



Stroke Education



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What is a stroke?

This term can mean different things to different people, and many myths exist about stroke. A stroke occurs when an area of the brain is deprived of blood flow. Just as a heart attack is a lack of blood flow to the heart, a stroke is an interruption in blood flow to the brain.

The signs and symptoms of stroke can be similar to other conditions, so the physician will perform diagnostic tests to determine if you are actually having a stroke. A CT scan (computerized tomography) or “CAT scan” is the first step in determining if you have had a stroke and the type of stroke that is occurring.

Types of Stroke

Ischemic Stroke

Ischemic stroke occurs when an artery that supplies the brain is greatly narrowed or blocked. This can be caused by a buildup of plaque in the arteries. Plaque in the arteries can break off in small pieces or the rough edges can cause blood clots that eventually break free and become stuck in small blood vessels in the brain.

Hemorrhagic Stroke

Hemorrhagic stroke occurs less frequently than ischemic stroke. Instead of a blockage, hemorrhagic stroke occurs when a blood vessel in the brain ruptures, allowing blood to flow freely into the skull and brain tissue. This blood flow causes damage to the brain cells. Some people have defects in the blood vessels of the brain that make this more likely.

Transient Ischemic Attacks

TIA is often called a mini stroke. It is a temporary blockage of the artery. The symptoms of the TIA will go away within a 24 hour period, depending on which artery is blocked. TIAs leave no permanent brain tissue damage. When TIA is treated in the Emergency Room, it is often treated the same as stroke, because the symptoms can be very similar. TIAs are a warning sign that should be discussed with your physician. An estimated 40 percent of people who suffer TIAs ultimately have a stroke.

Four areas of the brain are most commonly affected by stroke. The area of the brain affected by stroke will cause different deficits, or problems, for the stroke patient. Understanding where the stroke occurred and what part of the brain is affected can help the patient, care givers and family members better understand what is happening after stroke.

Middle Cerebral Artery Stroke

- Arm is usually weaker than the leg
- Significant drooping of the lower half of the face and drooling
- Loss of strength, up to and including paralysis
- Loss of vision, or blind spots
- Communication problems, including the inability to understand or produce language
- Confusion differentiating between right and left

Anterior Cerebral Artery Stroke

- Leg is usually weaker than the arm
- Trouble with bowel and bladder control
- Opposite side sensation loss
- Intellectual disturbances, including repetitive thought and speech
- Disorientation to time, place, and person
- Confusion, forgetfulness, distractibility, and slowed thinking
- Inability to perform tasks when asked, even though the patient has the physical ability to perform the task automatically at other times, facial weakness
- Problems with releasing objects

Posterior Cerebral Artery Stroke

- Blind spots on the side opposite where the brain damage occurred
- Memory problems and difficulty reading
- Severe loss of touch sensation

- Burning sensation in the limbs (thalamic pain syndrome)
- Weakness and involuntary movement disorders
- Lack of coordination
- Cortical blindness, of which the patient is not fully aware

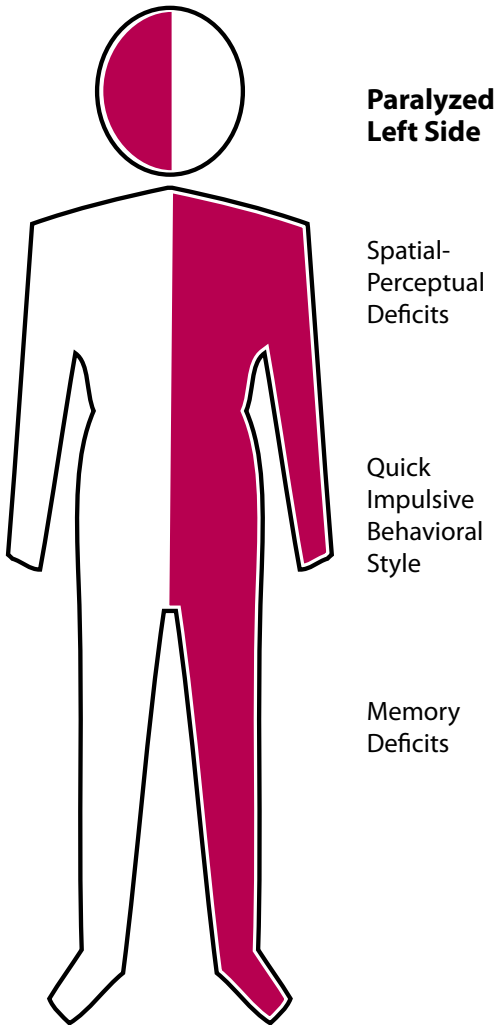
Brain-Stem Stroke

- Sensory loss
- Weakness on one side of the body and poor coordination
- Swallowing difficulties
- Loss of emotional control
- Slurred speech
- Visual problems, double vision
- Dizziness/vertigo
- Seizures
- Headaches

