

# Stroke Program Handbook

UNDERSTANDING THE EFFECTS AND MANAGEMENT OF A STROKE



THE DRIVE IS *here.*<sup>®</sup>

[BAYHEALTH.ORG/STROKE-SUPPORT](https://www.bayhealth.org/stroke-support)



Dear Patient,

Welcome to Bayhealth's Stroke Program. We know you are here because of an unexpected occurrence. A stroke can greatly change your life. To help you and your caregivers learn about stroke and stroke care, we have carefully prepared this handbook. The handbook provides an overview of what strokes are and shows how you can successfully live after having a stroke.

The Stroke Program at Bayhealth has several designated areas at both campuses with professional staff trained to provide specialty care in regards to stroke. Our staff will do our best to make your stay as comfortable as possible.

We have several goals while you are here:

- *To do everything medically possible to minimize the impact of your stroke through a variety of medical treatments*
- *To prevent complications of your stroke*
- *To maximize your rehabilitation to return as much function as possible*
- *To initiate treatments and recommend lifestyle changes to reduce your future risk of another stroke or even a heart attack*

To achieve these goals, education is an important element. Completing the "My Personal Health Information" page at right is the first step in understanding your medical situation. Throughout this handbook, important keywords appear in italics and are defined to help you learn more and understand how your life may be different after stroke. Our staff will work with you and your caregivers to educate you further on areas relevant to your specific situation. The last few pages of this handbook provide space to make note of medication information and important questions, and provide additional resources.

Please review this handbook and if you have any questions or concerns about the information or about your care, we strongly encourage you to call us at 302-744-6638. Don't be afraid to ask. We are happy to help you.

Sincerely,

*Your Bayhealth Stroke Care Team*

# My Personal Health Information

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PATIENT NAME

## 1. MY STROKE IS:

- Transient Ischemic Attack (TIA), also known as a mini-stroke
- Ischemic
- Hemorrhagic
  - Intracerebral Hemorrhage (ICH)
  - Subarachnoid Hemorrhage (SAH)

## 2. MY PERSONAL RISK FACTORS ARE:

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Family history of TIA/stroke | <input type="checkbox"/> Prior TIA           | <input type="checkbox"/> Carotid artery disease |
| <input type="checkbox"/> Age (over the age of 55)     | <input type="checkbox"/> High blood pressure | <input type="checkbox"/> Atrial fibrillation    |
| <input type="checkbox"/> Race (African American )     | <input type="checkbox"/> High cholesterol    | <input type="checkbox"/> Obesity                |
| <input type="checkbox"/> Gender (Female)              | <input type="checkbox"/> Diabetes            | <input type="checkbox"/> Stress                 |
| <input type="checkbox"/> Prior stroke                 | <input type="checkbox"/> Smoking             | <input type="checkbox"/> Lack of activity       |

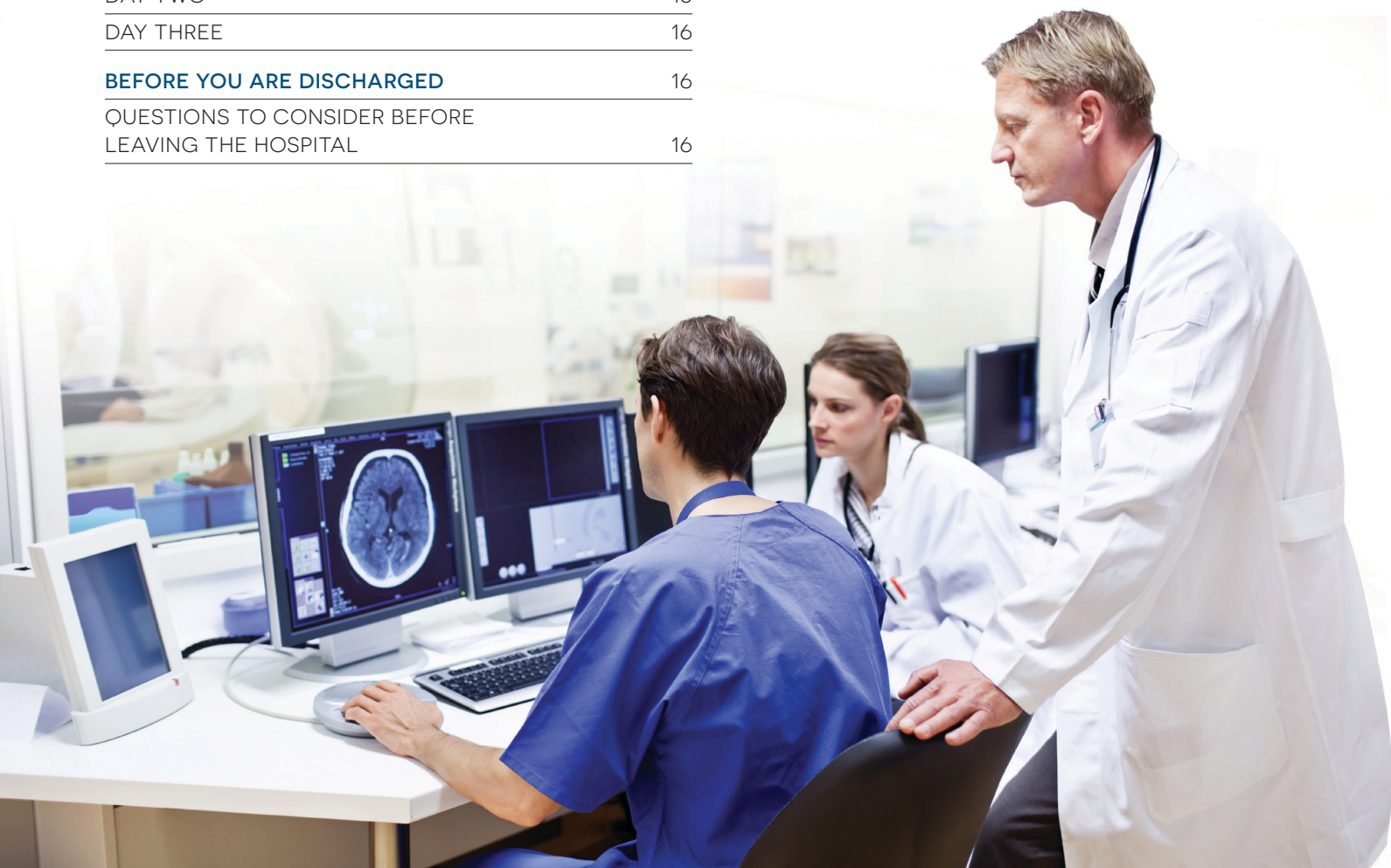
## 3. MY TREATMENT PLAN CONSISTS OF:

- Management of my risk factors with medicine and lifestyle modifications
- Alteplase® tissue plasminogen activator, also known as tPA
- Mechanical thrombectomy
- Antiplatelet/anticoagulant (e.g. aspirin/warfarin)
- Carotid endarterectomy
- Surgery for hemorrhagic stroke



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# What is a Stroke Program?

