

STROKE EDUCATION, RECOVERY AND PREVENTION

PATIENT AND FAMILY EDUCATION HANDBOOK









STROKE IS AN EMERGENCY!

WHAT IS A STROKE?

A stroke is a “brain attack” or brain injury that happens when a blood vessel in the brain is blocked or bursts. Without blood and oxygen, parts of the brain may start to die. When this occurs, the part of the body that is controlled by the damaged area of the brain may not work correctly.

SIGNS OF STROKE

B	E	F	A	S	T
					
BALANCE	EYES	FACE	ARMS	SPEECH	TIME
Sudden loss of balance?	Loss of vision in one or both eyes?	Face looks uneven?	Arm or leg weak/hanging down?	Speech slurred? Trouble speaking or seem confused?	Call 911 now!

ANY OF THESE SIGNS OF STROKE = CALL 911

TIME - CALL 911 IMMEDIATELY

- It's very important to tell 911 and the EMTs when the symptoms **first started**.
- Say, “*I think _____ (patient name) _____ is having a stroke.*”
- Give address of person having the signs of stroke.
- Don't hang up!
- Tell them the time when symptoms first started.
- It's very important to get to the hospital as soon as possible. Even if the warning signs go away, go to the hospital.

SECONDS COUNT! TIME = BRAIN

QUICK REFERENCE EMERGENCY TREATMENT OF ISCHEMIC STROKES

Every stroke is different and will be treated based on the best practices determined by your neurologist. However, there are recommended emergency treatments for ischemic strokes based on American Heart Association/American Stroke Association guidelines.

EMERGENT TESTS

CT scan: When a stroke is suspected, the first test that may be ordered is a CT scan of the brain and a CT angiogram (CTA), a scan of the arteries and veins of the neck and brain. Treatment is determined based on these initial findings:


- If a hemorrhage is the cause of the stroke, it may be seen on the CT scan immediately. If a hemorrhage is found, a CTA may not be done.
- The CTA can show if there is any narrowing of the arteries or a clot in any of the large arteries causing a stroke. When a clot is found, it's called a large vessel occlusion (LVO) or simply a "cut-off." A CTA is used to determine if a mechanical thrombectomy (a treatment to remove clots) may be an option.



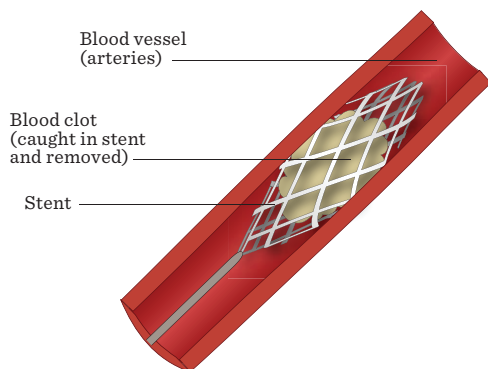
Photo Attribution:
Aaron G. Filler, MD, PhD, FRCS

Intravenous (IV) thrombolytic is a very strong clot-busting medication. This medication can only be given through IV in the hospital to someone having a stroke. Not all patients are eligible for this medication. The earlier the treatment can be given, the better.

It's critical to get to the hospital as soon as possible by calling 911!

	BRAIN CELLS LOST	NUMBER OF YEARS THE BRAIN AGES
PER STROKE	1.2 BILLION	36 YEARS
PER HOUR	120 MILLION	3.6 YEARS
PER MINUTE	1.9 MILLION	3.1 WEEKS

ENDOVASCULAR TREATMENT OF STROKE



Mechanical thrombectomy is a procedure to mechanically remove the clot causing a stroke. This is done under X-ray guidance (fluoroscopy), using a catheter and stent (see image to the left), very similar to a heart catheterization when someone is having a heart attack. By removing the clot, blood flow is restored to that part of the brain where the stroke was occurring.

