

ENLOE MEDICAL CENTER

Stroke Program



1531 Esplanade • Chico, CA 95926
(530) 332-3981 • www.enloe.org



ENLOE
MEDICAL CENTER

What is a Stroke?

A stroke occurs when the blood supply to a blood vessel in the brain is blocked or a blood vessel breaks causing brain cells in the blood vessel territory to die. Brain cells do not regenerate. The problems experienced after a stroke, like the inability to move one side of the body like before, numbness on one side of the body, or speech and/or visual problems are usually a result of brain cells that have died due to stroke. Persons who have had one stroke are at risk of having another stroke. It is important that you practice secondary prevention of stroke now, and this Stroke education booklet will help you and your family do just that. Please be sure to ask us any questions about this information or any other questions about your health. Stroke is the third-leading cause of death in the United States and the number one leading cause of serious long-term disability.

Symptoms

A person having symptoms of a stroke needs immediate emergency care, just as if he or she were having a heart attack. The sooner medical treatment begins, the fewer brain cells will be damaged.

The effects of a stroke may range from mild to severe and may be temporary or permanent. A stroke can affect vision, speech, behavior, the ability to think and the ability to move parts of the body. Sometimes it can cause a coma or death.

The effects of a stroke depend on the following:

- Specific brain cells that are damaged
- How much of the brain is affected
- How fast blood flow is restored to the affected area.

Learn the signs of Stroke - General symptoms of a stroke include a sudden onset of:



- Numbness, weakness or inability to move (paralysis) the face, arm or leg, especially on one side of the body
- Trouble seeing in one or both eyes, such as dimness, blurring, double vision or loss of vision
- Confusion or trouble speaking
- Trouble walking, dizziness or loss of balance or coordination
- Severe headache with no known cause



Symptoms for stroke can be sudden or occur gradually. This depends on the type of stroke, as well as the location and degree of brain damage. If a stroke is caused by a large blood clot or bleeding, symptoms occur within seconds. When an artery that is already narrowed or blocked, stroke symptoms usually develop gradually within minutes to hours or, rarely, days.

What to Do If You're Having Symptoms: Activation of the Emergency Medical System (EMS) Dial 911

- Not all the warning signs occur in every stroke. Don't ignore signs of stroke, even if they go away!
- Check the time. When did the first warning sign or symptom start? You or the person who is with you will be asked this important question later. This is very important, because if given within three hours of the start of symptoms, a clot-busting drug can reduce long-term disability for the most common type of stroke.
- If you have one or more stroke symptoms that last more than a few minutes, don't delay! Immediately call 9-1-1 or the emergency medical service (EMS) number so an ambulance (ideally with advanced life support) can quickly be sent for you. Do not drive yourself.
- If you're with someone who may be having stroke symptoms, immediately call 9-1-1 or the EMS. Expect the person to resist going to the hospital. Don't take "no" for an answer because **Time Lost is Brain Lost.**
- When communicating with EMS or the hospital make sure to use the word "STROKE".

A TIA (transient ischemic attacks) is a warning signal that a stroke may soon occur, and the condition needs to be treated as an emergency. One or more mini-strokes (or TIAs) may occur before a person has a full-blown stroke. Symptoms for both are similar. However, unlike stroke symptoms, TIA symptoms usually disappear within minutes.