A stroke program, sometimes referred to as a stroke center, is a hospital-based program with the resources and processes to care for individuals suffering from a stroke. Bayhealth has earned The Joint Commission's Gold Seal of Approval® and the American Heart Association (AHA)/American Stroke Association's (ASA) Heart-Check mark for Advanced Certification for Primary Stroke Centers. This means it has met and seeks to maintain The Joint Commission's high standards in providing stroke care.

## STROKE CARE GUIDELINES

The ASA is a member of the Brain Attack Coalition (BAC), which has set forth guidelines for quality stroke care. Bayhealth's stroke program ensures that you will be cared for according to these guidelines:

### Acute Stroke Teams

The acute stroke team should include a physician with experience in diagnosing and treating stroke and at least one other healthcare provider. Bayhealth's team includes an on-duty physician stroke expert and registered nurse.

### Written Care Protocols

Hospitals should have written protocols to streamline and accelerate the diagnosis and treatment of stroke patients. The availability of such protocols is a key step in reducing the time to treatment as well as complications from treatment. It is important to use these protocols to ensure the highest standard of care.

### Emergency Medical Services

Emergency medical services (EMS) play a vital role in the rapid transportation and survival of stroke patients. Improved coordination between hospitals and EMS is a cornerstone of a stroke program. One element of a well-integrated system would be effective communication between EMS personnel and the receiving hospital's emergency department during the rapid transport of a patient experiencing a stroke.

### Emergency Department

The emergency department staff should have training in the early detection of stroke signs and symptoms and expediting the treatment of stroke. Effective communication with both EMS and the acute stroke team is a critical component of stroke treatment.

### Stroke Unit

A hospital with a stroke program should have designated units of care for patients experiencing stroke. Such units can provide patients with specialized monitoring and care based on their stroke diagnosis.

### Interventional Services

Stroke programs should be able to provide patients with access to interventional services as soon as possible when deemed necessary. Transfer agreements should be available for timely stroke care.

### Support of the Medical Organization

The facility and its staff, including the administration, should be committed to the stroke program. This commitment ensures the delivery of high quality and efficient care to acute stroke patients.

### Neuroimaging

Hospitals should have the ability to perform brain imaging studies on acute stroke patients, which is vital for physicians to make a fast, accurate diagnosis of stroke patients. Brain imaging studies include CT scans and MRI.

### Laboratory Services

Standard laboratory services should be available at a stroke program around the clock, seven days a week. Standard laboratory services include rapidly performing and reporting blood counts, blood chemistry and coagulation studies.

### Outcomes and Quality Improvement

Stroke programs should have a database registry for tracking the number and type of stroke patients seen, their treatments, timeline for those treatments, and measurement of patient outcomes.

### Education Programs

Clinical staff who provide stroke care receive educational opportunities annually regarding stroke care. In addition to clinical education, the stroke program should plan and implement annual offerings to educate the public about stroke prevention, diagnosis and availability for emergency treatment.

## To Caregivers: Helping Your Loved Ones Recover

You are very important to the successful recovery of your loved one. They will be looking to you for support, encouragement and acceptance. We understand how overwhelming this situation can be, and we are here to help you. We encourage you to ask us your questions about stroke and stroke care. The better informed you are, the better you are able to help your loved one and yourself. It is important that you care for yourself so you can maintain your strength. Stroke recovery is a long process. It requires determination and strength from the patient and their caregivers.

### Here are some things you can do to help your loved one recover successfully from a stroke:

- Visit your loved one. Sometimes just being there is supportive.
- Talk with the nurses and therapists about your questions and concerns.
- Write down questions that you have for the doctor. Don't be afraid to ask the doctor and other members of the stroke care team any questions you have. *See Personal Notes & Questions to Ask section on page 23.*

- Get involved with your loved one's care. We will help and teach you what you need to know.
- Encourage your loved one to practice the new strategies they are learning.
- Let us know what your loved one's special needs and interests are.
- Find out what your loved one can do alone or with help. Avoid doing things that they can do on their own, even if it is difficult. This will make them more independent.

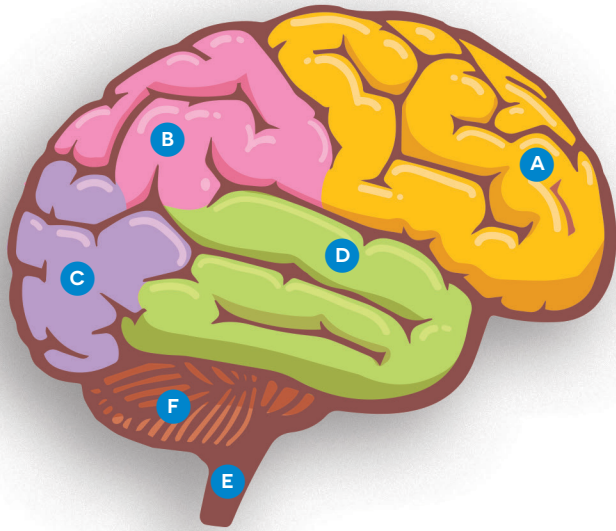
## Stroke: What Is It?

Stroke, also known as a *cerebral vascular accident (CVA)* or "brain attack", happens when blood flow to the brain stops. The lack of blood flow within the brain can cause various problems depending upon the area of the brain affected. The injury to the brain can result in weakness on one side of the body, and trouble with coordination, talking, swallowing, vision and thinking.

The left side of the brain controls the movement and feeling on the right side of your body. It controls how you solve problems, understand what you read or hear, and how you reason with others. Survivors of left-sided strokes may have weakness or paralysis of the right side of the body. They may have *aphasia (a-FAY-zha)*. Aphasia is the loss of ability to understand or express written or spoken words. Survivors may also have a hard time remembering new information.

The right side of the brain is responsible for movement and feeling on the left side of the body. This side of the brain is in charge of creative, artistic skills. A right-sided stroke might cause weakness or paralysis on the left side of the body. Survivors of right-sided strokes may have problems judging distances and space, making them more likely to fall or bump into objects.