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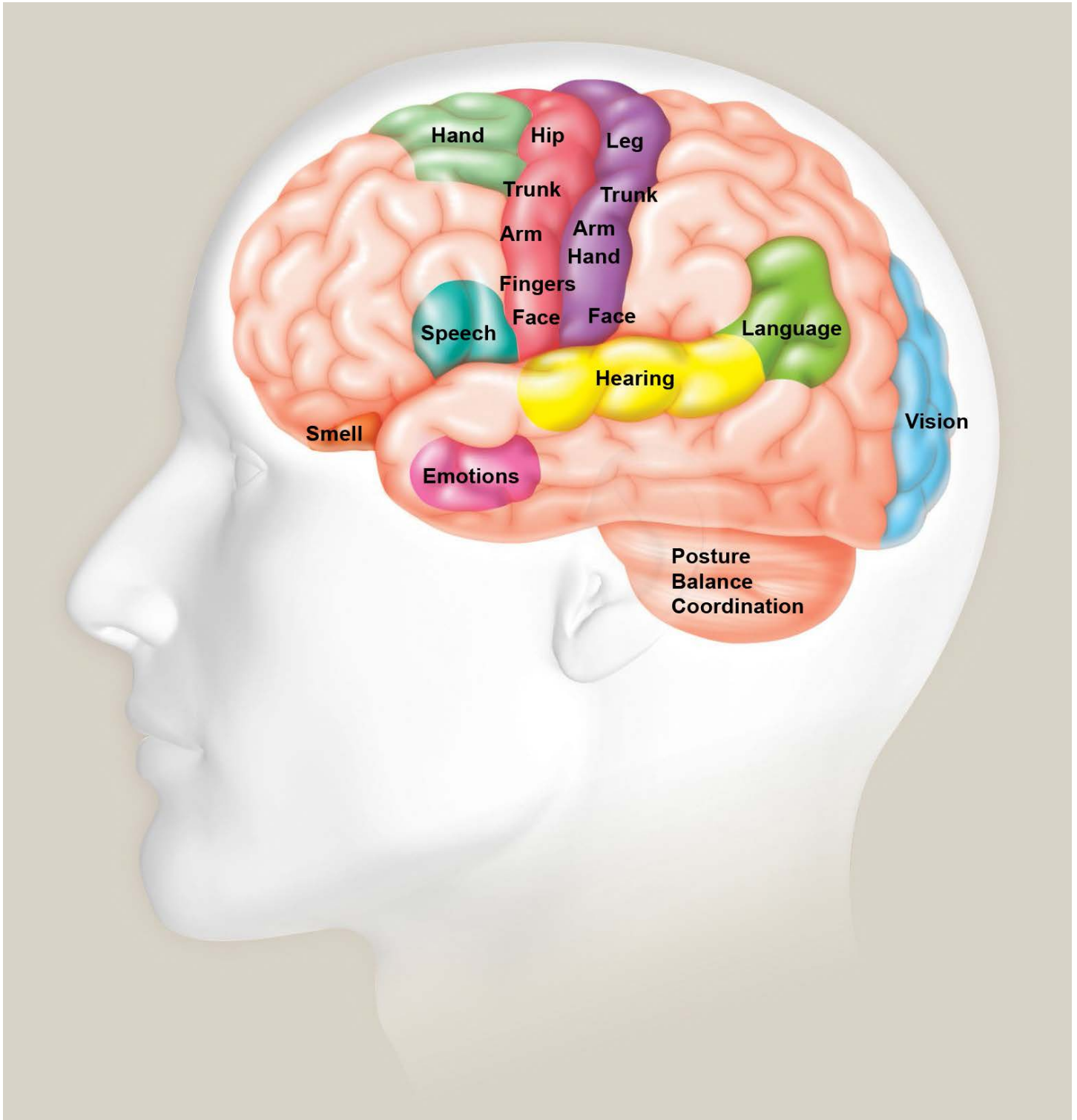
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This booklet is not meant to substitute the advice and counsel of your doctor. If you have any questions, use the page in the back to take notes to ask your doctor.

Educational contents of this booklet have been provided to you by the American Heart Association, National Stroke Association, NINDS and UMass Memorial Health Care.

OUR BRAIN

The human brain has different areas that control how the body moves and feels. When a stroke damages a certain part of the brain, that part may not work as well as it did before. This can cause problems with walking, speaking, seeing or feeling.

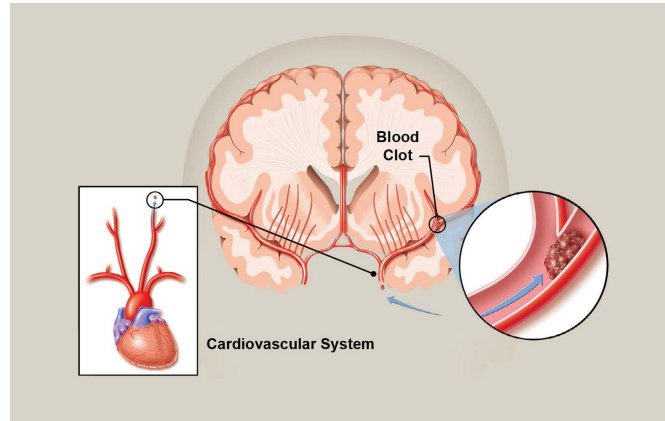


TYPES OF STROKES

While all strokes happen in the brain, there are two distinct types: strokes from a clot (ischemic) and strokes from a bleed (hemorrhagic).

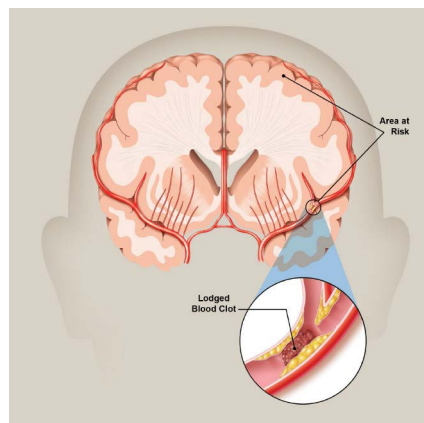
ISCHEMIC STROKE (MOST COMMON)

A stroke that is caused by a blocked artery is called an ischemic stroke. There are different types of ischemic strokes.