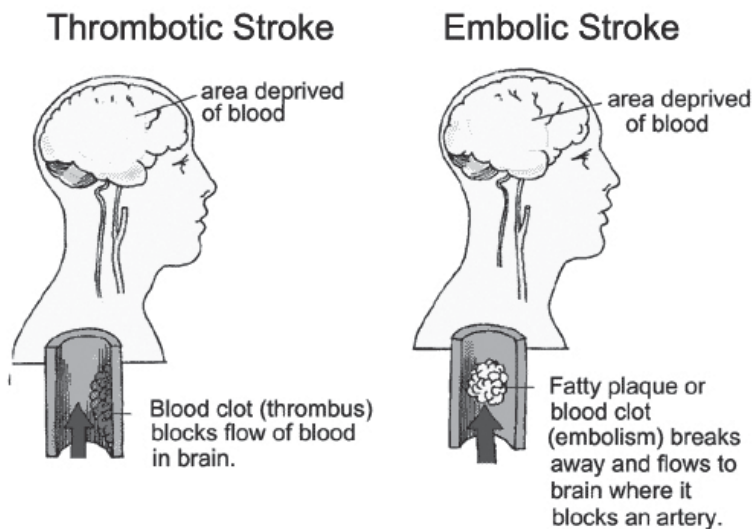
An Ischemic stroke occurs when blood flow through a blood vessel (artery) that supplies blood to the brain is blocked. Blockage may develop from a blood clot in an artery leading to the brain (thrombus) or one formed in another part of the body, usually the heart (embolus).



The clot travels with the blood until it blocks an artery in the brain. These blood clots usually are the result of irregular heart beat, heart valve problems, infection of the heart muscle, hardening of the arteries, blood-clotting disorders, inflammation of the blood vessels or heart attack.

Another cause of ischemic stroke occurs when blood pressure becomes too low. This can reduce blood flow to the brain. Low blood pressure can result from a heart attack, large loss of blood or severe infection.

Types of Ischemic Strokes (87%)

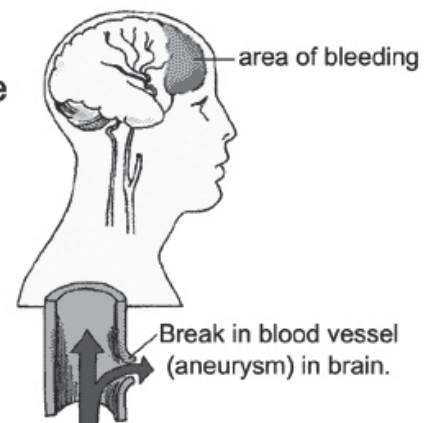


Hemorrhagic Stroke (13%)

Hemorrhagic stroke is caused by sudden bleeding in the brain. There are different ways that this can occur:

- Cerebral hemorrhage -A blood vessel inside the brain
- Subarachnoid hemorrhage.-A blood vessel in the spaces around the brain
- Aneurysm - Bleeding from bursting of a blood vessel that is stretched and thinned)

Cerebral Hemorrhage



High blood pressure is the most common cause of bleeding inside the brain. Other causes of stroke can be from inflamed blood vessels, head or neck injuries or weakened vessels (amyloid angiopathy).

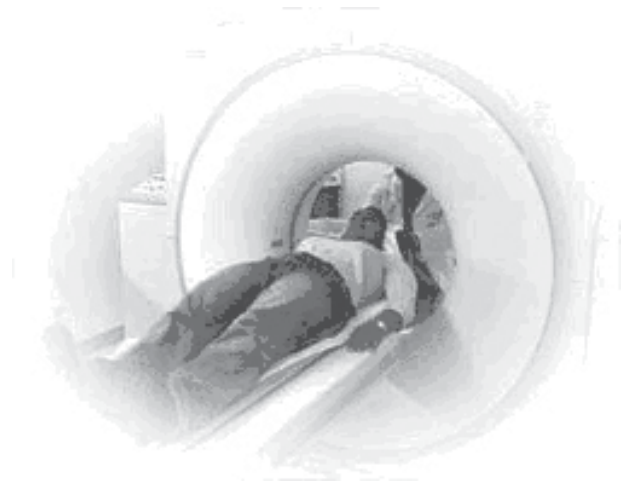


Diagnosis

Diagnosis of a stroke is based on the patient's medical history and a physical exam. A variety of diagnostic tests are available at Enloe Medical Center. If stroke is suspected, the doctor will order a computed tomography (CT) scan to determine whether the stroke was caused by a clot or from bleeding inside the brain.