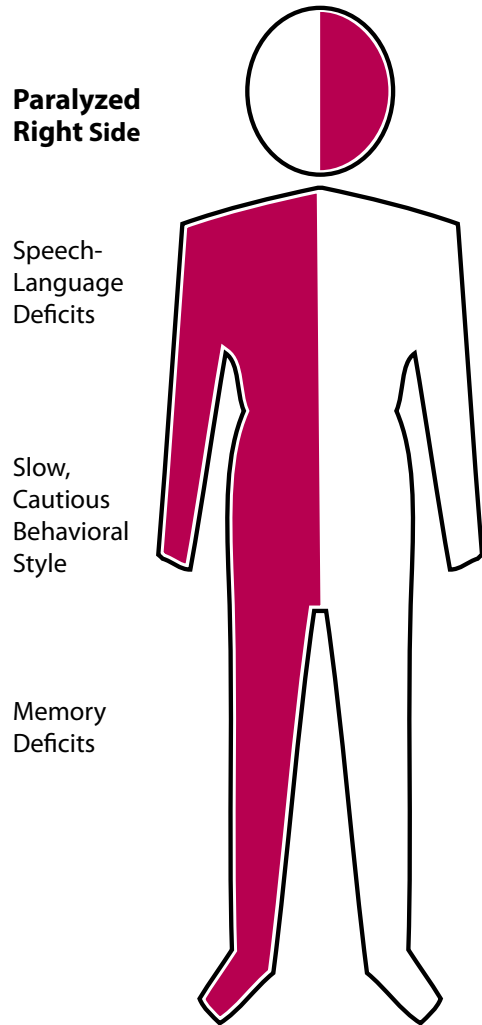




RIGHT-BRAIN INJURY



LEFT-BRAIN INJURY



Comparing Left and Right-Sided Strokes

Damage to the Left Brain

- Paralysis or weakness on right side of body
- Right visual field deficit
- Aphasia (ability to speak)
- Slow, cautious behavior
- Difficulties with memory
- Chewing or swallowing problems

Damage to the Right Brain

- Paralysis or weakness on left side of body
- Left visual field deficit
- Spatial-perceptual deficits
- Neglect of affected side
- Easily distracted
- Impulsive behavior and poor judgment
- Lack of awareness of deficits

Symptoms of Stroke:

In the event of a stroke, time equals brain cell death. Stroke is a 9-1-1 emergency, yet most people do not take action with symptoms of stroke. Remember, stroke is a "brain attack." You need to call 9-1-1 for a "brain attack," just like you would for a heart attack.

Acronym to help identify stroke symptoms:

Facial Weakness

Is smile crooked or mouth drooping?

Arm Weakness

Can the person raise both arms equally?

Speech Problems

Is speech slurred or drooling?

Time is critical

Call 9-1-1! Stroke is an emergency!

**Call
9-1-1**

According to 2010 data from the Centers of Disease Control, stroke is the number four cause of death and the leading cause of serious, long-term disability in America. The good news is there are many recent advances in stroke treatment, much of which can stop the affects of stroke IF you act fast and seek emergency treatment right away.



Stroke Risk Factors

The good news about stroke is that it is largely preventable. Prevention requires understanding about risk factors and taking action to change behavior. Certain health and lifestyle issues – called risk factors – increase your chances of having a stroke. The leading risk factor for stroke is high blood pressure. There are many other factors that also put you at risk. Risk factors like increasing age, gender, race and family history can't be changed. Many others can be changed.

Complete the evaluation below. Answer each question honestly and refer to the key below to rate your score.

Risk Factor	High Risk	Caution	Low Risk
Blood Pressure	>140/90 or I don't know	120-139/80-89	<120/80
Cholesterol	>240 or I don't know	200-239	<200
LDL	>160	100-159	<100
HDL	<40	40-60	>60
Triglycerides	>200	150-199	<150
Diabetes	Yes	Borderline	No
Smoking	Yes	I'm trying to quit	No
Atrial Fibrillation	I have an irregular heartbeat	I don't know	My heartbeat is regular
Diet	I am overweight	I am slightly overweight	My weight is healthy
Exercise	I am a couch potato	I exercise sometimes	I exercise regularly
I have stroke in my family	Yes	Not sure	No
Score: (each box = 1)			

If your **red** score is 3 or more, speak to your doctor about stroke prevention right away.

If your **yellow** score is 4-5, you're off to a good start.

If your **green** score is 6-8, you're controlling your risk for stroke!



Metabolic Syndrome Raises Your Stroke Risk

Now that you have discovered your risk factors, it is important to know that a specific combination of these factors can lead to an increased risk of stroke. Metabolic Syndrome is a condition that is defined by having three or more of the following risk factors:

- High blood pressure (130/85 mm HG or higher)
- Excess weight around the waist (more than 40 inches in men and 35 inches in women)
- Triglyceride level at 150mg/dl or greater
- HDL cholesterol level below 40mg/dl for men and below 50mg/dl for women
- Elevated blood sugar or diabetes

These are all conditions that can be treated, so it is important to talk to your healthcare provider about your specific risk.