An **embolic stroke** happens when a piece of a blood clot or plaque travels from a different area in the body, usually from the heart or the neck. It travels until it gets stuck in a blood vessel in the brain, blocking blood flow completely and causing a stroke.

A **thrombotic stroke** is when a blood clot (thrombus) forms inside an artery that carries blood from the heart to the brain. Blood clots form most often in arteries that are damaged by a buildup of fatty substances, called plaque, on the artery wall (atherosclerosis). This narrows the passageway and causes disrupted blood flow. If plaque buildup becomes severe, it can block blood flow completely, causing a stroke.



A **lacunar stroke** results from the blockage of small penetrating arteries that provide blood to the brain's deep structures. The most important risk factor for the development of lacunar strokes is chronic high blood pressure.

A **cryptogenic stroke** is when, despite testing, the cause of a stroke can't be determined. In this case, the stroke of unknown cause is called a cryptogenic stroke.

TRANSIENT ISCHEMIC ATTACK (TIA)

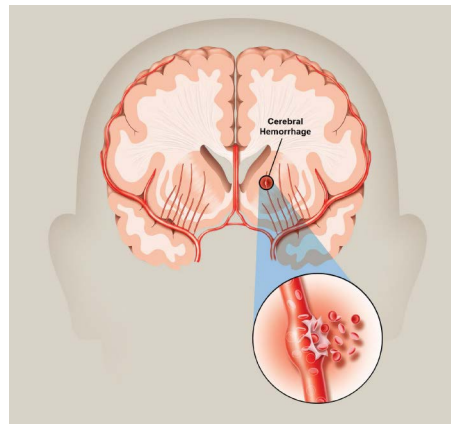
A TIA, sometimes called a mini stroke, occurs when an artery to the brain becomes blocked momentarily causing a brief episode of stroke-like symptoms. For example, you may suddenly lose vision or have sudden weakness in one arm or leg that goes away. The signs happen quickly and last from only a few seconds to several minutes.

A TIA is an early warning sign of stroke and may happen days, weeks or even months before a stroke. If someone is experiencing stroke-like symptoms, don't wait to see if the symptoms go away.

Call 911 immediately!

HEMORRHAGIC STROKE

A hemorrhagic stroke happens when a blood vessel in or around the brain suddenly bursts. Blood then collects like a bruise and causes injury to the brain tissue. The blood clots and pushes against the normal brain tissue. There are two types of hemorrhagic strokes.

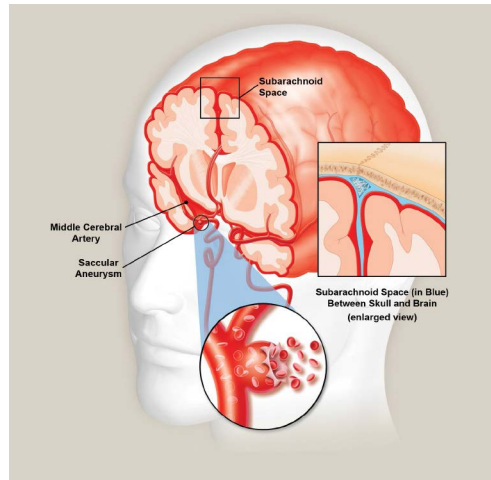


A **intracerebral hemorrhage** is caused when an artery suddenly bursts bleeding into brain tissue. High blood pressure is the most common cause of intracerebral hemorrhages. Another common cause is due to irregularities of the blood vessels in the brain. These can be from birth (malformations) or from protein deposits that occur in some people as they age (cerebral amyloid angiopathy).

TREATMENTS FOR INTRACEREBRAL HEMORRHAGIC STROKE

Treatments for hemorrhagic strokes can vary greatly based on the location of the hemorrhage, the size of the hemorrhage and the severity of symptoms. The most crucial treatment during a hemorrhagic stroke is lowering blood pressure using IV medication. Other options may include consulting a neurosurgeon who will determine if surgery to remove the blood clot is an option; having a cerebral angiography to map out the arteries of the brain; or if it's best to watch and wait.

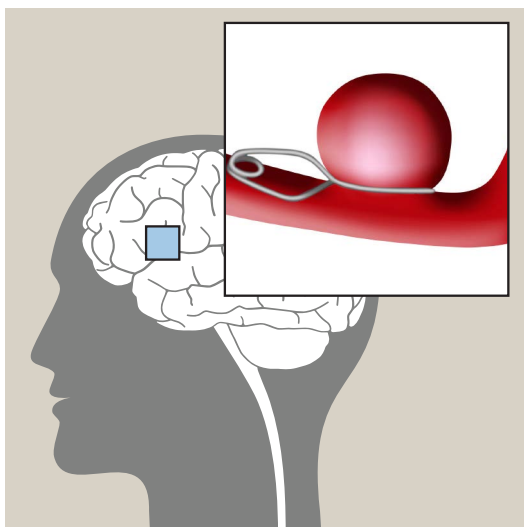
A **subarachnoid hemorrhage** happens when a blood vessel bursts near the surface of the brain and blood leaks in between the brain and the skull. This blood may cause nearby arteries to spasm reducing blood flow to the brain and causing a stroke. This type of stroke is usually caused by a burst aneurysm. Aneurysms (weakness of the artery causing ballooning of that part of the artery) that rupture are the most common causes of subarachnoid hemorrhages. The second most common cause is from trauma to the head (e.g., from a fall, car accident, or concussion).