For more specific information as to the extent of a stroke, you may have a Magnetic resonance imaging test (MRI).

- **CT scan (computed tomography)** or CAT scan is usually one of the first tests to be done to evaluate a patient with stroke symptoms. It is useful to distinguish between an ischemic or hemorrhagic stroke, and to exclude other causes of stroke-like symptoms, such as a brain tumor. It may also provide information about the cause, location and extent of the stroke. This test involves the use of low-dose x-ray.



CT Angiogram (CTA) - This test requires the injection of an intravenous dye and the use of low-dose x-ray and is done with a CT scan machine. This test can provide information about the size of the vessels and if there is blood circulating through them.

- **MRI (magnetic resonance imaging)** is usually more sensitive than a CT scan for accurately determining the presence of a stroke, and determining the extent of damage. This test involves the use of magnetic fields. Recent MRI techniques using diffusion- and perfusion-weighted imaging allow early and more accurate detection of acute stroke within a few minutes after stroke onset. These modalities allow us to improve the selection of patients with acute stroke to receive immediate therapy.

Magnetic Resonance Angiography (MRA) - This is often obtained as part of the brain MRI. It involves the use of magnetic fields. MRA is a non-invasive test that provides anatomical views of the blood vessels in the brain and neck. It is useful in detecting blood vessel narrowing/occlusion and large aneurysms.



Imaging Tests

If disease or narrowing of one of the large arteries in the neck (carotid arteries) is suspected, the following tests may be done:

- **Carotid Ultrasound** to determine blood flow through carotid arteries in the neck.
- **Carotid arteriography** is injecting radioactive material into the blood stream to show specific arteries.
- **Catheter Angiography (angiogram)**, an injection of a dye through a major artery (usually in the thigh) and the use of a low-dose x-ray. It is used to determine the size and location of blockages within a blood vessel and is especially valuable in diagnosing aneurysms and malformed blood vessels.



Other Diagnostic Tests

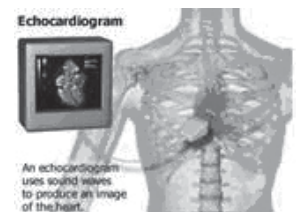
If evidence shows that the stroke is caused by a clot that formed in the heart, the doctor may order a:

- Chest X-ray
- ECG or EKG,
- Echocardiograph with a bubble study
- TEE heart imaging test
- Laboratory tests to see if other conditions are present, check the person's overall health, and to see if the patient's blood clots too easily.

Heart Imaging Tests

If your doctor is concerned about your heart function and possible clot formation – one of the following tests may be ordered.

- **TEE** - Trans esophageal echocardiography is used to image the heart and to assess its function. It also may be combined with an intravenous injection of saline (Bubble Study), to determine the presence of a patent foramen ovale (PFO), and involves placing a flexible tube to the stomach.
- **Echocardiogram** - Echocardiography, an ultrasound test is used to image the heart and to assess its function in patients with a TIA or ischemic stroke. It also may be combined with an intravenous injection of saline (Bubble Study), to determine the presence of a patent foramen ovale (PFO) or shunting in the heart.



Treatment

People who have symptoms of a stroke need to seek emergency medical care. Prompt medical attention may prevent life-threatening complications and widespread brain damage.

Emergency treatment should be accessed within the first one to two hours after symptoms begin. Some people with a stroke caused by a blood clot may be able to receive a medication to dissolve the clot, helping to increase the chance of a full recovery. Treatment varies according to the type of stroke, when the stroke occurred and the seriousness of the symptoms.

The goals of treatment are to:

- Prevent life-threatening complications that may occur after stroke symptoms develop.
- Prevent future strokes, reduce disability and prevent long-term complications.
- Help the patient get back as much normal functioning as possible through rehabilitation.

The Emergency Department staff provides an early and essential communications link in the identification and treatment of stroke patients. After care in the Emergency Room, stroke patients are generally admitted to a specific unit for continued observation, treatment and eventual rehabilitation. During their hospital stay, patients will receive care from a dedicated interdisciplinary team.