- A** *The Frontal Lobe* is located just behind the skull of the forehead, and it governs our ability to reason, make judgments, organize information and control some motor/muscle functions.
- B** *The Parietal Lobe* is near the back and top of the head. It is involved with visual attention, sensation (touch and pressure) and integration of senses.
- C** *The Occipital Lobe* is located at the back of the skull and controls vision.
- D** *The Temporal Lobes* are located on each side of the head above the ears. They control hearing and are related to smell, taste and short-term memory (especially visual and verbal).
- E** *The Brainstem* is the lower extension of the brain that connects to the spinal cord. Neurological functions located in the brainstem include those necessary for survival (breathing, digestion, heart rate, blood pressure) and for arousal (being awake and alert).
- F** *The Cerebellum* is the portion of the brain located at the back which helps coordinate movement (balance and muscle coordination). Damage may result in *ataxia* which is a problem of muscle coordination. This can interfere with a person's ability to walk, talk, eat and perform other self-care tasks.

## Effects of a Stroke

Common effects of a stroke are listed below. You may or may not experience all of these. Some effects may be permanent; others may lessen over time with rehabilitation.

- Weakness, known as *hemiparesis* (*hem-ee-pa-RE-sis*) or paralysis, known as *hemiplegia* (*hem-ee-PLA-ja*) may affect one whole side of the body or just an arm or leg. If the stroke was on the right side of the brain, the weakness will be on the left. If the stroke was on the left side of the brain, the weakness will be on the right.
- Your balance may be affected. It may be hard to sit, stand or walk, even though your muscles may be strong.
- You may have aphasia, trouble in understanding speech or writing. You may have difficulty speaking, reading or understanding. You may have trouble finding the right words and saying them clearly, even though you know the right words.
- You may be unaware of things on your affected side. This is known as *neglect*. This means you may not acknowledge the weaker side or you may tend to bump into things on that side of your body.
- Odd sensations such as pain or numbness can occur, which can make it hard to relax and be comfortable.
- Your memory and ability to think, pay attention and learn new things may be affected. You may get confused easily or not be able to keep track of the date and time. Your judgment may be affected, meaning that you may do things that you would have never done before because your sense of reason has changed.
- Your ability to swallow can be weakened, making it difficult to eat and drink. This is called *dysphagia* (*dis-FAY-ja*). This can be dangerous because it may lead to choking, and food or water going into your lungs instead of your stomach. This is known as aspiration and can lead to complications and pneumonia.
- Some stroke patients cannot control their bowels or bladder.
- Your vision may become blurry, and some stroke victims lose their sight.
- Your personality, emotions and responses to events may change. You may find yourself feeling sad more often and you may cry easily. If you have had problems with controlling your emotions before the stroke, you will likely have problems with your emotions after the stroke. *See Your Emotional Health section on page 20.*

## Types of Stroke

There are several different types of stroke. Because some of the warning signs, treatments and risk factors vary among them, identifying and understanding your particular type of stroke is important.

### TRANSIENT ISCHEMIC ATTACK (TIA)

Often referred to as a “mini-stroke,” the term “warning stroke” is much more accurate. A transient ischemic (*i-skee-mik*) attack (TIA) is caused by a clot within a blood vessel but the blockage is transient (temporary). TIA symptoms occur rapidly and usually last a relatively short time — five minutes or less. Even if your symptoms go away quickly, you should seek medical attention right away. Your doctor will treat your risk factors and help to prevent another stroke.

#### Warning Signs/Symptoms of TIA:

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

#### Treatment for TIA

*Antiplatelets/Anticoagulants:* Antiplatelets such as aspirin, and anticoagulants such as warfarin, interfere with the blood’s ability to clot and can prevent the occurrence of stroke.

*Carotid Endarterectomy:* This is a procedure in which a blood vessel blockage is surgically removed from the *carotid* (ka-ROT-id) artery. These are major blood vessels in the neck that carry oxygen-rich blood to your brain and can become clogged by fatty deposits.

*Carotid Angioplasty/Stents:* Balloon angioplasty opens the artery by pressing against the walls to restore blood flow. A stent is implanted to maintain adequate blood flow permanently.

### ISCHEMIC STROKE (CLOTS)

The majority of strokes are ischemic. This type of stroke is caused by reduced blood flow to the brain when a blood vessel is blocked by a blood clot, or by the gradual build-up of plaque and other fatty deposits. The condition where the arteries become narrowed and hardened and blood flow is restricted due to the buildup of plaque and fatty deposits around the artery wall is known as *atherosclerosis*. A blockage of the blood vessel can occur in two different ways:

*Cerebral Thrombosis* is a blood clot that develops at the clogged part of the vessel.

*Cerebral Embolism* is a blood clot that forms in another location within the circulatory system, usually the heart or large arteries of the upper chest and neck. These clots travel through the brain’s blood vessels until they reach an area too small to pass through. Embolisms also can be caused by atrial fibrillation (an irregular heartbeat) — clots form in the heart, dislodge and travel to the brain.

#### Warning Signs/Symptoms of Ischemic Stroke:

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

#### Treatment for Ischemic Stroke

*Alteplase Tissue Plasminogen Activator (tPA):* This is a Food and Drug Administration (FDA) approved clot-busting medicine that can be given up to four and a half hours after the time of the onset of symptoms, but it works best when administered within three hours. If given within this time frame, it can reduce the effects of stroke and permanent disability.

The tPA medication is not appropriate for every patient. If you have had major surgery in the two weeks prior, a seizure at the onset of stroke, or if too much time has passed since the start of symptoms related to stroke, tPA may not be recommended because it could cause increased risk of bleeding.

BLOOD THINNER



## Risk Factors for TIA and Ischemic Stroke

TIA/stroke have many risk factors, some that cannot be changed, such as age and family history. There are however, many risk factors that you can influence to lower your chance of having a TIA/stroke.

### Unchangeable Risk Factors for TIA and Ischemic Stroke

*Family History:* Your risk of stroke is greater if you have family members that have had a stroke.

*Aging:* As you get older, you are more likely to develop atherosclerosis (hardening of the arteries). This condition may increase your risk of stroke along with other vascular diseases.

*Gender:* Women have a slightly greater risk of having a stroke than men.

*Race:* Not all of the reasons are clear why African Americans have an increased risk of stroke. However, research points to the risk factors of high blood pressure, diabetes and obesity as being some of the major reasons.

*Prior Stroke:* If you have already had a stroke, you are more likely to have another. Many strokes are caused by another health problem that you may still have.

### Changeable Risk Factors for TIA and Ischemic Stroke

*High Blood Pressure:* There is a direct relationship between your blood pressure and your risk for stroke and heart disease. If your top number (your systolic blood pressure) is higher than 120 and your bottom number (your diastolic blood pressure) is higher than 80, it means that your heart is working harder than normal. You need to work to maintain a lower blood pressure through changes in your lifestyle or through medications, if your healthcare provider feels that is needed.

*High Cholesterol:* Cholesterol is a fatty substance that is found in your bloodstream. Your body makes cholesterol naturally but we also eat foods containing cholesterol which are mostly foods from animals. We need cholesterol for our bodies to work, but too much can build up in your arteries and lead to atherosclerosis, which can clog your arteries and cause a stroke or heart attack.

