroke

Caused by a wandering clot (embolus) that's formed elsewhere (usually in the heart or neck arteries). Clots are carried in the bloodstream and block a blood vessel in or leading to the brain.

Diagnosing Ischemic Stroke

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

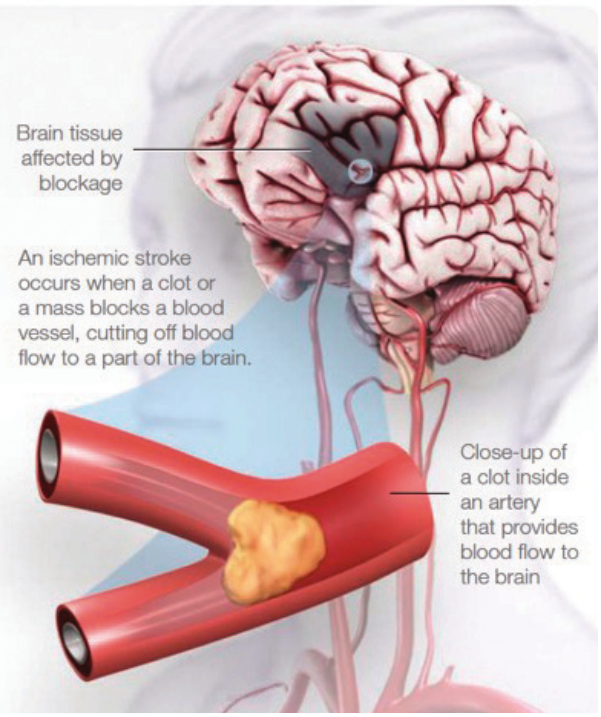
- Get a medical history from you or a family member
- Do a physical and neurological examination
- Have certain laboratory (blood) tests done
- Get a CT or MRI scan of the brain
- Study the results of other diagnostic tests that might be requested

Treatments for Ischemic Stroke

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

The only FDA-approved drug to treat ischemic stroke is tissue plasminogen activator (tPA). This is a clot-busting drug. tPA must be given within 3 to 4.5 hours of the first symptoms of stroke. Medication may also be used to treat brain swelling that sometimes occurs after a stroke.

For people with blood clots in larger arteries, tPA often does not dissolve them completely. In this case, a procedure called mechanical thrombectomy should be done within six hours of the first symptoms of stroke. In most cases this is done only after the patient receives IV tPA. To remove the clot, doctors thread a catheter with a stent through an artery in the groin up to the blocked artery in the brain. The stent opens and grabs the clot. The doctors then remove the stent with the trapped clot. If necessary, other devices may also be used.



Source: American Heart Association

Hemorrhagic Stroke

About 13 percent of strokes happen when a blood vessel ruptures in or near the brain. This is called a hemorrhagic stroke. When a hemorrhagic stroke happens, blood collects in the brain tissue. This is toxic for the brain tissue and causes the cells in that area to weaken and die.

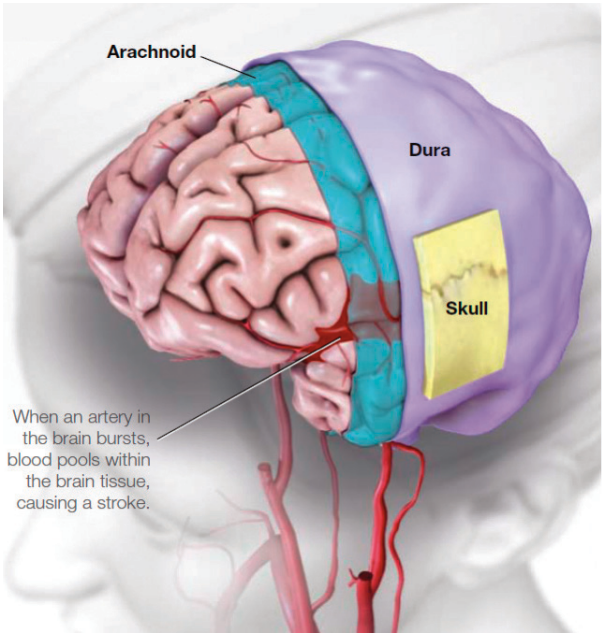
There are two kinds of hemorrhagic stroke. In both, a blood vessel ruptures, disrupting blood flow to part of the brain.