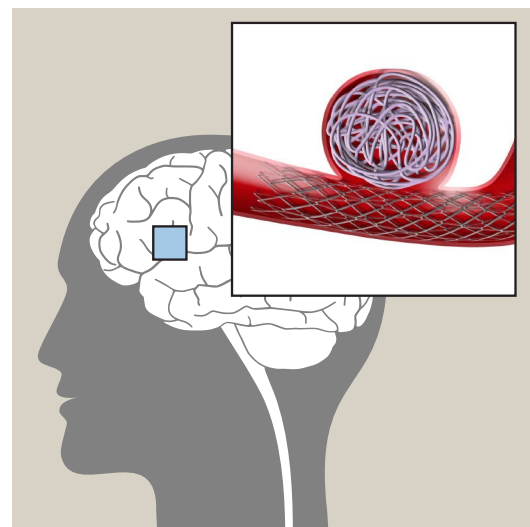
TREATMENTS FOR SUBARACHNOID HEMORRHAGE

The main goal of treatment for a subarachnoid hemorrhage is to prevent further bleeding by:

1. Reducing blood pressure with the use of blood pressure medications and sedation, if needed, and reducing stimulation from the surrounding environment
2. Aneurysm repair, which may require surgery by an interventional neuroradiologist (using X-ray) or by a neurosurgeon in the operating room. The two options available to repair an aneurysm are aneurysm coiling via angiogram intervention or aneurysm clipping via surgical intervention.



Aneurysm clipping



Aneurysm coiling

ADDITIONAL TESTS THAT MAY BE ORDERED AFTER A STROKE

- MRI (magnetic resonance imaging)**
 An MRI uses a large magnetic field to produce an image of the brain. Like the CT scan, it shows the location and extent of the brain injury, usually in more detail. The image produced by an MRI is sharp and detailed, so it's often used to diagnose small, deep injuries.
- Transthoracic Echocardiogram**
 This ultrasound imaging procedure is used to assess the heart's function and structures, which might identify the cause of the stroke. It can be used to check for conditions, such as congenital birth defects, blood clots in the heart, heart failure and endocarditis (an infection inside the heart).
- TEE (transesophageal echocardiogram)**
 A TEE looks at the same structures as a regular echocardiogram, but is performed using an ultrasound probe down the throat to look directly at the heart.
- Carotid artery doppler**
 A carotid artery doppler is a test that takes images of the blood flowing through the large arteries in the neck to detect if there is narrowing.
- Blood tests**
 Tests could include LDL (bad cholesterol) and hemoglobin A1C (long-term blood glucose number).
- Blood pressure and vital signs**
 Vital signs including blood pressure will be checked several times a day while a patient is in the hospital. For high acuity patients in the intensive care unit this could be every hour. For lower-acuity patients on a medical floor this could be every four hours.
- Heart monitor**
 Monitors may be worn during a patient's stay and occasionally may be ordered as a test after discharge from the hospital.
- Finger stick blood sugar tests**
 These may be ordered even for a patient without diabetes.



MEDICATIONS STARTED AFTER A STROKE

- Aspirin** is an anti-platelet medication that helps to keep the platelets in the blood from clotting and getting stuck in narrow blood vessels.
- Plavix** is also an anti-platelet medication and is sometimes used with aspirin when there are narrowed arteries in the brain or in the neck.
- Anticoagulation medications**, also referred to as blood thinners, are used to prevent the blood from clotting when someone is found to have an irregular heart rhythm such as atrial fibrillation.
- Blood pressure lowering medications** may be started if a patient has high blood pressure during or after both ischemic and hemorrhagic strokes.
- Statin (atorvastatin/Lipitor)** is a cholesterol medication used to help lower cholesterol but is also proven to help reduce inflammation inside arteries after a stroke.

REHABILITATION AFTER A STROKE

After a stroke, patients may have problems with daily activities and mobility. Patients are often seen by a physical and/or occupational therapist to evaluate whether they may need further rehabilitation to help with their recovery.

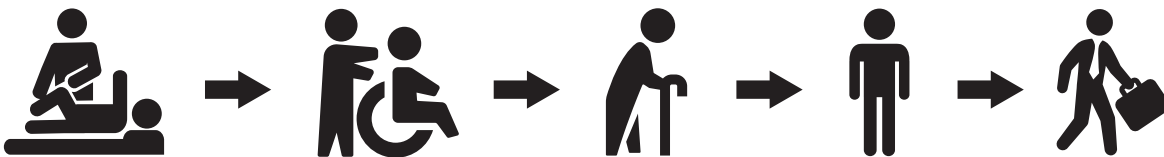
PHYSICAL THERAPY (PT) – PT helps with a patient’s strength, coordination and safety with mobility, including balance, ability to walk, and climbing stairs.