## STROKE RISK FACTORS FOR WOMEN

*Pregnancy and Preeclampsia:* Preeclampsia is a term for high blood pressure that develops during pregnancy, and it doubles the risk of stroke later in life. Women who are pregnant should monitor their blood pressure during and after pregnancy to lower the risk of stroke. Stroke risk factors increase during normal pregnancy due to natural changes in the body such as higher blood pressure and stress on the heart.

*Oral Contraceptives:* The greatest concern about using birth control pills is for women with additional risk factors, such as age, cigarette smoking, high blood pressure or diabetes.

*Hormone Replacement Therapy:* This can increase the risk of stroke due to the higher risk of blood clots.

*Migraines with Aura and Smoking:* Strokes are more common in women with migraines with aura who also smoke. Migraines occur mostly in women. Migraines can increase a woman's stroke risk two and a half times.

*Atrial Fibrillation:* This condition of irregular and often rapid heart rate quadruples stroke risk and is more common in women than men after age 75.

### STROKE WARNING SIGNS/ SYMPTOMS FOR WOMEN:

- Loss of consciousness or fainting
- General weakness
- Breathing difficulty or shortness of breath
- Confusion, unresponsiveness or disorientation
- Sudden behavioral change
- Agitation
- Hallucination
- Nausea or vomiting
- Pain
- Seizures
- Hiccups

*Diabetes:* Diabetes is a major risk factor for stroke and heart disease, as well as other problems such as kidney disease and vision problems. This condition increases the risk of developing atherosclerosis.

Speak to your healthcare provider about ways to keep your blood sugar within normal ranges. According to the American Diabetes Association, “appropriate” or “good” blood sugar levels for people with diabetes are:

- Before meals = 90-130 mg/dl
- After meals = 180 mg/dl or less
- Hemoglobin A1C (HbA1C) = 7% or less

*TIA:* If you have had a TIA in the past, you are at greater risk for having a stroke. Medications and/or surgery to eliminate blockages within your carotid arteries may be needed to lower your stroke risk. Speak to your healthcare provider.

*Smoking:* If you smoke, please stop. Smokers have twice the risk of stroke and heart disease than non-smokers. Smoking increases the pressure in your arteries which increases your blood pressure. High blood pressure is the number one risk factor for stroke. If you are a non-smoker, try to avoid secondhand smoke.

*Carotid Artery Disease:* This is a condition in which the main blood vessels to the brain become blocked and limit blood flow. When the arteries are almost blocked, surgery may be needed to re-open the arteries.

## WHAT DO MY CHOLESTEROL NUMBERS MEAN?

*LDL* means low density lipoprotein. This may be called the “bad cholesterol”. This is what builds up on the walls of your arteries.

*HDL* means high density lipoproteins. This may be called the “good cholesterol”.

*Total Cholesterol* means the total of the good and bad cholesterol.

*Triglycerides* are fats in the blood that come from foods. This number will vary based on your diet. The higher the number, the higher your risk is for stroke and heart disease.

*Atrial Fibrillation:* If you have or have had an irregular heartbeat, you are at a higher risk for stroke. If you have this condition, your healthcare provider may prescribe anticoagulant medications to prevent stroke and other complications.

*Obesity:* Obesity can be a major factor in vascular and heart disease. It increases your risk of high blood pressure, may lead to having diabetes, and can raise your bad cholesterol and triglycerides, lower your good cholesterol, and make your heart work harder.



*Stress:* We all have stressful situations in life. Too much stress can affect your physical health by increasing your heart rate and blood pressure. This causes your heart to work harder and may increase the risk of atherosclerosis. To decrease your stress, identify what causes it. Learn relaxation and stress management techniques. You can get more information from your healthcare provider if you feel you need help with stress management.

*Lack of Activity:* Regular exercise can lower your blood pressure, raise good cholesterol, lower bad cholesterol, burn calories which can help you lose weight, decrease stress and anxiety, strengthen your muscles, and increase your stamina. If you are not able to walk, swim or bicycle, you can do simple exercises. Speak to your healthcare provider before starting any exercise program.

## HEMORRHAGIC STROKE (BLEEDS)

Hemorrhagic (*hem-uh-RAJ-ik*) stroke accounts for approximately 13% of strokes. Hemorrhagic stroke occurs when a weakened blood vessel ruptures and bleeds into the surrounding brain.

There are two types of weakened blood vessels. One is an *aneurysm*, which is a ballooning of a weakened area of a blood vessel. If not treated, the aneurysm continues to weaken until it ruptures and bleeds into the brain. The other type of weakened blood vessel is an *arteriovenous malformation (AVM)*, which is a cluster of abnormally formed blood vessels. Any one of these vessels can rupture, also causing bleeding into the brain. Bleeding in the brain causes damage by increasing the pressure on the brain. The location of the bleed in the brain determines what type of hemorrhagic stroke occurred.

**The two types of hemorrhagic stroke are intracerebral hemorrhage and subarachnoid hemorrhage.**

*Intracerebral Hemorrhage (ICH)* is the most common type of hemorrhagic stroke. It occurs when a blood vessel inside the brain ruptures and leaks blood into surrounding brain tissue. High blood pressure is the usual cause for ICH. Onset of symptoms for ICH is sudden. The specific symptoms depend upon the location and amount of bleeding in the brain.

*Subarachnoid Hemorrhage (SAH)* occurs when a blood vessel just outside the brain ruptures. The area of the skull surrounding the brain (the subarachnoid space) quickly fills with blood. Usually, there are no warning signs of SAH. It is most often caused by abnormalities of the arteries of the brain, such as a ruptured aneurysm.

## Warning Signs/Symptoms of ICH

- Partial or total loss of consciousness
- Vomiting or severe nausea, when combined with other symptoms
- Sudden numbness or weakness of face, arm or leg, especially on one side of the body
- Sudden severe headache with no known cause

## Warning Signs/Symptoms of SAH

- Sudden severe headache, often described as the “worst headache of my life”
- Vomiting or nausea, especially when combined with other symptoms such as headache
- Inability to tolerate or sensitivity to light
- Stiff neck
- Loss of consciousness, especially when combined with a severe headache

## Treatment for ICH

Medical and surgical options may be used to treat ICH, depending upon the exact cause and size of the stroke. When ICH is caused by high blood pressure, medications are given to decrease the blood pressure. Your doctor will decide if surgery is needed to decrease the swelling/pressure inside the head after the blood vessel ruptures. Surgery is performed to limit the damage to other brain cells.