Stroke Prevention

Stroke is the number four killer of Americans, with a stroke occurring about every minute. Our goal is to educate the public on stroke prevention and help with the recognition of the risk factors and signs and symptoms of stroke. Eating healthy foods, knowing your blood pressure, cholesterol and blood sugar levels and maintaining a healthy exercise routine will go a long way toward prevention. For more information, see the reference list at the end of this booklet.

Initial Stroke Care

The Emergency Room

It is likely that you arrived in the hospital with your stroke diagnosis through the Emergency Room. Stroke is an emergency and the healthcare professionals will be acting with a sense of urgency to evaluate the condition of patients with stroke to determine the proper course of treatment. Things move fast here because “time equals brain” in acute (sudden onset) stroke. We will explain the actions you can expect in the Emergency Room and why these actions are taken to provide the best care for you or your family member during stroke.

Time is of great importance in the Emergency Room during a stroke. The activity may seem chaotic, but there is a purpose for every action. Blood tests, heart monitoring, X-rays and a CT exam will happen very quickly. The key question for your family will be the “time of last known normal.” This is very important, as it helps determine the type of treatment for the stroke patient. This will be a question that is repeated several times because of its importance.

Because of the effects of stroke on a patient, no food, water or medications can be given by mouth until after the Emergency Room visit. Because of the risk of choking, **DO NOT EAT OR DRINK ANYTHING** until a nurse verifies that you can safely swallow food and liquids.

HCA hospitals, in conjunction with the Texas Stroke Institute, have developed a care system for stroke patients to ensure the highest quality of care in the most efficient time. Through this system, North Hills Hospital has the ability to provide initial stroke care and rapidly transport patients who suffer stroke to comprehensive stroke centers when appropriate. We utilize telemedicine to communicate with neurosurgical specialists at the Texas Stroke Institute, which helps determine the course of treatment in acute stroke. We may roll our robot up to your bedside so that the neurosurgeon can speak to you directly.

A **CT scan** will be done within the first 30 minutes of your Emergency Room visit. This is a test that will be used to determine if the stroke is caused by a blocked blood vessel or by a hemorrhage. This test helps determine the type of medication to use to treat the stroke. There is no contrast (dye) used in this test. A chest X-ray will be completed while in radiology, or a portable X-ray in the Emergency Room.

Within about 45 minutes, the test results and CT scan results will be ready. At this time you and your family will talk to the physician about the medication and treatment options. If the last known normal time is less than three hours, you

may be a candidate for the clot dissolving medication. If the clot is in an area where surgery can remove it, you will be transferred to a comprehensive stroke center. If the stroke is a hemorrhagic stroke, transfer to a comprehensive stroke center will be necessary. Once the stroke diagnosis is made and the course of care is determined and mutually agreed, you will be either admitted to North Hills Hospital or transferred to a comprehensive stroke center.

Transferring to Comprehensive Stroke Care

HCA hospitals have worked to develop a care system for stroke to help ensure the highest quality of care in the most efficient time. Our sister facilities (Medical City Dallas, The Medical Center of Plano and Plaza Medical Center of Fort Worth) offer comprehensive neurovascular surgery that can be lifesaving for stroke patients.

Transfer to a comprehensive stroke center is an emergency and will most likely occur in a helicopter. After the diagnosis is known and the determination is made, you will be transported as quickly as possible. Members of the flight team are stroke emergency specialists with the necessary training and expertise to transport you with care and speed. You will likely be transported directly for surgery or for continued care after fibrolytic therapy, depending on the original treating hospital.

Intensive Care Unit

Some acute stroke patients will be admitted directly to intensive care. If your blood pressure is too high, you are having problems with your heart rhythm (heart beat), or for care after conducting neurosurgery, you will be admitted to a specialty care unit where the nursing staff is skilled at caring for the acute stroke patient. You will go to the ICU after receiving the clot busting drug so the nursing staff can monitor you closely.

In intensive care, visitation will be limited, as you may not be strong enough for visitors. The nursing staff will perform frequent checks, monitoring vital signs and neurological checks that may seem redundant and disruptive. However, this is how our healthcare professionals monitor your status.

You will likely have more CT or MRI diagnostic testing to evaluate the progress of the stroke. This can be a stressful time for you and your family. Chaplain services are available and counselors may be in contact with you to help you during this time.



General Stroke Care

Once your vital signs are stable and any life threatening condition has been addressed following your stroke, you will be transferred to a medical floor in the hospital where the staff is specially trained in stroke care. Your professional care team may include the following healthcare professionals:

Physicians:

Your attending physician, along with any consulting physicians, is responsible for your overall plan of care including diagnostic evaluation and treatment plan.

Registered Nurse (RN):

Your nurses are responsible for your nursing care. They plan and coordinate your care with all health team members as well as with you and your family.

Certified Nurse Assistant (CNA):

CNA's will help you with personalized care and daily needs. They may perform procedures such as blood pressure, temperature, and glucose checks.