Stroke Team

- **Physicians** - The patient's primary care physicians, as well as physicians on the neurology, neurosurgery, and neuroradiology services are involved in the patient's care.
- **Registered Nurses/Licensed Vocational Nurses** - Nurses assess and coordinate patient needs, administer treatment, and provide patient and family instruction.
- **Nursing Assistants** - Nursing Assistants provide personal care and hygiene.
- **Physical, Occupational, and Speech Therapists** provide individualized rehabilitation treatment.
- **Medical Social Worker** - Social Workers offer support to patient and family and work to coordinate any appropriate community resources.
- **Case Management** - Case Managers oversee hospitalization, coordinate with insurance payers and work to insure follow-up arrangements, such as home care.
- **Dietitian** - Dietitians assist with proper design of nutritional and caloric intake.



Rehabilitation Plans

Your doctor and various members of your health care team may discuss recommendations for stroke recovery. To help your decision process, you and your family should consider the following areas.

- Your goals for recovery
- Safety accommodations in your home environment
- Family and social support
- Medical recommendations - from doctors and members of the health team

Some Options for Recovery

- Acute care and rehabilitation hospitals.
- Long-term care facilities: Some facilities, such as a skilled nursing facility, may be able to provide specific therapies to meet your specific needs.
- You may receive exercises to do at home.
- Home health agencies - A nurse or therapist can visit you in your home.
- Outpatient facilities: Speech, Physical Therapy, and Occupational Therapy in a clinic setting.

Enloe Rehabilitation Center



340 W. East Ave, Chico
530-332-6138

Enloe Rehabilitation Center as the following members that are part of the rehabilitation team approach:

- physical, occupational and recreational therapists
- speech/language pathologists
- clinical social workers
- dietitians
- neuropsychologists
- case managers
- physicians
- rehabilitation nurses

Directions to the Enloe Rehabilitation Center

From Enloe Medical Center - Go North on Esplanade. Turn left on East Ave. Enloe Rehabilitation Center is located on the right side, after the shopping center.

From Highway 99 North - Exit on East Avenue. Turn left on East Avenue. Cross Esplanade. Enloe Rehabilitation Center is located on the right side, after the shopping center.



PREVENTION

What You Should Know: Your Personal Risk Factors for Stroke

Risk Factors YOU can not change:

- **Age** - The chance of having a stroke more than doubles for each decade of life after age 55. While stroke is common among the elderly, a lot of people under 65 also have strokes.
- **Heredity (family history) and race** - Your stroke risk is greater if a parent, grandparent, sister or brother has had a stroke. African-Americans have a much higher risk of death from a stroke than Caucasians. This is partly due to higher rates of high blood pressure and diabetes in this group.
- **Sex (gender)** - Stroke is more common in men than in women. In most age groups, more men than women will have a stroke in a given year. However, more than half of total stroke deaths occur in women. At all ages, more women than men die of stroke. Use of birth control pills and pregnancy pose special stroke risks for women.
- **Prior stroke, TIA or heart attack** - The risk of stroke for someone who has already had one is many times that of a person who has not. Transient ischemic attacks (TIAs) are “warning strokes” that produce stroke-like symptoms but no lasting damage. TIAs are strong predictors of stroke. A person who has had one or more TIA is almost 10 times more likely to have a stroke than someone of the same age and sex who has not. Recognizing and treating TIAs can reduce your risk of a major stroke. If you have had a heart attack, you are at higher risk of having a stroke, too.

What Can YOU Do to Prevent Stroke?

Your Risk Factors YOU can change: It is important that you practice secondary prevention of stroke NOW.

- **Controlling High blood pressure** - High blood pressure or hypertension is the number one cause of stroke. High blood pressure can damage the small blood vessels of the brain. High blood pressure is the most important controllable risk factor for stroke. Many people believe the effective treatment of high blood pressure is a key reason for the accelerated decline in the death rates for stroke.