## Treatment for SAH

The goal of treatment for SAH is to target the cause of bleeding. Ruptured aneurysms are often repaired through direct surgery to clip the aneurysm or by treating the aneurysm from inside the vessel. Embolization (coiling) is the technique of operating on the aneurysm from the inside. This is done by guiding a small metal coil through the vessel in the brain until the aneurysm is reached. Once there, the coil allows for a clot to form and prevent more blood from entering.

## Risk Factors for Hemorrhagic Stroke

*High Blood Pressure:* The most controllable risk factor for hemorrhagic stroke is high blood pressure. Have your blood pressure checked regularly.

*Excessive Alcohol and Drug Use:* Higher incidences of ICH and SAH are associated with excessive alcohol and drug abuse.

*Smoking:* Smokers have twice the risk of stroke and heart disease than non-smokers. If you smoke, please stop. If you are a non-smoker, try to avoid secondhand smoke.

## What to Expect in the Hospital

Our first priority is to determine the type, location and severity of your stroke. In the hospital, we provide emergency department diagnosis and treatment to lessen the size and impact of the stroke. Our next priorities are to prevent another stroke, minimize the effects of the stroke, and reduce the risk of any complications.

You will be transferred to a stroke unit. You may stay in the hospital for a few days. While you are in the hospital, your healthcare providers, along with you and your family, develop a plan for your recovery. When you are medically stable and strong enough to leave the hospital, you may be transferred to Bayhealth's certified stroke rehabilitation center, which is an intensive program for rehabilitation. If you do not meet criteria to be accepted here, or wish to go to another facility for rehabilitation, other options are available. The care management team will discuss these options with you.

### YOUR STROKE CARE TEAM

#### Neurologist

A specialized stroke doctor who will identify the cause of your TIA/stroke and make recommendations on medications and treatments for your care. They will work with your primary care doctor to help prevent another stroke.

#### Stroke Nurse Practitioner (Stroke NP)

An advanced practice registered nurse who specializes in stroke and may direct some of your care in the hospital.

#### Stroke Program Coordinator (Stroke Clinical Nurse Specialist)

An advanced practice registered nurse who coordinates the stroke program and facilitates a multidisciplinary team approach to provide optimal care to the patient, family and the community.

#### Neurosurgeon

A specialized surgeon who is able to perform operations as needed on the brain and blood vessels to treat your type of stroke.

#### Hospitalist

A doctor who specializes in general medical care for hospitalized patients.

#### Registered Nurse (RN)

A healthcare professional trained to provide care for you and work collaboratively with your doctor and stroke care team. They will educate you and your caregivers on your stroke diagnosis and on any new medications.

#### Care Manager

A nurse who assists in the coordination of your care in the hospital and also helps you prepare for discharge.

#### Social Worker

A helping professional that is able to assist you with problems that may accompany your illness. They will meet with you and with your stroke care team to discuss and arrange services or equipment you might need after discharge. They can help with service referrals, counseling, financial assistance, support groups and transportation.

#### Occupational Therapist (OT)

A therapist who can teach you how to perform activities and use equipment so you can perform daily tasks on your own.

#### Physical Therapist (PT)

A therapist who teaches you how to regain mobility and use devices such as a walker to put you on the path to physical recovery.

#### Speech Pathologist

A specialist that helps you recover language skills or learn other ways to communicate. They also may help if you have swallowing difficulties.



## TESTS YOU MAY HAVE

You may undergo a number of tests to help the stroke care team understand the type and severity of your stroke and to see if there are any complications. Here are the tests that the doctors use most often:

### **Computed Axial Tomography (CT Scan)**

A CT scan (sometimes called a CAT scan) uses x-rays to produce a three-dimensional image of your head. The scanner is a large machine shaped like a doughnut. You lie on a stretcher that moves through the hole of the doughnut to produce a picture. A CT scan is used to diagnose ischemic stroke, hemorrhagic stroke and other problems of the brain and brain stem. A CT scan is usually the first scan you will have. Please be aware that some ischemic strokes will not show up on a CT scan for 24 to 48 hours after the stroke; however, the test must be done to make sure you did not have a hemorrhagic stroke.

### **Computed Tomography Angiography (CTA)**

A CTA scan is a special kind of CT exam that focuses mainly on the blood vessels in your head. This scan may be performed if it appears that you have had a large vessel occlusion type of ischemic stroke. Contrast dye will be injected into your arm through an IV site to help see the blood vessels in your brain.

### **Magnetic Resonance Imaging (MRI)**

MRI uses magnetic fields to produce a three-dimensional image of your head. The scanner is similar to the CT scanner. The MRI scan shows the brain and spinal cord in more detail than the CT scan does. MRI is used when the CT scan is difficult to interpret because of the size and location of the stroke. MRI will show a stroke immediately but some people may not be able to have this test. It is very loud but you will be given ear plugs, eye covers, and you may listen to music.

### **Carotid Doppler**

In this test, ultrasound waves are used to take a picture of the carotid arteries in your neck. These blood vessels carry oxygen-rich blood to your brain. If these arteries are narrowed or clogged with fatty deposits, known as atherosclerosis, it may be the reason that you have had a TIA/stroke. Cool clear gel is applied to your neck, and then a plastic probe shaped like your thumb is rubbed over the gel to produce an image.

### **Electrocardiogram (EKG, ECG)**

This is a test to show the pattern of electrical activity in your heart or heart rhythm. Metal leads are attached to stickers that are placed on various areas of your arms, legs and chest. This test can show if your stroke was caused by an abnormal rhythm of your heartbeat known as an *arrhythmia* (*a-RITH-mi-a*).

### **Holter Monitor**

This is a small, light, recording device (like a tape recorder) that provides continuous EKG monitoring. It has tiny wires that attach to your chest and it records your heart rhythm continuously for hours or days if an arrhythmia is suspected. This test is typically done after you are discharged. The device can be easily worn under your clothing.

### **Telemetry Heart Monitoring**

This is a continuous EKG monitoring while you are in the hospital. Sticky patches are placed on your chest and attached to a box the size of a small radio. Your heart rhythm is sent by radio waves from the small box to a central monitoring station, which is staffed by specially trained technicians who watch the rhythm 24 hours a day. The technicians will alert the nursing staff if the rhythm changes.

### **Echocardiogram (Echo)**

In this test, ultrasound waves are captured by a small probe to take a picture of your heart and the blood flow inside your heart. The probe may be placed on your chest or on your throat, and will be coated in cool gel.

### **Electroencephalogram (EEG)**

This test monitors electrical activity of the brain. Electrodes contained in small metal discs with thin wires are pasted onto the scalp. The electrodes detect electrical charges from the activity of your brain cells. The charges are then amplified and appear on a graph on a computer screen that can be printed for your doctor to interpret.