Dietitian:

A dietitian will work with your doctor to meet your nutritional needs. They evaluate your nutritional status and advise the advancement of your diet. They are available to answer any questions you have about your diet.

Physical, Occupational, and Speech Therapists:

These therapists will be responsible for checking your mobility, coordination, and ability to perform self care tasks as well as your communication skills. The therapists will plan your therapy and set goals to assist in your discharge home.

Case Management Department:

A case manager will work with your physician and your insurance company to facilitate proper filing and documentation of your hospital stay. They can address any questions or concerns regarding your insurance or coverage.

Chaplain:

A hospital chaplain is available to provide both spiritual and emotional support to you and your family.

The goal of your care during your hospital stay after your stroke is to move you toward self care and begin your rehabilitation process. Your stroke care team will work with you and your family to help you understand the steps of recovery, your medications, safety measures, and help you set goals for your discharge from the hospital.

Complications after a stroke can be **life-threatening**, and your physician's highest priority will be to prevent these complications and to prevent another stroke.

Since you understand that a stroke is caused by interrupted blood flow to your brain, your stroke care team will continue to monitor and test you for changes in your neurological status. These tests may seem silly or redundant but they are necessary to help us determine any changes in your condition. **Seizure precautions** may also be utilized due to the changes in your brain's electrical activity after stroke.

Your ability to **swallow** and eat has to be evaluated. Nearly half of stroke patients will have some level of difficulty with swallowing, which can lead to pneumonia, malnutrition and poor outcomes if undetected. For this reason, your nurse will test your ability to swallow by completing a swallowing screen. If you are not able to complete this screen or if you fail it, a more involved test will be ordered to evaluate your swallowing ability.

Depending on your ability to swallow and chew, your diet may be changed. The dietitian will work with you and your physicians and to help ensure you receive proper nutrition that you can eat safely, limiting your choking risks.

Blood tests will be necessary to ensure the proper balance of your medication to reduce the risk of additional clot formation. Keeping your blood flow maintained throughout your body is necessary after stroke, as clots can cause different problems in different organs.



Your medications will be updated and changed after your stroke. Your team will help you and your family understand the medications you are taking daily, their effects and any safety information concerning your medications. Some of your medications may include:

High Blood Pressure Medication

This medication will lower your blood pressure. You may be on more than one medication to lower your blood pressure, as they may work in different ways to help keep your blood pressure lower. Do NOT stop taking your medicine on your own. Keeping your blood pressure normal is important in helping prevent a future stroke.

Anticoagulants/ Antiplatelet Agents

These medicines are commonly called “blood thinners” and are used to prevent the formation of blood clots. These medications help keep the blood flow to your brain, your heart and other parts of your body. Common names are Warfarin, Coumadin, Heparin, Aggrenox and Plavix. Regular blood tests are necessary to be sure the medicines are working properly. Always tell other doctors or dentists that you are taking anticoagulants. Never take aspirin with anticoagulants unless your doctor tells you to. Check with your doctor before you take any over-the-counter medications, as they may contain ingredients that make your anticoagulant stronger or weaker, which can be dangerous. Tell your family that you are taking anticoagulants and carry an emergency medical ID card.

Cholesterol Lowering Medication

Since most strokes are caused by a buildup of fat, cholesterol and other substances called plaque in the inner walls of your arteries, these medicines are used to help reduce further buildup.





Patient Falls

After your stroke it is very important to get your team's assistance before you try to get up out of the bed. Your body may be much weaker than you realize and your arms and legs may not function the way you plan. Physical activity will begin immediately after your condition is stable to help prevent the physical complications of stroke. This activity will not likely be the exercise you were able to do before your stroke. Range of motion exercises will help prevent muscle loss and keep your flexibility in your arms and legs. Physical therapists will work with you to teach the exercises to help you after your stroke.

Bedrest and decreased activity after stroke place you at risk for developing blood clots in your legs or lungs. In an attempt to prevent this complication, anticoagulant medications and intermittent pneumatic compression stockings will be used while you are in the hospital to help keep your blood circulating. Again, getting assistance to get up is essential to avoid falling and personal injury.

Emotional Changes

Emotional changes can be expected after a stroke. Immediately after a stroke, you may respond one way, yet weeks later respond entirely differently. Some stroke survivors may react with understandable sadness; others may be amazingly cheerful. These emotional reactions may occur because of biological causes due to your stroke or because of the effects of the stroke (psychological). These changes may vary with time and can interfere with rehabilitation.

Biological Emotional Changes

Biological emotional changes commonly seen after stroke are rapid mood changes, moving from crying to laughing quickly or crying or laughing that doesn't match your mood. This crying or laughing may last longer than seems appropriate. Post stroke depression, with feelings of sadness, hopelessness, helplessness, and irritability should be discussed with your doctor. Do not hesitate to take medications if needed, as these will help with the immediate period following stroke.