Intracerebral Hemorrhage

- Most common type of hemorrhagic stroke
- Occurs when a blood vessel bleeds or ruptures into the tissue deep within the brain
- Are most often caused by chronically high blood pressure or aging blood vessels
- Are sometimes caused by an arteriovenous malformation (AVM), a cluster of abnormally formed blood vessels; any one of these vessels can rupture, also causing bleeding into the brain

Subarachnoid Hemorrhage

- Occurs when an aneurysm (a blood-filled pouch that balloons out from an artery) on or near the surface of the brain ruptures and bleeds into the space between the brain and the skull
- Often caused by high blood pressure



Source: American Heart Association

Factors that Increase the Risk of Hemorrhagic Stroke

- High blood pressure
- Cigarette smoking
- Use of oral contraceptives (particularly those with high estrogen content)
- Excessive alcohol consumption
- Use of illegal drugs

Diagnosing Hemorrhagic Stroke

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

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

Treatments for Hemorrhagic Stroke

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

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

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

Diagnosing a Stroke

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

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

What Happens First

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

Ischemic strokes may be treated with a clot-busting drug, called tPA (tissue plasminogen activator). So it's important to receive a correct diagnosis before treatment begins. To receive a clot-busting drug treatment such as tPA, a doctor must diagnose your stroke as an ischemic stroke and treat you within 3 to 4.5 hours of the onset of stroke symptoms. This treatment usually takes place in the hospital emergency department. If more than 4.5 hours passes, tPA can't be given.

In the emergency room, your doctor or stroke emergency team may:

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

Diagnostic Tests

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

Electrical tests record the electrical impulses of the brain. These are referred to as EEGs.

Blood flow tests show any problem that may cause changes in blood flow to the brain. These include:

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

Medical imaging tests give a picture of the brain like X-rays. They may include:

CT (computed tomography) or CAT scan
This test uses radiation to create a picture (like an X-ray) of the brain. It's usually one of the first tests given to a patient with stroke symptoms. CT test results provide valuable information about the cause of stroke and the location and extent of brain injury.

MRI (magnetic resonance imaging)
This test uses a large magnetic field to produce an image of the brain. Like a CT scan, it shows the location and extent of brain injury. The image produced by MRI is sharper and more detailed than a CT scan, so it's often used to diagnose small, deep injuries.

CTA (computed tomographic angiography)
In CTA, a special contrast material (dye) is injected into a vein and images are taken of the blood vessels to look for abnormalities, such as an aneurysm.

MRA (magnetic resonance angiography)
In this test, the blood vessels are imaged through a MRI to locate a cerebral aneurysm.

Quick Stroke Treatment Saves Lives

If you're having a stroke, it's critical that you get medical attention right away. Immediate treatment may minimize the long-term effects of a stroke and even prevent death. Thanks to recent medical advances, stroke treatments and survival rates have improved greatly over the last decade.

Alteplase IV r-tPA

A stroke occurs when a vessel in the brain is blocked by a blood clot or ruptures. A stroke caused by a clot is called an ischemic stroke; about 85 percent of all strokes in the United States are ischemic. The only FDA-approved treatment for ischemic strokes is Alteplase IV r-tPA, also known as tissue plasminogen activator (tPA). Alteplase IV r-tPA works by dissolving the clot and improving blood flow to the part of the brain that is being deprived of blood flow.

This is the gold standard of care for the treatment of strokes. If administered within three hours (and up to 4.5 hours in certain patients), Alteplase IV r-tPA may improve the chances of recovering from a stroke. Unfortunately, a significant number of stroke victims don't get to the hospital in time for this treatment.

Other Treatment Options

Another treatment option is an endovascular procedure* in which specially-trained doctors try removing the blood clot by sending a catheter to the site of the blocked blood vessel in the brain.

Sometimes these procedures involve tPA being administered directly into the blood clot (called intra-arterial treatment) to help dissolve the blockage. In other procedures, the doctor may attempt to remove the clot. Researchers are still conducting research to determine the best clinical protocols for endovascular procedures.

**Note: Patients must meet certain criteria to be eligible for this procedure.*

Life After Stroke

Avoiding a Second Stroke

Once someone has had a stroke, they are at risk of having another. After the medical team identifies what caused the stroke, they may prescribe treatments to reduce the risk of a reoccurrence. These treatments may include one or more of the following.

Antiplatelet agents such as aspirin and anticoagulants such as warfarin, dabigitran, apixabanm rivoraxaban or edoxaban interfere with the blood's ability to clot. These may be prescribed to help prevent a second stroke.

Carotid endarterectomy is a procedure in which a blood vessel blockage (a blood clot or fatty plaque) is surgically removed from the carotid artery in the neck. This reopens the artery and the blood flow to the brain. This procedure is only considered for patients who have a large blockage.

Balloon angioplasty and implantable steel screens called stents are sometimes used to treat and reduce fatty buildup that is clogging a vessel and making it easy for clots to form in the bloodstream.