OCCUPATIONAL THERAPY (OT) – OT helps with a patient’s cognition, visual skills, hand and arm strength, coordination, and the ability to perform activities of daily living such as dressing, bathing, and toileting.

**You may see both a physical therapist and an occupational therapist at the same time.*

SPEECH AND LANGUAGE PATHOLOGY (SLP) – SLP helps with the patient’s ability to eat and drink safely and communicate everyday wants and needs.

There are different levels of rehabilitation.



ACUTE REHABILITATION - Acute rehabilitation is the most aggressive form of rehabilitation and typically involves physical therapy, occupational therapy and speech therapy, as needed.

SUBACUTE REHABILITATION AND SKILLED NURSING - Subacute rehabilitation is a less aggressive form of rehabilitation with fewer hours of therapy over the course of a day. Patients can be seen by physical therapy, occupational therapy and speech therapy staff in this type of facility.

LONG-TERM ACUTE CARE REHABILITATION - Long-term acute care rehabilitation is an inpatient facility for patients who require additional medical management, as well as skilled therapies.

OUTPATIENT SERVICES - Outpatient services are appropriate for patients who are safe to return home but require ongoing therapy, usually one to two times per week.

HOME SERVICES - Home services are appropriate for patients who are safe to return home but have deficits limiting their ability to safely function in the community.



Strokes often cause difficulty with swallowing (dysphagia), which could put patients at risk for pneumonia and other complications. Therefore, for the safety of our patients, they may not be given any food or drinks until evaluated by an SLP specialist.

WHAT IS DYSPHAGIA?

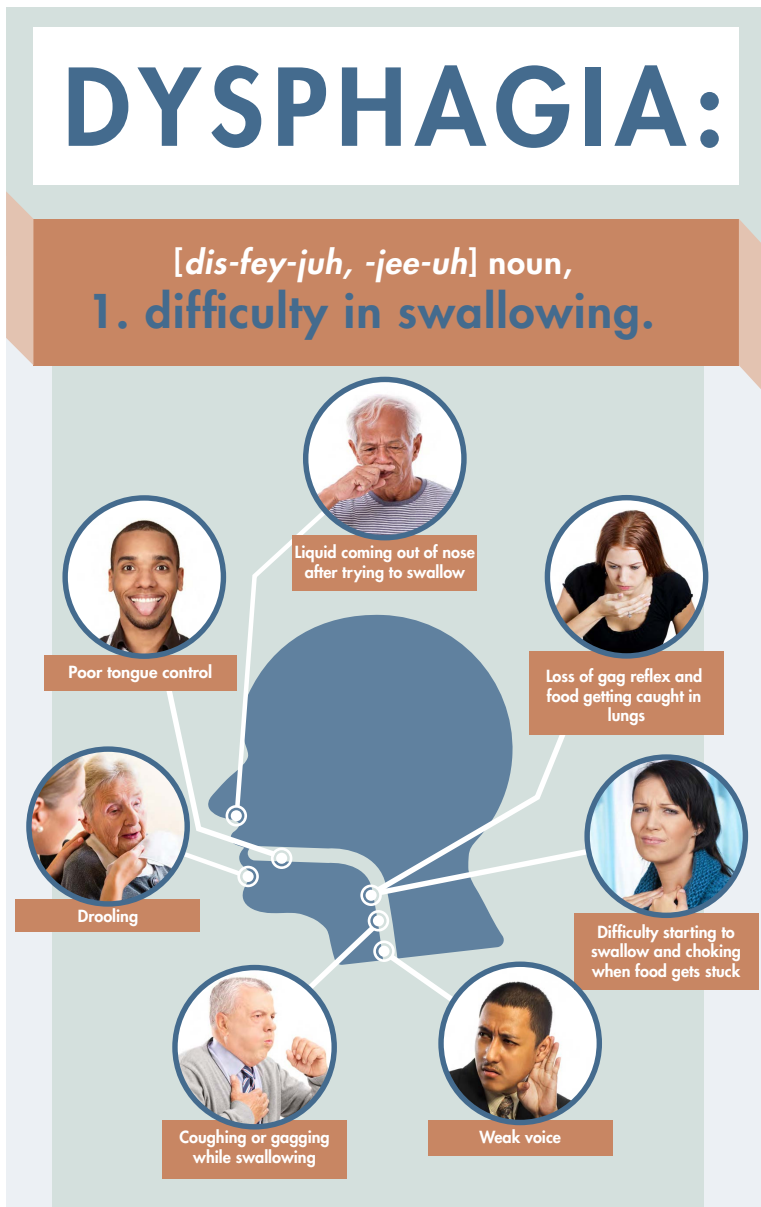
Dysphagia is the medical term for difficulty swallowing. Difficulties may include problems chewing, inability to move food/liquids around the mouth, initiating a swallow, or difficulty clearing food/liquids from the mouth or throat. If not identified and managed, dysphagia may lead to poor nutrition, weight loss, dehydration, increased weakness and aspiration.