Psychological Emotional Changes

Psychological emotional changes are to be expected after a stroke. You are adjusting to the changes brought by a stroke. Frustration, anxiety, anger, and lack of motivation are common and understandable when facing the life changes of stroke. Talking about your feelings is helpful and being involved in a stroke survivors group can help you feel less isolated. Try not to judge your feelings as good or bad; give yourself credit for the progress you have made. Celebrate large and small improvements.



Rehabilitation

Your stroke recovery will depend on the extent of damage to your brain tissue and the location of the damage in the brain. Many of the brain's functions seem to be localized in specific regions. Therefore, the injury will affect the body functions governed by a particular region. Damage the size of a pea in one area may cause only weakness in a hand, while the same pea-sized damage in another area may cause paralysis of the arm and leg. Your health before the stroke may also impact your stroke recovery. Rehabilitation will help to regain function in your physical body and your mental functions.

Neurological Recovery

This term is used to describe the healing of brain tissue. If you think of the brain, with its electrical impulses, like your fuse box in your home, it really controls the functions of your body. A stroke can have the same effect in your brain as a lighting strike in your home – it may be difficult to determine the circuits that are affected. Additionally, the appliances may also be affected. A stroke has a similar affect in the body. Neurological rehabilitation is focused on undamaged brain tissue assumption of the functions of the dead or damaged brain tissue. Time is necessary to allow for swelling (edema) in the brain to diminish. Just as your thumb swells after it is struck by a hammer, the brain will swell as a result of stroke. This causes pressure in your brain, and the living nerves do not work well under this pressure. Therefore, it can take days to weeks for nerve function to be restored to optimal levels. This will play a role in your progressive improvement as you work through rehabilitation.

Functional Recovery

This term refers to your physical function, your ability to regain activities of daily living (ADLs). Your functional recovery is a combination of neurological recovery and physical rehabilitation. One of the best ways to optimize your recovery is to start rehabilitation as soon as medically possible following stroke. Those who begin therapy right away, rather than weeks or months later, will make more progress. Just as important as starting therapy early is your attitude about therapy. A positive attitude is the most important determinant to success. Friends and family can help provide a supportive environment after stroke.

The rehabilitation program for your therapy will be an important choice. You will want to be sure that the rehabilitation program can meet your specific needs and that they are skilled in the care of stroke patients. The type and range of services provided, frequency of services, and the setting where the treatment occurs are ways these programs can be differentiated. The programs can be either inpatient or outpatient programs.

Inpatient Rehabilitation Units

Inpatient rehabilitation units are either free-standing or part of a larger hospital or clinic. You may stay at the facility for approximately 10-20 days as part of an intensive rehabilitation program. Some inpatient rehabilitation units offer programs specifically designed for the patient who has suffered a stroke.

Outpatient Units

Outpatient units are often part of a hospital or clinic. You may spend several hours a day at the unit relearning skills, but you return home each night.

Long-term Care Hospitals

Long-Term care hospitals (LTAC) provide treatment for patients who have specific medical problems. The usual length of stay in a long-term care hospital averages about 25 days. Most patients who are transferred to an LTAC come from the hospital's intensive care or critical care unit. Along with the comprehensive stroke rehabilitation therapies, the patient may also receive respiratory therapy, IV medications, nutritional support and pain management.

Nursing Facilities

Nursing facilities are sometimes referred to as nursing homes or skilled nursing facilities and they vary widely in the services offered. Some facilities specialize in rehabilitation, while others offer less intense therapy options. The therapy provided in a skilled nursing facility will be less than the inpatient rehabilitation unit. A fragile or weak patient may go to the nursing facility before an inpatient rehabilitation unit to gradually build up their strength and endurance.

Home-Based Program

Home-based programs allow greater flexibility than the other options. One drawback is you likely won't have access to specialized rehabilitation equipment in your home. In addition, insurance strictly controls who qualifies for home-based therapy.

Your physician can assist you in selecting the type of rehabilitation program that is appropriate for your needs.

Many industries have a formal system of recognizing organizations that meet standards of excellence in their field. This is called accreditation or certification. For hospitals and rehabilitation centers, the Commission on Accreditation of Rehabilitation Facilities (CARF) and the Joint Commission set these standards. Medicare also certifies rehabilitation programs and centers that meet minimum health and safety standards. The checklist can help you determine if a rehabilitation program meets your needs.



Checklist: Finding an Excellent Rehabilitation Program

QUESTIONS TO ASK	YES	NO	Notes
Has the program been in operation at least one year?			
Does the program have a formal system for evaluation of the progress made by its patients and the overall outcomes of the stroke rehab program?			
Does the program have any partners that offer rehab services at other levels of care that I may eventually need (day treatment, outpatient treatment, or nursing care)?			
Does the program provide a wide range of therapy services (physical therapy, occupational therapy, speech therapy)?			
Does the program have on staff a full-time physiatrist or another doctor who is experienced in stroke and rehab medicine?			
Is medical care available at the rehab center if I need it?			
Can my doctor visit me at the rehab center? (Does he/she have visiting privileges?)			
Does the program have a stroke support group for survivors and their families? If not, can they refer me to a local group?			
Does the program use outside groups (such as consumer advocacy groups) to get ideas for serving disabled people?			
Does the program conduct home visits before checking people out of the center and releasing them to their home?			
Are the staff members required to keep up with new information about stroke and rehabilitation? How do they do so?			
TREATMENTS & SERVICES			
Does the facility offer the rehab treatments that I need?			
Am I eligible for those treatments?			
How can these treatments help me?			
Will there be bilingual staff members if I need them?			
Will there be sign language interpreters if I need them?			
Will medical information be explained in simple terms?			