Rarely are there any outward symptoms of hypertension so it's important to have blood pressure checked regularly. Blood pressures should be checked every 6 months (hypertension history).



Doctors may choose to treat blood pressure consistently more than 140/90, or consistently more than 130/80 in patients with diabetes or chronic kidney disease by:

- **A low-salt diet** - Stop using table salt and eat as many fresh foods as possible, since a lot of salt is “hidden” in processed or prepared foods (see page 11).
- **Lose weight** - Exercise regularly. For some patients, lifestyle modification will not adequately lower blood pressure, so their physicians may prescribe high blood pressure medication.

Your target home blood pressure goal should be: _____

Cigarette smoking - Tobacco use in any form, especially cigarette smoking, is very bad for your health. In recent years, studies have shown cigarette smoking to be an important risk factor for stroke. The nicotine and carbon monoxide in cigarette smoke damages the cardiovascular system in many ways. The use of oral contraceptives combined with cigarette smoking greatly increases stroke risk in women.

- **Smoking Cessation** - Once someone stops smoking, stroke risk will drop significantly within two years. Doctors can give information about quitting and prescribe medicine to help.



1-800-NO BUTTS

- **Diabetes Mellitus** - Diabetes is a risk factor for stroke. Many people with diabetes also have high blood pressure, high blood cholesterol and are overweight. This increases their risk even more. While diabetes is treatable, the presence of the disease still increases your risk of stroke. Diabetes causes disease of small blood vessels in the brain and can lead to a stroke.

Carotid or other artery disease - The carotid arteries in your neck supply blood to your brain. A carotid artery narrowed by fatty deposits from atherosclerosis (plaque build-ups in artery walls) may become blocked by a blood clot. Carotid artery disease is also called carotid artery stenosis.

- **Peripheral artery disease** is the narrowing of blood vessels carrying blood to leg and arm muscles. It's caused by fatty build-ups of plaque in artery walls. People with peripheral artery disease have a higher risk of carotid artery disease, which raises their risk of stroke. Causes of carotid artery disease are high blood pressure, diabetes, a diet high in fat, high cholesterol and smoking.



- **Atrial fibrillation (Atrial Fib)** - This heart rhythm disorder raises the risk for stroke. The upper chambers of the heart quiver instead of beating regularly, which can let the blood pool and clot. If a clot breaks off, enters the bloodstream and lodges in an artery leading to the brain, a stroke results.

Atrial fibrillation is a very important controllable stroke risk factor. Some people with AF will experience heart palpitations - often described as a “pounding,” “racing” or “fluttering” heart beat. In other people, the only symptom of AF may be dizziness, faintness or light-headedness.

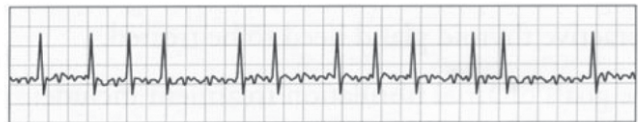
Others may experience chest pains ranging from mild discomfort to severe pain.

A simple self-screening technique can be conducted to determine if you may have an irregular pulse, a possible sign of AF. To properly conduct the technique:

- Place the first two fingers of your right hand on your left wrist.
- Then check your pulse to feel for a regular or irregular heartbeat.
- A regular heartbeat is characterized by a series of even, continuous pulsations, whereas an irregular heartbeat often feels like an extra or missed heartbeat.



ECG tracing of a normal heart rhythm.



In atrial fibrillation, the tracing shows tiny, irregular "fibrillation" waves between heartbeats. The rhythm is irregular and erratic.

This self-screening technique should not be considered a substitute for consulting with a physician. If you suspect you may have an irregular pulse or you have difficulty performing the screening technique, discuss your concerns with your physician. Because AF, like high blood pressure, cholesterol and some other heart diseases, often has no outward symptoms, the only way to confirm the presence of AF is to perform an electrocardiogram (ECG).