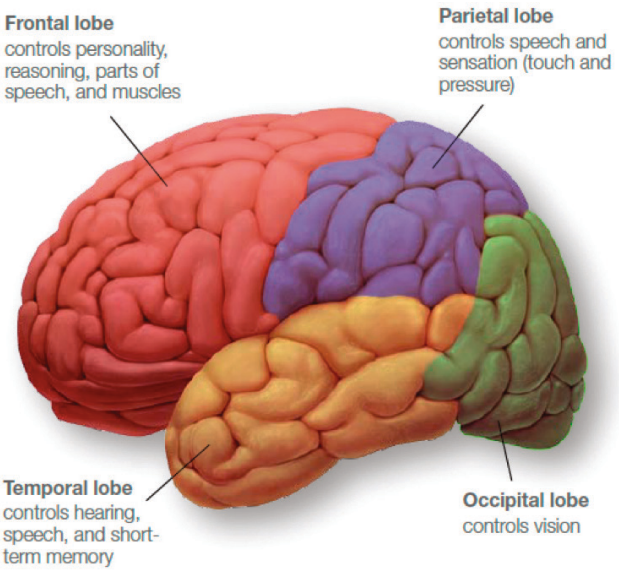
Treatment for previously undiagnosed conditions such as high blood pressure, diabetes, atrial fibrillation (a heart rhythm disorder), or other vascular disease.

Changes Caused by Stroke

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

Common After-Effects of Stroke

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



Source: American Heart Association

Effects of a Left-Brain Injury

- Paralysis or weakness on the right side of the body
- Aphasia (difficulty getting your words out or understanding what is being said)
- Behavior that may be more reserved and cautious than before

Effects of a Right-Brain Injury

- Paralysis or weakness on the left side of the body
- One-sided neglect, which is a lack of awareness of the left side of the body; this may also manifest in a lack of awareness of what is going on to the survivor's left - for example, they may only eat from the right side of their plate
- More impulsive and less cautious behavior than before
- Difficulty understanding facial expressions and tone of voice; reduced facial expressions and changed tone of voice

Potential Complications

Your healthcare team wants to prevent complications from your stroke and prevent another stroke. The most common complications of stroke are:

- ***Brain edema*** — swelling of the brain
- ***Pneumonia*** — a lung infection that can happen after stroke because of an inability to move around or walk or as a result of swallowing problems
- ***Loss of bladder control***
- ***Urinary tract infection*** – may occur if loss of bladder control necessitates placement of a foley catheter
- ***Seizures*** — abnormal electrical activity in the brain causing convulsions (these commonly occur following larger strokes)
- ***Clinical depression*** — a treatable illness that often occurs with stroke
- ***Bedsores*** — pressure ulcers that result from decreased ability to move and pressure on areas of the body due to immobility
- ***Limb contractures*** — shortened muscles in an arm or leg from reduced ability to move the affected limb or lack of exercise
- ***Shoulder pain*** — stems from lack of support of an arm due to weakness or paralysis
- ***Deep venous thrombosis (DVT)*** — blood clots form in the veins of the legs due to immobility

Aphasia

Aphasia is a language disorder that affects the ability to communicate. It's most often caused by strokes that occur in areas of the brain that control speech and language.

Aphasia does not affect intelligence. Stroke survivors remain mentally alert, even though their speech may be jumbled, fragmented or impossible to understand. Some survivors continue to have:

- Trouble speaking or "getting the words out"
- Trouble finding words
- Problems understanding what others say
- Problems with reading, writing or math
- Inability to process long words and infrequently used words

Communication Challenges

People with aphasia are often frustrated and confused because they can't speak as well or understand things the way they did before their stroke. They may act differently because of changes in their brain.

Imagine looking at the headlines of the morning newspaper and not being able to recognize the words. Or think about trying to say "put the car in the garage" and it comes out "put the train in the house" or "widdle tee car ung sender plissen." Thousands of alert, intelligent men and women are suddenly plunged into a world of jumbled communication because of aphasia.

Types of Aphasia

Global aphasia — People with this aphasia may be completely unable to speak, name objects, repeat phrases or follow commands

Broca's aphasia — The person knows what they want to say, but can't find the right words (can't get the words out)

Wernicke's aphasia — A person with this aphasia can seldom understand what's being said or control what they're saying

Emotional Changes After Stroke

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

Emotions may be hard to control, especially right after a stroke. Some changes are a result of the actual injury and chemical changes to the brain caused by the stroke. Others are a normal reaction to the challenges, fears and frustrations that one may feel trying to deal with the effects of the stroke. Often, talking about the effects of the stroke and acknowledging these feelings helps stroke survivors deal with their emotions.