Aspiration, or food/liquids entering the lungs, is more likely to occur in patients with dysphagia. Frequent aspiration may lead to pneumonia, which accounts for about 34 percent of all stroke-related deaths and

represents the third highest cause of death during the first month after a stroke. Typical signs and symptoms of aspiration may include coughing or choking, wet vocal quality, eye tearing or increased breathing difficulties when eating/drinking. However, stroke patients are at risk for aspiration to occur without sensation or lack of the above symptoms. This is called “silent aspiration.”

Efforts will be made to ensure that patients with dysphagia receive adequate nutrition/hydration. While some patients may be able to return to a normal diet without difficulty, others may need their food or liquids modified. If diet modifications aren’t adequate to ensure safety when eating/drinking by mouth, a feeding tube may be recommended. **Please know that all recommendations are made with the patient’s best interest in mind and with the goal of minimizing any further illness.**

All stroke patients will be screened for dysphagia. If identified, the doctor or nurse may instruct that the patient may not eat or drink anything by mouth, including water, ice chips, food or pills until seen by an SLP. The SLP will complete a formal swallowing evaluation to determine the safest method of nutrition and hydration. An individualized treatment plan also will be developed to help patients regain their swallowing skills. This may include further diagnostic workup, strategy training or swallowing exercises.



DISCHARGE PLANNING

Patients, their families and hospital caregivers work together to plan your discharge from the hospital. This planning may begin as early as the first or second day of admission. You may receive a visit from a case manager and/or a social worker to help coordinate discharge and care. Discharge plans may include:

- Going home with no further therapy needs
- Going home with visits from home care therapists
- Going home with outpatient therapy
- Going to an acute or subacute rehabilitation program
- Going to a long-term care rehabilitation program



DISCHARGE MEDICATIONS

Both medications and follow-up appointments are very important to help reduce the risk of another stroke. All medications should be taken as prescribed after discharge from the hospital. Call your doctor if:

- You have questions regarding your prescription
- You're unable to pick up your prescription for any reason
- You have side effects from any of your medications

It's very important you don't stop any medications unless directed to do so by your doctor.

FOLLOW-UP APPOINTMENTS

Information for follow-up appointments will be provided prior to discharge. Appointments are usually listed in the paperwork and after visit summary given to patients and are reviewed by their nurse at discharge. It's very important to keep these appointments. Your neurologist will review medications, re-evaluate symptoms and determine if any new blood work or scans should be ordered during these appointments.

WHAT TO EXPECT AFTER A STROKE

Your brain controls many different body functions. A stroke may affect how you move, feel, think or behave. When the left side of your brain is injured, most of the problems will occur on the right side of your body, and when the right side of your brain is injured, most of the problems will be on the left side of your body. These are some of the most common effects of stroke:

- Hemiparesis: Weakness on one side of the body
- Hemiplegia: Paralysis on one side of the body
- Aphasia or dysarthria: Trouble with language and speech
- Dysphagia: Trouble swallowing
- Memory loss
- Behavior changes
- Loss of emotional control and mood changes
- Loss of motor skills
- Muscle spasticity (muscle contractions)
- Balance problems

COMMON COMPLICATIONS AFTER STROKE

- Pneumonia (from aspiration)
- Edema: Swelling in the brain
- Depression
- Urinary tract infections and bladder control problems
- Blood clots
- Seizures (convulsions)
- Limb contractures

HOW TO LESSEN COMPLICATIONS

- Medical treatment often involves supervision, monitoring and medications.
- Physical treatment may include:
 - Range-of-motion exercises and physical therapy to avoid limb shortening, shoulder pain and blood clots
 - Frequent turning
 - Good nutrition and skin care
 - Bladder training
 - Swallowing and breathing therapy, such as deep breathing exercises

Additionally, local stroke support groups are made up of a community of patients, family members and friends dedicated to dealing with stroke together. See page 18.

DEPRESSION AFTER STROKE

- Approximately one of every three stroke survivors develops depression after stroke. Depression peaks around six months to one year from the stroke. Survivors may experience depression up to five years after stroke. The risk for depression increases for those with a history of depression before stroke, physical disability after stroke, cognitive impairment, stroke severity, lack of social or family support, and anxiety.
- Possible signs of depression include: little interest or pleasure in doing things; feeling down, depressed, or hopeless; trouble falling or staying asleep; sleeping too much; feeling tired or having little energy; poor appetite or overeating; feeling bad or that you are a failure or have let yourself or your family down; trouble concentrating (e.g., reading the newspaper, watching television); moving or speaking so slowly that other people can visibly notice; feeling fidgety, restless, or like you move a lot more than usual; and thoughts that you would be better off dead or that you want to hurt yourself.
- If you experience any of the above signs of depression, contact your health care provider right away.
- Psychological treatment may include counseling or therapy.
- Sometimes medications are used to treat depression.