### **Transesophageal Echocardiogram (TEE)**

This test is not done for every patient but your doctor may order it. You will be mildly sedated for this test during which a long, thin tube with a camera built into it is inserted into your mouth and into your esophagus. This enables a doctor to evaluate your heart and see clearer pictures than what an Echo can show.

## Vital Signs

Nurses and nursing aides will check your pulse, blood pressure, temperature and breathing rate to assess your overall state of health.

## National Institute of Health (NIH) Stroke Scale and Neurological Checks

The NIH Stroke Scale test is done to assess the extent of injury and to make sure the stroke has stabilized. Nurses will ask you questions, test the strength of your arms and legs, and test your ability to feel sensation. It is another way to monitor damage and measure improvement. Neurological checks may also be done to test your responses and functionality in various areas.

## Video Swallow Study

This test is done to assess swallowing skills. It is a swallow test completed during an x-ray which results in a “moving picture” x-ray of your swallowing function. This test is done in the radiology department by a speech pathologist and a radiologist. This test helps the speech pathologist diagnose and treat swallowing problems.

## MEDICATIONS

Common types of medications that may be prescribed by your doctor include:

### Antithrombotic Medicines

These types of medication help prevent blood clots from forming and also help to prevent existing clots from growing. Antiplatelets and anticoagulants make up antithrombotic medicines.

Antiplatelets are a group of drugs that keep harmful blood clots from forming. Aspirin is the most common antiplatelet medication given to people who have a stroke.

If you cannot take aspirin or have been on aspirin and suffer from TIA/stroke, you will be given other antiplatelet drugs. Some other common antiplatelets are Plavix (clopidogrel) or Aggrenox (aspirin with dipyridamole).

Anticoagulants are a group of drugs that keep blood clots from forming or prevent existing clots from growing. They are not given as emergency treatment for stroke but are usually started the second day after your stroke. Common names for anticoagulants are Coumadin (warfarin), heparin and Lovenox (enoxaparin). Anticoagulants are not prescribed for hemorrhagic strokes.

ONE OF THE MOST IMPORTANT THINGS YOU CAN DO FOR YOURSELF IS TO TAKE ALL YOUR MEDICATIONS AS DIRECTED BY YOUR DOCTOR. WE ARE AWARE THAT MANY PEOPLE DO NOT HAVE PRESCRIPTION DRUG COVERAGE AND THAT SOME MEDICATIONS ARE VERY EXPENSIVE. YOUR STROKE CARE TEAM HAS INFORMATION THAT CAN ASSIST YOU IN FINDING REDUCED COST AND SOMETIMES NO COST MEDICATIONS.

### Statins

These types of medication help lower cholesterol, which may reduce a person’s chance of having a TIA/stroke by slowing the development of atherosclerosis. Statins are also known as lipid-lowering medications. Some names of commonly prescribed statins are Lipitor (atorvastatin), Zocor (simvastatin) and Crestor (rosuvastatin).

### Antihypertensive Medicines

High blood pressure is the number one risk factor for stroke. It is very common to be given a drug in order to lower your blood pressure. There are many types of antihypertensive drugs that work in a variety of ways. Your doctor will work with you to prescribe the right antihypertensive drug for you.



## PREVENTING COMPLICATIONS

As part of your hospital care, we take preventative measures so that the effects of your stroke do not lead to any additional problems. Here are some of the potential complications we help to avoid:

### Blood Clots

To help prevent blood clots, you may need to wear a special pair of socks called TED hose or be asked to use a machine called a sequential compression device (SCD). TED hose keeps blood from clotting in your legs. The SCD uses inflatable leg sleeves to help move blood back to your heart.

### Pneumonia

Nurses may turn you every two hours if you are unable to do so by yourself. You also may be asked to breathe deeply and cough. This helps prevent fluids from pooling in the lungs and causing pneumonia. When it is safe and when you are able to, you will be encouraged to move around and sit up as much as possible. This helps the tiny sacs of air in your lungs to inflate and deflate as they are supposed to.

### Skin Problems

You may hear your nurses speak of skin. Your skin is the largest organ in your body. Its function is to protect the inside of your body. We monitor your skin every day to make sure that you don't have any bedsores or skin tears. You help prevent damage to your skin by turning and changing position often. As mentioned before, if you are unable to turn yourself, we will turn you every two hours.

WHILE YOU ARE IN THE HOSPITAL, WE WATCH FOR AND WORK TO PREVENT COMPLICATIONS. MOST OF THESE ARE A RESULT OF THE EFFECTS OF A STROKE. STROKE CAN MAKE IT DIFFICULT FOR YOU TO MOVE, COMMUNICATE OR SWALLOW. THESE CAN CAUSE ADDITIONAL COMPLICATIONS, SUCH AS BLOOD CLOTS IN YOUR LEGS, PNEUMONIA AND SKIN PROBLEMS.

## Clinical Care Pathway

Every person recovers differently from a stroke. The pathway is a guide to prepare you and your caregivers. We must be prepared to adjust any part of the pathway, depending on your individualized needs.

### DAY ONE

#### Emergency Department

- Recognition of stroke symptoms
- Imaging (CT Scan, CTA Scan or MRI)
- Evaluation for treatment

#### After Admission

- Initial evaluation of stroke cause
- Diagnostic testing
- Rehabilitative consults as needed (physical, occupational and speech therapy)
- Initial evaluation of discharge needs
- Start of stroke education

### DAY TWO

- Ongoing evaluation of stroke cause
- Documentation of patient goals
- Collaboration between stroke care team, other doctors and staff, patients, and caregivers on care plans
- Stroke education
- Assessment of caregiver situation and care needs
- Discharge planning and evaluation



## DAY THREE

### Discharge

- Completion of evaluation—cause of stroke identified
- Documentation of patient goals
- Continued collaboration between stroke care team, other doctors and staff, patients, and caregivers on care plans
- Stroke education
- Continued assessment of caregiver situation and care needs
- Documentation of discharge status and post-discharge care plans
- Appropriate medication ordering as needed—antiplatelet, anticoagulation and/or statin
- Stroke clinic follow-up appointment as needed

EVERY PERSON RECOVERS DIFFERENTLY FROM A STROKE.

THIS PLAN IS A GUIDE TO PREPARE YOU AND YOUR CAREGIVERS.

WE MUST BE PREPARED TO ADJUST THE CLINICAL CARE PATHWAY, DEPENDING ON YOUR INDIVIDUALIZED NEEDS.

## Before You Are Discharged

It's never too early to start thinking about discharge and recovery. The options and decisions can be overwhelming. You, your caregivers and the stroke care team work together on the discharge plan.

Before discharge, you and your caregivers need to know your medications, diet, exercise program, skills to move you, endurance issues, and other health needs important to a successful discharge plan.