Is help available with discharge? How does it work?			
What percent of people will return home after discharge?			
What percent of people will be placed in a nursing home?			
LOCATION			
Is it convenient to me?			
Is it close to public transportation?			
Is it convenient to family and friends?			
HOURS			
Are the days and times convenient for me?			
What are the visiting hours?			
Are the visiting hours convenient for family and friends?			
Are the visiting hours long enough for a good quality visit?			
COST & INSURANCE			
What is the estimated cost of my treatment?			
Will my insurance plan or government funding (Medicare, Medicaid, state health plans) cover all or part of the cost?			
Will the staff help me with health insurance claims or appeals, if needed?			
What is the average total cost for the complete stroke program (acute, rehab, home care, and outpatient)?			
CUSTOMER SERVICE & SATISFACTION			
Does the program collect information from patients and their families about satisfaction with the care received?			
If so, is the feedback generally positive?			
Can I talk to other people who have used the services?			
How long do most stroke survivors stay in the program?			



The Rehabilitation Team

Now that you have selected your rehabilitation program, you will have a team of healthcare professionals working with you to meet your therapy goals. Your physiatrist, a physician who specializes in rehabilitation, will lead your rehabilitation team, which may include:

Physical Therapist

A therapist 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 in daily living activities such as bathing, toileting and dressing.

Rehabilitation Nurse

A nurse who coordinates the medical support needs of stroke survivors throughout rehabilitation.

Speech Therapist

A therapist who helps to restore language skills and also treats swallowing disorders.

Recreational Therapist

A therapist who helps to modify activities that the survivor enjoyed before the stroke or introduces new ones.

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.

Discharge Planning

Discharge planning is the process of preparing you to live independently in your home. The purpose is to help maintain the benefits of rehabilitation after you have been released from the program. It begins early during rehabilitation and involves you, your family and the stroke rehabilitation team. You should be discharged from rehabilitation soon after your goals are reached.



Nutrition



Building strength, function and mobility will take lots of energy. Registered dietitians will prepare an appropriate program for you and may recommend supplements, texture modifications and other adaptations to help you maintain your health. Since high blood pressure is directly associated with stroke, an eating plan that supports blood pressure health is essential after stroke.

Sodium

Sodium, or salt intake, will be decreased to help with blood pressure health. Most Americans consume more salt than they need, disguised in prepared foods and drinks. The current recommendation is to consume less than 2,400 milligrams (mg) of sodium a day. That is about one teaspoon of salt a day. For someone with high blood pressure, the doctor may advise eating less salt, around 1,500 mg of sodium a day. This will help keep your blood pressure from rising and help blood pressure medicines work well. Your dietitian will help you with tips on reducing sodium in your diet, shopping ideas and teach you how to read and use food labels. They can also teach you alternative ways to flavor your food, so you don't miss the taste, just the sodium!

Fruits and vegetables will definitely be on the menu. Learning how to prepare the produce that is in season will add to the flavor of your meals and save you money at the market. Choosing fresh fruits and vegetables high in potassium will help curb salt cravings and are important to help you meet your calcium and potassium needs.

Blood Cholesterol Levels

Blood cholesterol levels will also need to be lowered after stroke. Knowing your lipid numbers is only part of the cholesterol health picture. Lowering your total cholesterol below 200 mg/dl and your LDL to less than 100 mg/dl (70 mg/dl if you are diabetic) will be a goal of your new eating plan. Your physician will have you on a medication to help lower your blood cholesterol; however, it will not substitute for the diet changes necessary after stroke. Knowing the different types of fats will help you make better choices for your heart and your brain.





Bananas, apricots, oranges, cantaloupes, apples, potatoes, sweet potatoes, spinach, zucchini and tomatoes are all high in potassium.

Saturated fat is found in foods from animals, such as fatty meats, whole milk, butter, cream, and other dairy foods made with whole milk. It also includes tropical oils (palm, palm kernel, and coconut). Trans fat is found in all foods made with hydrogenated oils. It may be in fried foods, crackers, chips, and foods made with shortening or stick margarine.

Unsaturated fats are heart healthy fats, such as soybean, canola, olive, or sunflower oil. Liquid or soft tub margarines are also fine. Just as you monitor the amount of sodium you eat, you will limit your fat intake to about 30% of your daily food intake. Limit the cholesterol (saturated fat) to 30 grams daily. Foods high in cholesterol include egg yolks, fatty meats, shrimp, and dairy foods. Basically, if it comes from an animal, it has cholesterol.