Other heart disease - People with coronary heart disease or heart failure have a higher risk of stroke than those with hearts that work normally. Dilated cardiomyopathy (an enlarged heart), heart valve disease and some types of congenital heart defects also raise the risk of stroke.

- **Blood Clot Prevention Medication - Antiplatelets** - Since most strokes are caused by blood clots, it makes sense to try to prevent strokes by preventing blood clots from forming. There are two types of blood clot prevention drugs: Anticoagulant and Antiplatelet drugs.
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High blood cholesterol - People with high blood cholesterol have an increased risk for stroke. High blood cholesterol can be reduced by eating right (avoid fried, fatty foods) and exercising routinely. It may also require medication.

Cholesterol	less than 200	_____
Triglycerides	less than 150	_____
HDL (good)	greater than 50	_____
LDL (bad)	less than 100	_____

- **Cholesterol Reducing Medication** - Cholesterol-reducing medications in the statin class are used for prevention of first stroke or TIA patients. Your doctor may also prescribe other medications specifically to reduce high cholesterol. Cholesterol-reducing medication will only work if it's taken as directed on a regular basis.
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- **Nutrition and Stroke Risk Reduction** - Eating a well balanced diet including protein, carbohydrates, vegetables and fruit is a vital part of risk reduction. Healthy eating may help lower blood pressure, cholesterol and reduce diabetes complications. Vitamins can reduce your risk. Speak with your health care provider before starting any vitamins. High dose vitamins are not generally recommended.



- **Poor diet** - Diets high in saturated fat, trans fat and cholesterol can raise blood cholesterol levels. Diets high in sodium (salt) can contribute to increased blood pressure. Diets with excess calories can contribute to obesity. A diet containing five or more servings of fruits and vegetables per day may reduce the risk of stroke.
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- **Physical inactivity and obesity** - Being inactive, obese or both can increase your risk of high blood pressure, high blood cholesterol, diabetes, heart disease and stroke. Take a brisk walk, take the stairs, and do whatever you can to make your life more active. Try to get at least 30 minutes of moderate physical activity five days of the week, or 20 minutes of vigorous physical activity, three days a week. Please consult with your physician.

- **Controlling Weight** - Together with your doctors, overweight patients should set goals for weight loss and exercise goals. A common goal is losing one pound a week and exercising three times a week for 30 minutes. Please consult with your physician.
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-
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Your BMI _____ **Target** _____

- **Controlling Alcohol Consumption** - “Moderate” drinking means limiting intake of alcohol to no more than one drink per day (one drink = 1.5 oz. of hard liquor; OR 4 oz. of wine; OR 12 oz. of beer).
- **Metabolic Syndrome X** - The underlying causes of this syndrome are overweight/obesity, physical inactivity and genetic factors. People with the metabolic syndrome have a greater risk for heart disease and stroke.
 - **Elevated waist circumference**, greater than 35 inches for women and 40 inches for men.
 - **Elevated level of triglycerides** of 150 milligrams per deciliter (mg/dL)
 - **Reduced HDL** (less than 40 mg/dL in men or less than 50 mg/dL in women)
 - **Elevated blood pressure** (systolic) 130 mm Hg or higher or (diastolic) 85 (mm Hg) or higher
 - **Elevated fasting blood sugar** (blood glucose) of 100 mg/dL

Aggressive lifestyle changes and, in some cases, medication can reduce your risk for stroke. More physical activity, losing weight and quitting smoking help reduce blood pressure and improve cholesterol and blood sugar levels. These changes will help in reducing your risk for stroke.

- **Sickle cell disease** (also called **sickle cell anemia**) - This is a genetic disorder that mainly affects African-American and Hispanic children. “Sickle-shaped” red blood cells are less able to carry oxygen to the body’s tissues and organs. These cells also tend to stick to blood vessel walls, which can block arteries to the brain and cause a stroke.

Compliance is very important for your health.