### QUESTIONS TO CONSIDER BEFORE LEAVING THE HOSPITAL

*Where will you live?*

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*Will it be safe for you to be there?*

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*Do you need care, assistance or special equipment?*

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*Do you need to go to a rehabilitation facility or use home health services?*

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## Rehabilitation and Recovery

Following a stroke, you will receive rehabilitation services based on the effects of your stroke and your specific needs. Rehabilitation after a stroke starts immediately following the event or as soon as your doctor feels that you are medically stable enough to start occupational, speech and/or physical therapy.

Different levels of care are available to you following a stroke. After rehabilitation, you may have recovered enough to go home safely. Your recovery journey may continue at home with some services or at a rehabilitation facility.

### REHABILITATION PROGRAMS

Here are some of the options for stroke rehabilitation programs:

#### **Hospital Rehabilitation Program**

Bayhealth provides a stroke-certified intensive inpatient rehabilitation program. We provide occupational, physical and speech therapy programs. We also have social workers, a psychologist and specially trained rehabilitation nurses. A doctor with specialized training in physical medicine and rehabilitation will oversee your care.

#### **Skilled Nursing Facility Program**

If you need less intense therapy, you may qualify for rehabilitation at a skilled nursing facility. Each facility provides different services, so it is important to ask what therapies are provided to ensure that the facility will meet your individual needs.

#### **Outpatient Program**

An outpatient program provides occupational, speech and physical therapy if you are able to leave your home. Many of these programs are conveniently located near your home or place of work.

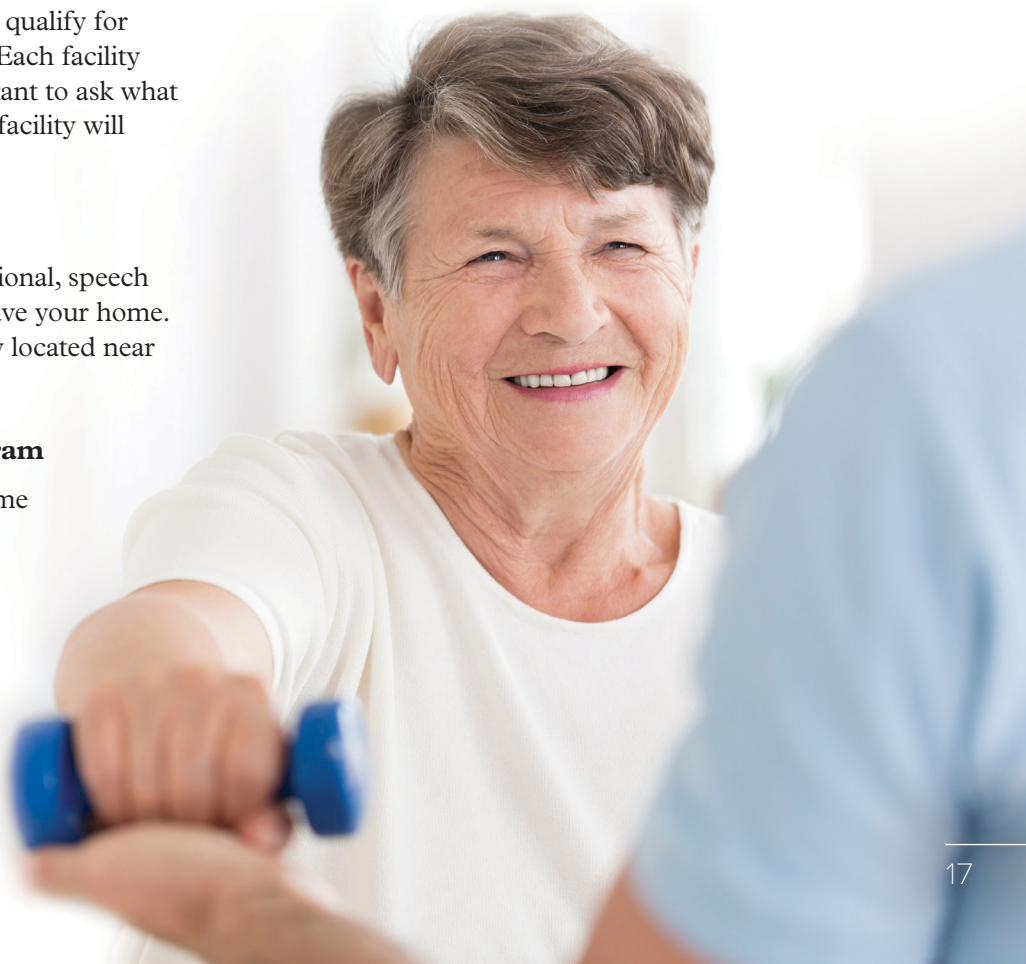
#### **Home Health or Home-Based Program**

Sometimes getting in and out of your home is difficult, so you may qualify for a home-based rehabilitation program. A nurse or therapist will oversee your care and come to your home to provide treatment. This is a great opportunity to practice your skills in the same place that you will need to use them.

### PAYING FOR REHABILITATION

Most health insurance policies and Medicare will pay for some or most of your rehabilitation program. You can ask your social worker to check or you may call your insurance carrier directly. If you are being referred to an inpatient rehabilitation program or nursing home facility, the care management department helps you determine your coverage benefits. It is important to know your coverage for outpatient and home health programs. The care manager will check on your insurance before you begin your rehabilitation so that you will be aware of what will be considered your responsibility to pay.

DIFFERENT LEVELS OF CARE ARE AVAILABLE TO YOU FOLLOWING A STROKE. REHABILITATION AFTER A STROKE STARTS IMMEDIATELY FOLLOWING THE EVENT OR AS SOON AS YOUR DOCTOR FEELS THAT YOU ARE MEDICALLY STABLE ENOUGH TO START OCCUPATIONAL, SPEECH AND/OR PHYSICAL THERAPY.



## RECOVERY AT HOME

It is difficult to predict exactly what needs you will have when you go home. Your needs depend on the physical effects of your stroke, how you and your caregivers respond to these effects, whether you go through a rehabilitation program, and what support is available to you and your caregivers when you get home. We will make every effort to train your caregivers before you are discharged. Please know that it is very important to take notes and ask questions about things that are not clear to you.

Adjusting to your stroke is not only difficult for you but is also a big change for your caregivers. Whether you return to your own home or go to a new home, the skills you have learned in the hospital may be difficult to apply.

You may attempt to do old activities that may not be safe or appropriate to do immediately. You may need to use different types of assistive equipment over time. Adjustments may need to be done to your home in order to allow you to use special equipment; for instance, door frames may need to be widened or a wheelchair ramp may need to be built. Having to change your home, learning to use new equipment, hiring health professionals and using new skills are all new responsibilities. All of this may be stressful for you and your caregivers. Remember that we are here to assist you through this process.