Whole grains and low-fat dairy will help you decrease the fats, or lipids, in your blood stream and help your cholesterol medicine work well.

Choosing cold-water, fatty fish, like salmon, tuna, mackerel or sardines – will help provide the good omega-3 fat your body needs to be heart healthy. If you choose canned fish, be sure it is the low sodium variety, packaged in water.

Walnuts and almonds are also good sources of omega-3 fat and make good snacks.

An excellent benefit to eating a low cholesterol and low fat diet is the effect it will have on your body weight. Many stroke patients have a need to reduce their overall body weight, and following the cholesterol and sodium lowering tips will also help with weight loss.

Your dietitian is a great source for diet and nutrition education. They will have tools and resources to help you stay healthy with food that tastes good and satisfies. Be open to trying new seasonings to replace the salt and fat in your diet – you will be surprised how good healthy can taste! Bon Appetite!

Obesity, especially abdominal obesity, has a direct effect on your stroke risk factors and increases your risk of a second stroke. This has been shown in studies as an independent association, meaning that your body weight alone can increase your risk of another stroke. Losing weight will improve blood pressure control, glucose levels, cholesterol levels and your physical endurance. Eating a diet rich in vegetables and fruits, lean meats and good quality carbohydrates can help with weight control and has been shown to reduce the risk of stroke, heart attack, and death.



Life After Stroke

Regaining your independence will be the focus of your rehabilitation and will be the long term goal of your life after stroke. Developing a healthy lifestyle with diet, exercise, medication regimen and regular physician visits can help reduce your chance of having another stroke. There is a 10 to 18 percent risk of having a second stroke in the first year immediately following a stroke. Maintaining your lifestyle changes can reduce this risk. Many stroke survivors have found a new lease on life, a new chance at relationships that the busy life before stroke would not allow. Reaching out to stroke groups and becoming involved with stroke survivors can help you learn new ways to adapt and offers you opportunities to help others.

Home safety is an important part of your return home. Many of the common activities prior to stroke can be problematic after stroke. Cooking over hot stoves or handling sharp knives are several common kitchen tasks that may have to be altered. Throw rugs are hazardous for you if you have trouble with balance or eyesight. Driving skills may have been lost or impaired to the point that alternate transportation service is required. Hand rails, seat extensions and other devices may be needed to provide for your safety.

Regular and appropriate exercise not only increases circulation and lung capacity but fights cholesterol buildup. Stroke often affects balance, strength and coordination. If you have an indoor pool or natatorium available, swimming or water exercise classes are an excellent exercise choice.

Most importantly, recognize your improvements and give your body time. You can learn. Your body can adapt. Many stroke patients start out in a wheelchair, but with a positive attitude and hard work during rehabilitation can regain much of their previous activity.



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Common Diagnostic Tests

Brain Imaging

- **Computerized Axial Tomography (CT or CAT) Scan** uses X-rays to create a picture of the brain and is often the first imaging test of the brain done in the Emergency Room. CT scan is best used to identify hemorrhage and large ischemic strokes. Damage from an ischemic stroke may not show up on the CT scan for several hours or days. CT Scan is fast, painless and simple.
- **Magnetic Resonance Imaging (MRI)** uses magnetic fields, instead of X-rays, to create a picture of the brain as the patient lies inside a large scanning machine. A brain MRI takes longer to perform than a CT scan; however, it gives much more detailed images of the brain. MRI can diagnose both ischemic and hemorrhagic strokes, determine the size and location of the stroke, and help rule out other problems such as tumors. Patients who have an implanted metal device, such as a pacemaker, are unable to have this test performed.

Vascular Imaging

- **Magnetic Resonance Angiography (MRA)** uses magnetic fields to image the blood vessels of the head and neck. Gadolinium contrast is used to enhance the picture quality except in patients who have kidney problems.
- **Computed Tomographic Angiography (CTA)** uses dye injected into the vein and X-ray beams to image the blood vessels of your head and neck. The dye can cause a warm, flushed sensation. There can be an allergic reaction to the dye if you have an iodine allergy.
- **Doppler Ultrasound (US)** uses a handheld wand-like device and gel to create sound waves to detect blocked or narrowed blood vessels. This procedure is noninvasive and painless.

Cardiac Testing

- **Electrocardiogram (EKG)** records the electrical rhythm of your heart using sticky pads connected to a monitor. It is used to detect rhythm abnormalities that may be a risk for stroke, such as atrial fibrillation.
- **Echocardiogram (Echo)** uses ultrasound technology to take picture of the heart looking for a source of blood clots.
- **Transesophageal Echocardiogram (TEE)** is an invasive way of looking at the heart in more detail in patients who are at high risk of blood clot in the heart. The test is performed by using a flexible probe placed into the esophagus by a cardiologist after sedating medication is given.