Common Emotional Effects

- Depression
- Apathy and lack of motivation
- Frustration, anger and sadness
- The pseudobulbar affect, also called reflex crying or emotional lability; emotions may change rapidly and sometimes not match the mood
- Denial of the changes caused by the brain injury
- Changes in eating, sleeping and thought processes
- Irritability

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

Coping Methods

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

Post-Stroke Fatigue

After a stroke, almost all stroke survivors feel tired or some level of fatigue at some point. Stroke survivors often must work harder to make up for the loss of normal functions (such as being able to use an arm or hand). But this feeling will probably start to diminish after a few months. For some people, tiredness may continue for years after a stroke, but they usually find ways to make the most of the energy they have.

Why You Feel Tired

It's important to pinpoint what's causing you to be tired; then you can act. Consult with your healthcare provider to rule out any medical conditions that might be causing your fatigue or making it worse. You may feel tired after a stroke for several reasons:

- ***You may have less energy than before*** because of poor sleep, not getting enough exercise, poor nutrition or the side effects of some of your medications.
- ***You have as much energy as before, but you're using it differently.*** Because of the effects of your stroke, things like dressing, talking or walking take a lot more effort. Changes in thinking and memory require more concentration.
- ***You also may feel tired due to emotional changes.*** Coping with frustration, anxiety, anger and sadness can be draining. Such feelings are common after a stroke. Often, loss of energy, interest or enthusiasm occurs along with a depressed mood.
- ***Clinical depression is very common after a stroke***. Symptoms include lack of energy, lack of motivation, problems concentrating or difficulty finding enjoyment in anything. Talk to your doctor about an evaluation for clinical depression if tiredness continues. There is nothing to be ashamed of if you are feeling depressed. There is help.

Ways to Address Fatigue

- ***Tell your doctor how you are feeling*** and make sure you have had an up-to-date physical. Your doctor can evaluate any medical reasons for your tiredness and determine whether it may be related to your medication.
- ***Celebrate your successes.*** Give yourself credit when you accomplish something. Look at your progress, not at what's left to be done.
- ***Try naps or schedule rest periods*** throughout the day to help you feel more refreshed.
- ***Learn to relax.*** Sometimes the harder you try to do something, the harder it is to do. You become tense, anxious and frustrated. All this takes more energy. Being relaxed lets you use your energy more efficiently.
- ***Do something you enjoy every day.*** A positive attitude or experience helps to boost energy levels.
- ***Be social.*** It is very important that you get back into the "swing of things" and stay involved with friends and family. Go out into the community and interact with friends, family and other people.
- ***Physical activity is important.*** With permission from your doctor, consider starting physical therapy or joining a health and wellness program. For more information, turn to page 34.

Recovering From Stroke

Recovering From Stroke

In most cases, people who survive a stroke do get better over time. The effects of a stroke are greatest right after the stroke. From then on, you may start to improve. How fast and how much you improve depends on the extent of the brain injury and your rehabilitation.

- Some improvement occurs spontaneously and relates to how the brain works again after it's been injured.
- Stroke rehabilitation programs help you improve your abilities and learn new skills and coping techniques, making it important to find a therapist in your community that specializes in stroke recovery.
- Rehab begins after the stroke is over and you're medically stable.
- Depression after stroke can interfere with rehabilitation and is important to treat to help the recovery process.
- Improvement often occurs most quickly in the first months after a stroke, then continues over years, perhaps at a slower pace, with your continued efforts.

How Family and Friends Can Help

The stroke survivor and their family members will need the help and support of a doctor, counselor and speech pathologist. It's a good idea for family and friends to:

- Be open about the problems they have communicating with the survivor.
- Always assume that the stroke survivor can hear; check their understanding with yes/no questions.
- Set up a daily routine for the patient that includes rest and time to practice skills.
- Use sentences that are short and to the point.
- Keep the noise level down and stand where the survivor can see you.
- Remember to treat the stroke survivor as an adult and let him or her share in decision-making; include the survivor in your conversations.
- Help the stroke survivor cope with feelings of frustration and depression.
- Be patient and allow the patient to speak and get their point across to you.

Post-Stroke Therapies

- If you need medical treatment, your doctor will prescribe it.
- Medical treatment often involves medical supervision, monitoring and drug therapies.
- Physical treatment usually involves some type of activity that may be done by you, a healthcare provider or by both of you working together. Types of treatment may include:
  - Range-of-motion exercises and physical therapy to avoid limb contracture, shoulder pain and blood vessel problems.
  - Proper nutrition and frequent turning while in bed to prevent pressure sores
  - Bladder training programs for incontinence, such as Pelvic Rehab (see more on page 34).
  - Swallowing and respiratory therapy, and deep-breathing exercises. These all help to decrease the risk of pneumonia.
  - Psychological treatment can include counseling or therapy for clinical depression. Types of treatment may include antidepressant medication, psychotherapy or both. You may also be referred to a local stroke support group.

See page 34 for information on post-stroke rehabilitation programs.