One of the biggest obstacles doctors encounter in treatment is non-compliance. You are an essential participant in your health care.



Stroke Resources – Support

Family Caregiver Support Program and Mountain Caregiver Resource Center

2491 Carmichael Drive, Suite 400 • Chico, CA 95928

(530) 898-5925 • (800) 822-0109

www.caregiversources.org

Family Caregiver Alliance

690 Market Street, Suite 600 • San Francisco, CA 94104

(415) 434-3388 • (800) 445-8106 (in California)

www.caregiver.org • info@caregiver.org

National Aphasia Association

7 Dey Street, Suite 600 • New York, NY 10007

(800) 922-4622

naa@aphasia.org

American Stroke Association (ASA) - National Center

7272 Greenville Avenue • Dallas, TX 75231

(214) 373-6300 • (800) 553-6321

www.strokeassociation.org

American Heart Association division; it is focused on “reducing disability and death from stroke through research, education, fundraising, and advocacy.” The Web site offers information about stroke warning signs, general facts, and treatment.

American Heart Association - Local office

28 Hanover Lane, Suite B • Chico, CA 95973

(530) 342-4247 • Fax (530) 345-4072

National Stroke Association (NSA)

96 Inverness Drive East, Suite I • Englewood, CO 80112-5112

(303) 649-9299 • (800) STROKES

www.stroke.org

A national non-profit organization in the US that is dedicated to reducing the incidence and impact of stroke, tips on prevention, other facts about stroke. Resource for family members of stroke victims.

The Stroke Information Directory (SID)

www.stroke-info.com

SID was started in the mid-1980s by family members of stroke survivors to assist patients, their families, clinicians, and researchers with locating stroke information online.



Books About Stroke

Brain Attack: Mapping Out Early Recovery From Stroke

Mary M. Castiglione and Cynthia Johnson

1995, Pritchett and Hull Associates, Atlanta, GA, (800) 241-4925

Right Brain Stroke, Interactive Therapeutics, Inc.

P.O. Box 1805, Stow, OH 4424-0805, (800) 253-5111.

Recovering From a Stroke (Patient and Family Guide) and Post-Stroke Rehabilitation

U.S. Dept. of Health & Human Services, 1995,

AHCPR Publications Clearinghouse, P.O. Box 8547, Silver Spring, MD 20907, (800) 358- 9295

After Stroke

By David M. Hinds and Peter Morris

Aphasia: My World Alone

By Helen Wulf, Wayne State, Detroit, Michigan 1979

Black Health Library Guide: Stroke

Vital Health Information for African Americans Lafayette Singleton, et al. 1999

Caring for Someone After a Stroke

By Rob Buckman

Family Guide to Stroke Treatment, Recovery, and Prevention

American Heart Association By Louis R. Caplan, et al.. Time Books, New York 1994

How to Conquer the World with One Hand...and an Attitude

By Stephanie Mensh

Living with Stroke: A Guide for Families Help New Hope for all Those Touched by Stroke

By Richard C. Senelick, MD., et al.

My Stroke of Luck

By Kirk Douglas

Portrait of Aphasia

By David Knox, Wayne State University Press 1985

The Family Guide to Surviving Stroke and Communication Disorders

By Dennis C. Tanner, Needham Heights, MA 1999





You are invited to attend

ENLOE STROKE SUPPORT

Different strokes for different folks

Group meetings are held the 2nd Wednesday of each month from 3 p.m. - 4 p.m.
Enloe Conference Center, 1528 Esplanade (corner of Esplanade and 5th Avenue)

Call 530-332-3981 for more information

Face



Does the face look uneven?
Ask the person to smile.



Arm

Does one arm drift down?
Ask the person to raise both arms.



Speech

My blink a frown.

Does their speech sound strange?

Ask the person to repeat a simple phrase, for example, "The sky is blue."



Time

If you observe *any* of these signs, then it's time to call 9-1-1.



Learn these signs of stroke.

Be a hero. Save a life.

Call 9-1-1