Blood Tests

- Cholesterol levels
- Blood sugars
- Blood clotting

Stroke Resources

American Stroke Association	1-800-AHA-USA1	www.strokeassociation.org
National Stroke Association	1-800-STROKES	www.stroke.org
American Academy of Physical Medicine and Rehabilitation	1-312-464-9700	www.aapmr.org
American Diabetic Association/National Center for Nutrition and Dietetics	1-800-877-1600	www.eatright.org
American Heart Association	1-800-AHA-USA1	www.americanheart.org
American Occupational Therapy Association	1-301-652-2682	www.aota.org
American Physical Therapy Association	1-800-999-2782	www.apta.org
Family Care Giver Alliance	1-800-445-8106	www.caregiver.org
Independent Living Research Utilization	1-713-520-0232	www.ilru.org
MedlinePlus		www.nlm.nih.gov
National Aphasia Association	1-800-922-4622	www.aphasia.org
National Council on Disability	1-202-272-2004	www.ncd.gov
National Family Care Givers Association	1-800-896-3650	www.nfcacares.org
National Institute of Neurological Disorders and Stroke	1-800-352-9424	www.ninds.nih.gov

HCA North Texas Support Groups

Denton Regional Medical Center - www.dentonregional.com

Diabetes Support Group	1st Thursday each month	940-384-3809
Stroke Survivors	1st Thursday each month	940-384-3973
Brain Injury Support Group	1st Thursday each month	940-384-3969

Medical Center Of Arlington - www.medicalcenterarlington.com

Stroke Support Group	4th Thursday each month	817-465-3241
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Medical City Dallas Hospital - www.medicalcityhospital.com

Epilepsy Support Group	2nd Thursday each month	972-533-7411
Turtle Club Stroke Support	2nd Wednesday each month	972-533-6710

Books/Literature Suggestions

Burkman, Kip, M.D. (1998). *The Stroke Recovery Book, A guide for patients and families*. Omaha, Nebraska: Addicus Books, Inc.

Taylor, Jill Bolte, Ph. D. (2006). *My Stroke of Insight, A brain scientist's personal journey*. New York, New York: Penguin Group.

Maxwell, Roger (2008). *Taking Charge of Your Stroke Recovery: A Personal Recovery Workbook*. New York, New York: Taking Charge Books, Inc.



My Stroke Information

Date: _____

Hospital: _____

Type of Stroke: _____ Ischemic _____ Hemorrhagic

Area of Stroke: _____ Middle Cerebral Artery _____ Anterior Cerebral Artery
_____ Posterior Cerebral Artery _____ Brain Stem Artery

My Risk Factors:

- Atrial Fib/Flutter
- Abuse of Illegal Drugs
- Coronary Artery Disease/ Previous Heart Attack
- Diabetes mellitus
- Excessive Alcohol Use
- High Cholesterol
- High Blood Pressure
- Metabolic Syndrome
- Obesity
- Previous Stroke/TIA
- Peripheral Vascular Disease
- Physical Inactivity
- Sickle Cell Anemia
- Smoker

My Diagnostic Test (s):

CT/CAT Scan: _____ Head without contrast _____ Head with contrast _____ Chest _____ Other

MRI/MRA: _____ Head _____ other

Doppler: _____ Carotid _____ ECHO

X-ray: _____ Chest _____ Other

Know My Numbers:

Blood Pressure: _____/_____

Hemoglobin A1C _____

Cholesterol _____

LDL _____

HDL _____

Triglycerides _____

BMI: _____

Waist Size _____

Know My Goals:

Blood Pressure: Below 130/90 or
Below 130/80 if kidney
disease or diabetes

Hemoglobin A1C: Less than 7%

Cholesterol <200 mg/dl

LDL : Below 100mg/dl or Below 70mg/dl if Diabetic or
CAD

HDL: Over 40 mg/dl men, Over 50 mg/dl women

Triglycerides: Below 150 mg/dl

BMI: 18.5 – 24.9 kg/m²

Waist Size: Men - less than 40 inches
Women - less than 35 inches

My Discharge Check List

- Received discharge instructions
- Know my diet and nutrition recommendations
- Follow-up appointment and physician office number provided
- Current list of medications to be taken at home
- Prescriptions to be filled
- I know my personal risk factors for stroke
- I know the signs and symptoms of stroke and to call 9-1-1 early
- I have my satisfaction survey to complete
- I have all my belongings (remember to check the night stand and closet)
- All my questions have been answered

My Medications

Taking medications may be new to you and there may be a lot to remember. Why do I take this medication? What time do I take it? Did I take it today? Here are some tips that may make this adjustment easier.

1. Take your medication at the same time every day.
2. Take it along with meals or other daily events, like brushing your teeth.
3. Use a special pill box to help you keep track of your medications. Pill boxes that have “day-of-the-week” printed on them or have divided sections can be found in drug or grocery stores.
4. Put a sticker or reminder note on your medicine cabinet or refrigerator.
5. Keep a medicine calendar near your medicine and note every time you take a dose.
6. Keep a current list of your medicines. We have provided a chart for you.
7. Always check with your doctor before taking over-the-counter medications!