Living at Home

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

Criteria for Returning Home

For patients who have had a minor stroke with few lingering effects, going home poses few additional challenges. But for a patient who has experienced a more severe stroke, four factors must be considered and addressed:

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

Adapting Your Home to Meet Your Needs

Living at home after a stroke also depends on how well your home can be adapted to meet your needs in the following areas.

Safety - To make your home more safe for you, you may need to remove throw rugs, check water temperature settings, install handrails in your bathroom or make other modifications.

Accessibility - You need to be able to move freely within the house. Changes can be as simple as moving the furniture or as involved as building a ramp.

Independence -Your home should be modified so you can be as independent as possible. Often this means adding special equipment like grab bars or transfer benches.

Other Options for Post-Hospital Care

Your doctor may advise a move from the hospital to another type of facility that can meet your needs for a short time or permanently. It's important that the living place you choose is safe and supports your continued recovery.

Your social worker and case manager at the hospital can give you information about facilities that might work for you. Possibilities include:

Nursing facility - This can be a good option for someone who has ongoing medical problems. This type of facility provides round-the-clock care.

Skilled nursing facility - This is for people who need more than usual medical attention, continued therapy and more care than a caregiver can provide at home. This type of facility also provides continuous care.

Intermediate care facility - This option is for people who don't have serious medical problems and can manage some level of self-care.

Assisted living - This is for people who can live somewhat independently, but need some assistance with things like meals, medication and housekeeping.

Nutrition

Healthy dietary 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-caloric diets can contribute to obesity. Meanwhile, a diet with five or more servings of fruits and vegetables per day may reduce the risk of stroke.

The American Heart Association and American Stroke Association offer these recommendations for a healthy diet:

- Eat a diet rich in vegetables and fruits.
- Choose whole-grain, high-fiber foods.
- Eat fish at least twice a week.
- Limit saturated fat and trans-fat. Avoiding partially hydrogenated oils will reduce trans-fats.
- Choose lean meats and poultry, and prepare them without using saturated or trans-fats.
- Select low-fat dairy products.
- Cut back on drinks and foods with added sugars.
- Choose and prepare foods with little salt (sodium); consume less than 1500 mg (2 tsp) of sodium per day.

When Stroke Affects Your Appetite

Some stroke survivors have a loss of appetite. For others, eating may be difficult due to swallowing problems or limited hand or arm movement. In any case, talk to your healthcare team to make sure you're getting the nutrition you need. To make eating a little easier again, try these steps:

- Choose healthy foods with stronger flavors, such as broiled fish and citrus fruits. Also, spices add flavor to food and serve as a good substitute for salt.
- Choose colorful, visually appealing foods, such as salmon, carrots and dark green vegetables.
- Cut foods into small pieces to make them easier to chew.
- Pick softer, easier-to-chew foods, such as yogurt, bananas, whole-grain hot cereals and low-sodium soups.
- If you have trouble swallowing, talk to your speech therapist or doctor. This condition can be treated.
- If weakness in arms or hands is a problem, you might try adaptive eating utensils. Some types of flatware have thicker handles that are easier to hold, and "rocker knives" make it possible to cut food using one hand.

How Caregivers Can Help

To help stroke patients eat well and get the right nutrition, caregivers may consider the following.

- Share your meals with the patient at regular times during the day.
- Set a leisurely pace for each meal.
- Serve foods that the survivor wants.
- Encourage healthy snacks or small meals throughout the day.
- Reduce distractions during meals.
- Watch for any problems the patient may have with chewing or swallowing.

Medications

After having a stoke, the risks are much higher for having another stroke. Preventing a second stroke can be the most important treatment of all. Taking your medications as prescribed is critical to recovery and recurrent stroke prevention. The type of medication prescribed will depend on the type of stroke you've experienced and factors that may have contributed to the cause of your stroke.

Taking many medications over the course of a day can be confusing. For medications to work, they need to be taken at the right time and in the correct amount. Not taking your medicine or taking too much can be harmful.

Tips for Managing Your Medications

To help you remember to take your medications on time, you might try the following.

- Set reminders on your phone or an alarm to remind you when a dose is due.
- Use pill boxes to organize your medications by day and time of day.
- Make sure your family members and caregivers know and understand your medication needs and schedule.

Medications are commonly prescribed after a stroke to control your blood pressure, lower your chances of forming a clot and reduce your cholesterol.

- High blood pressure is generally considered the most controllable risk factor for stroke. Many blood pressure medications, known as antihypertensives, are available by prescription to lower high blood pressure (hypertension).
- Antiplatelet medications, such as aspirin, or anticoagulants, such as warfarin, interfere with the blood's ability to clot and can play an important role in preventing recurrent strokes.
- High cholesterol is another risk factor for stroke. Statins such as Lipitor and Crestor can lower cholesterol levels by inhibiting the enzyme in the blood that produces cholesterol in the liver.