STROKE RISK FACTORS

There are many positive steps that you can take to lessen your chances of having a stroke. Risk factors for stroke and TIA are below:

FACTORS YOU CAN CHANGE:

- Smoking
- High blood pressure
- High cholesterol
- Diabetes
- Atrial fibrillation (irregular heartbeat, may be felt as racing of the heart)
- Poor diet
- Physical inactivity
- Obesity
- Substance/alcohol use
- Obstructive sleep apnea

FACTORS YOU CAN'T CHANGE:

- Personal or family history of stroke or TIA
- Race: African American, Hispanic
- Blood disorders
- Age
- Gender

Your doctors will assess your risk factors and begin treatments that will lessen your chances for stroke in the future. Learn more.

SIX WAYS TO LOWER YOUR RISK FOR STROKE





stroke.nih.gov

WHAT IS A STROKE?



A stroke, sometimes called a “brain attack,” occurs when blood flow to the brain is interrupted.



MANAGE YOUR CHRONIC HEALTH CONDITIONS TO LOWER YOUR RISK FOR STROKE

		
<p>Treat High Blood Pressure</p> <p>Keeping your blood pressure under control is the most important thing you can do to avoid stroke.</p>	<p>Manage Diabetes</p> <p>Diabetes causes destructive changes in the blood vessels in the brain, increasing your risk for stroke.</p>	<p>Treat High Cholesterol</p> <p>Too much cholesterol in your blood can build up on artery walls, putting you at risk for stroke.</p>

MAKE LIFESTYLE CHANGES TO LOWER YOUR RISK FOR STROKE

		
<p>Quit Smoking</p> <p>Cigarette smoking can double your risk of stroke by damaging blood vessels or causing them to narrow and thicken.</p>	<p>Eat Right</p> <p>A diet rich in fruits and vegetables and low in sodium and saturated fat can improve your health.</p>	<p>Exercise Regularly</p> <p>Obesity and physical inactivity contribute to high blood pressure, diabetes and high cholesterol.</p>

STROKE PREVENTION

SMOKING: Studies show that smokers have a higher risk of having a stroke. Cigarette smoking damages your heart and blood vessels. This risk builds up and worsens based on how long and how much a person may smoke. There are many free resources available to help patients quit smoking: Call 1-800-QUIT-NOW or visit www.smokefree.gov. If you would like more information or help, ask your doctor or nurse.

BLOOD PRESSURE: High blood pressure (hypertension) is one of the most important risk factors for stroke. Uncontrolled high blood pressure increases the risk of stroke because it can thicken artery walls causing cholesterol plaques to build up which could lead to an ischemic stroke, or it could weaken artery walls, leading to vessel ruptures causing a hemorrhagic stroke. A normal blood pressure should be below 130/80. You should know what your blood pressure is and keep track of it at home on a regular basis. Take your high blood pressure medicine as ordered by your doctor.

CHOLESTEROL: Cholesterol or plaque build-up in arteries can block blood flow to the brain and cause a stroke. High levels of LDL (bad cholesterol) increase the risk of stroke, while high levels of HDL (good cholesterol) may help to reduce the risk of stroke. Your LDL level should be less than 100 (mg/dL), while your HDL should be greater than 60 (mg/dL). To manage cholesterol, take medication as prescribed by your doctor, eat a heart healthy diet, and maintain an exercise routine.

DIABETES: People who have diabetes are at a higher risk of having a stroke. Diabetes can lead to increased fatty deposits or clots on the inside of blood vessel walls, which cause narrowing of the vessels and can lead to ischemic strokes. It's very important to control diabetes. Take medication as prescribed by your doctor, check your blood sugar often, eat a heart healthy diet, and maintain an exercise routine.

HEART DISEASE: An irregular heart beat (atrial fibrillation) is when the top chambers of the heart “quiver” and don't beat regularly. Blood clots can form, break off and enter the blood stream, then they can block the blood flow to the brain and cause a stroke. Heart attacks and heart valve problems also can cause a stroke.

HEALTHY WEIGHT: Being overweight strains the heart and blood vessels and is linked with high blood pressure. It raises your chances for heart disease and diabetes, which result in a greater chance for a stroke. Keep your weight at the suggested level for your height.

EXERCISE: Obesity and physical inactivity contribute to high blood pressure, diabetes and high cholesterol. 150 minutes of moderate-intensity activity per week (e.g., brisk walking, water aerobics, bicycling) helps reduce your risk of stroke. Always check with your doctor before starting a new exercise plan.

HEALTHY DIET: Eating foods low in fat and cholesterol, as well as reducing your salt intake may decrease your risk for having a stroke. Maintain a consistently healthy diet rich in vegetables, healthy grains and lean proteins. Try to eliminate processed foods, fast foods and sugary drinks.