*We encourage you to ask questions of any member of your stroke care team.*

### QUESTIONS FOR CAREGIVERS TO CONSIDER

When considering becoming a caregiver, think carefully about this before your loved one leaves the hospital, and thoughtfully answer the following questions:

- Are you trained to care for the needs of your loved one?
- Do you work outside the home? Will you be able to find people that can help cover the time that you are gone from the home so you will not worry that your job will be at risk?
- Can you afford to hire someone to be at the home if needed when other friends or family are not able to relieve you?

Discuss these issues with the stroke care team so that you can make the best decision for yourself as well as for your loved one.

## Taking Care of Yourself After a Stroke

As you continue in your stroke recovery journey, it is important to be as active as you can in your care and management of your health. This includes speaking up, taking measures to prevent another stroke, looking out for warning signs and maintaining a healthy lifestyle.

### BEING ACTIVE IN YOUR CARE

**Here are some things you can do to be active in your care:**

- Let others know that you want and expect to be involved in decisions about your care.
- Ask questions and state your opinions with your healthcare providers.
- If you have speech difficulties, have someone assist you with making your decisions known.
- Don't let others talk down to you or speak to you as if you weren't there. Express yourself!
- Know your recovery plan, no matter what it is. Recovery is a slow process and is hard work. Things may be much more difficult for you now than before your stroke.
- Be aware that feeling tired and discouraged is normal.
- Notice your progress and celebrate your accomplishments!

### AVOIDING POTENTIAL PROBLEMS

**When you are at home, you may experience problems that can be serious and may require medical attention. Be aware of these potential problems:**

- Falls from problems with balance or vision, problems communicating your needs, and doing things you may not be ready to do yet
- Bladder infections or problems with urinating, such as being incontinent or retaining urine
- High blood pressure
- Irregular heartbeat
- Infections
- Seizures
- Bed sores or tears of the skin (known as skin breakdown)
- Blood clot in the legs (known as venous thromboembolism)
- Blood clot in the lungs (known as pulmonary embolism)

- Pneumonia, from not breathing deeply enough or not getting moved around enough
- Weak muscles, from not being used
- Pain
- Depression

## PREVENTING ANOTHER STROKE

Unfortunately, the likelihood of having a second stroke increases after having a TIA/stroke.

You will start therapies and medications while you are in the hospital to begin your goal of preventing another stroke. Prevention of future strokes depends upon your continued self-care according to doctors' orders.



### Here are some ways to prevent another stroke:

- Control high blood pressure with diet and medications
- Stop smoking if you are a smoker
- Lower your cholesterol, which may include changing your diet and taking medications
- Take anticoagulant medications if you have an irregular heartbeat
- Maintain a healthy weight
- Control diabetes

### Diet Tips for Preventing a Second Stroke

Reducing sodium in your diet will help control high blood pressure. Sodium makes the body retain extra fluid. The extra fluid increases the volume in your bloodstream which also increases your blood pressure.

*Remember: sodium does not always come out of the salt shaker; it is already a part of many foods we eat.*

### Here are some tips for a low-sodium diet:

- Use fresh or frozen vegetables; if you must use canned, dump the contents into a strainer and run water over them to wash off the extra salt
- Buy low-sodium products if possible
- Read the labels and use products that have less than 300 mg of sodium per serving

## RECOGNIZING THE SIGNS AND SYMPTOMS OF STROKE

If you have already had a TIA/stroke, a fear of having another stroke is a common issue. There are ways to recognize stroke.

*It is very important that if you think that you are having a stroke call 911 immediately. Do not drive yourself or have someone drive you to the hospital. Stroke can be treated in some patients, but time is critical and you must be here within 3 hours of the beginning of your symptoms.*

### Some warning signs and symptoms of stroke are:

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



## Stroke is an emergency, ACT FAST!

**FACE:** DOES ONE SIDE OF THE FACE DROOP WHEN YOU ARE ASKED TO SMILE?

**ARMS:** DOES ONE OF THE ARMS DRIFT DOWN WHEN YOU ASK THE PERSON TO HOLD THEM UP?

**SPEECH:** IS THE SPEECH SLURRED WHEN YOU ASK THE PERSON TO REPEAT A SENTENCE? USE THE SENTENCE "MEET ME IN ST. LOUIS."

**TIME:** TIME IS CRITICAL! IF THE PERSON SHOWS ANY OF THE SYMPTOMS OF STROKE, CALL 911 IMMEDIATELY.





## STROKE AND YOUR SEX LIFE

While recovering from a stroke, you may be tired and depressed a lot of the time. You may have pain, stiffness or trouble sleeping. As a result, you may feel less interested in sex, or you may not enjoy sex as you used to.

### **Here are some suggestions for keeping your sex life healthy after a stroke:**

- Read about your illness. There are self-help books that discuss sex and stroke.
- Plan sexual activity for the time of day when you have the most energy and your health problems bother you the least.
- Be sure that you are rested and relaxed.
- Wait at least two hours after you eat to have sex.
- If you need pain medicine to feel better, take the medicine 30 minutes before any sexual activity.
- Limit the amount of alcohol you drink, and avoid using tobacco in any form. Alcohol and tobacco can affect sexual function.
- Hold hands with, hug and touch your partner, even when you do not plan to have sex.
- Use your senses to make sexual activity more enjoyable. For example, have satin sheets on the bed, light scented candles or play romantic music.
- Tell your partner what you like and do not like. Listen to your partner's likes and dislikes.
- Try different sexual positions to find ones that are comfortable for you or your partner, or use pillows for comfort.
- Try personal lubricants to help reduce discomfort with sexual intercourse.
- Talk with your partner about how you feel and why you feel that way. Ask questions.
- Talk to your doctor about any concerns you have about your sex life. Ask questions. Your doctor may have some suggestions that can help.

Be sure to let your doctor know if you are feeling depressed, or if you think that side effects from a medicine are affecting your sex life.





# Additional Notes

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## Resources

### STROKE RECOVERY INFORMATION

**American Heart Association**  
Heart.org | 1-800-553-6321

*The American Heart Association provides information regarding stroke and how it affects the lives of survivors and their families. Participants can subscribe to the Stroke Connection Magazine for free.*

**National Stroke Association**  
Stroke.org | 1-800-STROKES

*The National Stroke Association provides educational materials on all aspects of stroke, including stroke screenings. It also offers programs and support activities for stroke survivors and their caregivers.*

### SUPPORT GROUPS

**Bayhealth Stroke Support Groups**  
Bayhealth.org/Stroke-Support | 302-744-6638

*Bayhealth provides local support groups for stroke patients and their caregivers. Guest speakers present information on educational topics, such as dealing with depression, nutrition and the promotion of overall wellness. The discussions are participant centered.*



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