Driving

Driving is often a major concern after a stroke. Getting around after a stroke is important — but safety is even more important. Understand that injury to your brain may change how you do things.

Many people who have had a stroke develop some type of cognitive changes. This may include problems with memory, judgment, problem-solving or a combination of these issues. So before you drive again, think carefully about how these changes will impact safety for you, your family and others.

Warning Signs of Unsafe Driving

Stroke survivors often misjudge the difficulties they may encounter while driving. Your doctor can evaluate your condition following a stroke and determine your eligibility to operate a motor vehicle.

It is very important that you follow your doctor's recommendations in this area as it may be illegal for you to drive following your stroke. In some cases, your doctor may have to notify your state that you've been advised not to drive.

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

- Driving too fast or too slow for road conditions or posted speeds
- Needing help or instructions from passengers
- Failing to observe signs or signals
- Making slow or poor decisions regarding distance
- Getting easily frustrated or confused
- Often becoming lost, even in familiar areas
- Having accidents or close calls
- Drifting across lane markings into other lanes

Recommendations

Here are a few recommendations for ensuring that you are able to safely drive a car following your stroke:

- ***Talk to your doctor or occupational therapist.*** They will offer a professional opinion about how your stroke might change your ability to drive. Contact your State Department of Motor Vehicles and ask for the Office of Driver Safety. Inquire about rules applying to people who've had a stroke. See page 34 for more information.
- ***Have your driving tested.*** Professionals, such as driver rehabilitation specialists, can evaluate your driving ability. You'll get a behind-the-wheel evaluation and be tested for vision perception, functional ability, reaction time, judgment and cognitive abilities (thinking and problem solving). Call community rehabilitation centers or your local Department of Motor Vehicles for more information.
- ***Enroll in a driver's training program.*** For a fee, you may receive a driving assessment, classroom instruction and suggestions for modifying your vehicle (if necessary). These programs are often available through rehab centers.
- ***Ask your family if they have seen changes in your communication, thinking, judgment or behavior*** that should be evaluated before you drive again. Family members often have more opportunities to observe changes than others do.

Rehabilitation

When the immediate crisis of a stroke has passed and you've been stabilized medically, it's time to consider rehabilitation (rehab) therapy.

After a stroke, you may have to change or relearn how you live day to day. Rehab may reverse some of the effects of stroke. The goals of rehab are to increase independence, improve physical functioning, and help you gain a satisfying quality of life after stroke. Another goal is to help you make lifestyle changes to prevent another stroke.

Your Stroke Rehab Team Members

Depending on your individual condition and needs, you may work with the following professionals to regain your greatest possible degree of functionality following a stroke.

- ***Physiatrist*** - A medical doctor who specializes in rehabilitation
- ***Physical therapist*** - A healthcare provider who specializes in maximizing a stroke survivor's mobility and independence to improve major motor and sensory impairments, such as walking, balance and coordination
- ***Occupational therapist*** - A therapist who focuses on helping stroke survivors rebuild skills for daily living activities, such as driving, bathing, toileting, and dressing
- ***Rehabilitation nurse*** - A nurse who coordinates the medical support needs of stroke survivors throughout the rehabilitation process
- ***Speech therapist*** - A specialist who helps to restore speech and language skills and treats cognitive impairments as well as language and swallowing disorders
- ***Recreational therapist*** - A therapist who helps to modify activities that the survivor enjoyed before the stroke or introduces new ones
- ***Psychiatrists or psychologists*** - Specialists who help stroke survivors adjust to the emotional challenges and new circumstances of their lives
- ***Vocational rehabilitation counselor*** - A specialist who evaluates work-related abilities of people with disabilities. They can help stroke survivors make the most of their skills to return to work
- ***Pelvic rehab*** - A therapist who specializes in rehabilitative techniques treating conditions of the pelvic floor by using manual therapy techniques and computerized biofeedback with tailored home programs

Components of Stroke Rehab

Your rehabilitation program may focus on one or more of the following:

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

Outpatient Rehab Services

Outpatient neurological rehabilitation services at Florida Hospital Sports Medicine and Rehab are provided by a highly skilled and certified team of physical, occupational and speech therapists, who are dedicated to delivering the highest quality healthcare. Each therapist has had extensive training and is experienced in the evaluation, education, and treatment of individuals who have suffered a stroke. We provide one-on-one therapy sessions in a friendly, caring environment that has state-of-the-art equipment necessary to help you achieve your goals.

After completing rehab, patients have the opportunity to join our Medical Fitness Program within our rehab centers. This program offers a unique transition from skilled therapy to a specialized wellness plan. We provide individualized and group training sessions to carry over what was learned in therapy. Our sessions are led by an exercise physiologist, who is specially trained to help those with neurological disorders.

STROKE IS THE #1 DIAGNOSIS
we treat in Outpatient Neuro Rehab

The Caregiver's Role

Caregivers are all those who provide help for stroke survivors. These people may include the survivor's spouse, family members, friends or hired aides. In most cases, a spouse, adult child or parent will provide the majority of a person's care.

Caregivers and stroke survivors should strive to be "care partners" in their efforts. Understanding that it can be difficult for each person in this relationship to adjust to their changed roles, the transition may be made easier if decision-making is shared as much as possible and both people communicate honestly with one another about their challenges.

Types of Assistance

There is no one job description that explains what all caregivers do. Each caregiver's responsibilities vary according to the unique needs of the stroke survivor. However, common responsibilities of caregiving include:

- Providing physical help with personal care and transportation
- Managing financial, legal and business affairs
- Monitoring behavior to ensure safety
- Managing housework and making meals
- Coordinating healthcare and monitoring of medications
- Helping the survivor maintain learned rehab skills and work to improve them
- Providing emotional support for the stroke survivor and family members
- Encouraging the stroke survivor to continue working toward recovery and to be as independent as possible

Help for Caregivers

Many people find caring for another person very rewarding. But there may be times when a stroke survivor's needs are too much for any one person. Sometimes a caregiver just needs a break. These breaks are important for everyone, including the stroke survivor. Inquire about the following community resources for assistance:

- ***Adult day care*** — professional supervision of adults in a social setting during the day
- ***Adult foster homes*** — supervised care in approved (licensed) private homes
- ***Meal programs (Meals on Wheels)*** — a federally-sponsored nutrition program
- ***Home health aide service*** — in-home personal care assistance
- ***Homemaker assistance*** — supervised, trained personnel who help with household duties
- ***Respite care*** — people come into the home for a limited time to give caregivers a break. Some nursing homes also provide short-term respite care

A Note on Caregiver Training Options

Finding caregiver training locally can be difficult. A good place to start is with your local Agency on Aging. Visit eldercare.gov to find an office near you.

Resources & Support

Resources for Stroke Patients

Florida Hospital Neuroscience Institute
FloridaHospitalNeuro.com
(407) 303-8158

American Heart Association | American Stroke Association
StrokeAssociation.org
(888) 478-7653

National Stroke Association
Stroke.org
(800) 787-6537

National Institute of Neurological Disorders and Stroke
NINDs.NIH.gov
(800) 352-9424

Scott Coopersmith Stroke Awareness Foundation
StrokeAwarenessFoundation.org
(772) 485-0571

Florida Hospital Sports Medicine and Rehab
FHSportsMed.com
(407) 303-8080

Stroke Support Groups

Central Florida Stroke Club
CFStrokeClub.com
(407) 303-5600 Ext. 1104589

Brain Injury Support Group
FloridaHospitalNeuro.com
(407) 303-5600 Ext. 1104589

Aphasia House
Cohpa.UCF.edu/clinic/aphasia
(407) 882-0468

Important Contacts

Florida Hospital Locations

Florida Hospital Orlando
601 East Rollins Street
Orlando, FL 32803
(407) 303-5600

Florida Hospital East Orlando
7727 Lake Underhill Road
Orlando, FL 32822
(407) 303-8110

Florida Hospital Kissimmee
2450 North Orange Blossom Trail
Kissimmee, FL 34744
(407) 846-4343

Winter Park Memorial Hospital
201 North Edinburgh Drive
Winter Park, FL 32792
(407) 646-7000

Florida Hospital Altamonte
601 East Altamonte Drive
Altamonte Springs, FL 32701
(407) 830-4321

Florida Hospital Apopka
2100 Ocoee Apopka Road
Apopka, FL 32703
(407) 889-1000

Florida Hospital Celebration Health
400 Celebration Place
Celebration, FL 34747
(407) 764-4000

To learn more about the Florida Hospital Neuroscience Institute, visit us at FloridaHospitalNeuro.com.

Florida Hospital Smoking Cessation Programs

The following locations have special programs designed to help you quit smoking.

Florida Hospital Orlando
(407) 303-1967

Florida Hospital East Orlando
(407) 303-6830

Florida Hospital Celebration Health
(407) 303-4639

Winter Park Memorial Hospital
(407) 646-7070

Quit for Life Line
(877) 822-6669

Speak to a care coordinator or schedule a physician visit by calling (407) 303-8158.

About the Florida Hospital Neuroscience Institute

The Florida Hospital Neuroscience Institute is one of the most comprehensive facilities for adults and children, specializing in minimally invasive brain surgery, epilepsy, spine, stroke, sleep disorders, and interventional neuroradiology.

Our integrated, interdisciplinary, team approach combines state-of-the-art, minimally invasive technology with innovative research to provide patients with an exceptional, multifaceted level of care. From detection and treatment to rehabilitation, the institute is dedicated to achieving superior patient outcomes in a compassionate environment for both adult and pediatric patients.

FLORIDA HOSPITAL: THEN AND NOW

Established 1908:	*Today:*
1 DOCTOR	MORE THAN 9,000 PHYSICIANS *WITH PRIVILEGES*
20 BEDS	MORE THAN 4,900 BEDS
LESS THAN 10 EMPLOYEES	MORE THAN 36,000 EMPLOYEES *SERVING PATIENTS AROUND THE* WORLD
SERVING LOCAL ORLANDO RESIDENTS	

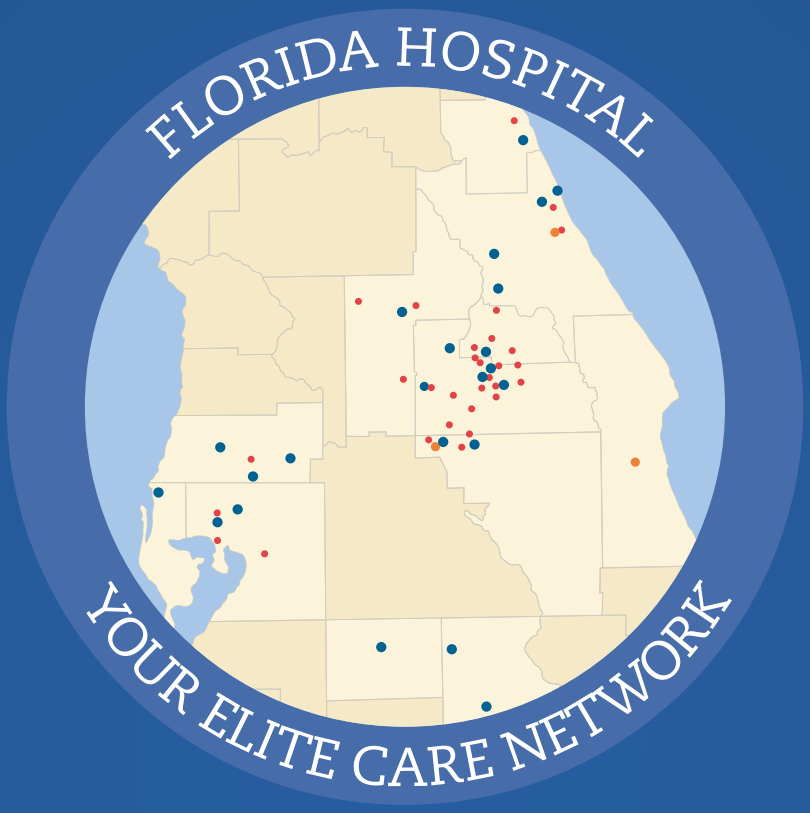
Florida Hospital is recognized by *U.S. News & World Report* as one of America's best hospitals for neurology and neurosurgery.

HIGH PERFORMING HOSPITALS
U.S.News & WORLD REPORT
2017-18
NEUROLOGY & NEUROSURGERY

Know your Zone: Recovering after Stroke

Green Zone: Things are going well	What this means/What to do
• Blood pressure is in the range that my doctor recommended • I am not having trouble speaking • I am not having a headache • I can swallow without trouble • I am walking and moving without any new troubles • I have all the medications I need	• Good work • You are taking your medications as ordered • You are monitoring daily salt intake • You are following your Stroke Management and Care Guide Plan • Continue to keep your doctor appointments
Yellow Zone: Caution—headed for trouble	**What this means/What to do**
If any one of these things are true: • My blood pressure is not in the range that my doctor recommended • My weakness is getting worse • I feel dizzy • I have a headache • I only have 3 days left of medicine	• You may need to have your medications adjusted • Call your physician office and let them know how you are feeling Name_____ Phone Number _____
Red Zone: Medical Alert	**What this means/What to do**
• I have sudden weakness or numbness in my face, arm or leg • I have sudden trouble talking, swallowing or understanding others • I have sudden trouble or change in my ability to walk, dizziness and loss of balance • I have sudden trouble seeing in one or both eyes • I have a sudden severe headache	• You need to be evaluated by a doctor right away **Call 911 immediately.**

Notes



The Florida Hospital Neuroscience Institute
is a trusted member of one of America's largest,
not-for-profit healthcare systems.

Generously funded by the
Scott Coopersmith
Stroke Awareness Foundation

FLORIDA HOSPITAL

Florida Hospital Neuroscience Institute
601 East Rollins Street | Orlando, FL 32803 | (407) 303-8158 | FloridaHospitalNeuro.com

17-NEURO-02683

Member of Adventist HEALTH SYSTEM