THE AMERICAN HEART ASSOCIATION'S DIET AND LIFESTYLE RECOMMENDATIONS

Healthy eating is good for you and helps you manage your weight and blood pressure. Both are crucial to preventing another stroke and staying healthy. Eat an overall healthy diet that emphasizes:

- A variety of fruits and vegetables
- Whole grains
- Low-fat dairy products
- Skinless poultry and fish
- Nuts and legumes
- Nontropical vegetable oils (e.g., olive, peanut, corn)

Limit saturated fat, trans fat, sodium, red meat, sweets and sugar-sweetened beverages. If you choose to eat red meat, compare labels and select the leanest cuts available.

One of the diets that fits this pattern is the Dietary Approaches to Stop Hypertension (DASH) eating plan. Most healthy eating patterns can be adapted based on calorie requirements and personal and cultural food preferences.

As you make daily food choices, base your eating pattern on these recommendations:

- Eat a variety of fresh, frozen and canned vegetables and fruits without high-calorie sauces or added salt and sugars. Replace high-calorie foods with fruits and vegetables.
- Choose fiber-rich whole grains for most grain servings.
- Choose skinless poultry and fish. Prepare them in healthy ways (e.g., grilling, broiling) without added saturated and trans fat.
- Eat a variety of fish at least twice a week, especially fish containing omega-3 fatty acids (e.g., salmon, trout, herring).
- Select fat-free (skim) and low-fat (1 percent) dairy products.
- Avoid foods containing partially hydrogenated vegetable oils to reduce trans fat in your diet.
- Limit saturated fat and trans fat and replace them with the better fats, monounsaturated and polyunsaturated. If you need to lower your blood cholesterol, reduce saturated fat to no more than five to six percent of total calories. For someone eating 2,000 calories a day, that's about 13 grams of saturated fat.
- Cut back on beverages and foods with added sugars.
- Choose foods with less sodium. Prepare foods with little or no salt. To lower blood pressure, aim to eat no more than 2,300 milligrams of sodium per day. Reducing daily intake to 1,500 milligrams is desirable because it can lower blood pressure even further. If you can't meet these goals right now, even reducing sodium intake by 1,000 mg per day can benefit blood pressure.
- If you drink alcohol, drink in moderation. That means no more than one drink per day if you're a woman and no more than two drinks per day if you're a man.

DIABETES

WHAT IS DIABETES?

Diabetes happens when your body does not make enough insulin. Cells in your body need sugar from your blood for fuel. Insulin is a hormone your body makes to help move sugar into the cells. Without insulin, your cells starve and your blood sugar goes up.

HOW DO I TAKE CARE OF MY DIABETES?

- Watch what you eat. If you have diabetes, be sure not to eat foods that will make blood sugar go too high. A nutritionist can help you understand what foods and how much of those foods you can eat.
- Take your medications. Some people can manage their diabetes by exercise and diet. Some people need to take pills that help make more insulin or help your body use the insulin better. Other people may need to give themselves insulin shots. Your doctor will tell you if you'll need pills or insulin. If you need insulin, your nurse will teach you how to give yourself the shots, how much insulin to take and when to take it.
- Wear medical identification, such as a bracelet, that says you have diabetes. Carry a card listing all the medications you take.
- Check your blood sugar. Testing your blood sugar with a glucometer is very important. The meter will tell you if your blood sugar is too high or too low. Your nurse will give you a meter that you can take home and will teach you how to use it. Before eating, your blood sugar should be between 70 and 130. Two hours after eating it could go as high as 180. You don't want your blood sugar to go higher than 180. During illness it may be harder to keep your blood sugars normal. **If your blood sugars are running higher than normal** for you, you need to call your diabetes doctor. You may:
 - Feel tired
 - Urinate more often
 - Lose weight
 - Be very thirsty
 - Have blurry vision

Sometimes, **your blood sugar can get too low**. It can be too low if you:

- Are too active
- Don't eat enough
- Miss meals
- Take too much medicine

A low blood sugar can make you feel:

- Very hungry
- Dizzy, shaky, sweaty
- Tired

If your blood sugar is too low, you need to eat or drink 15 grams of fast-acting sugar right away, such as:

- 1/2 can of regular soda
- 1 tablespoon (or two packets) of real sugar
- Three hard candies you can eat quickly – chew them don't suck on them

TELESTROKE/EMERGENCY TELENEUROLOGY

When someone is having a stroke, minutes matter. For patients, this vital program brings UMass Memorial's world-class stroke expertise to local hospitals via videoconferencing, linking patients and practitioners to stroke experts at UMass Memorial Medical Center – University Campus.

Available 24/7, the Telestroke service uses a computer monitor and remote-controlled camera that allows for two-way audio and video communication, enabling UMass Memorial stroke experts to:

- See and assess the patient at a local hospital in real time
- Ask questions of the patient, family and local medical team
- View CT scans and other diagnostic imaging
- Help the local team determine if the patient is a candidate for acute stroke treatment, including intravenous thrombolytic (a clot-busting drug) or mechanical thrombectomy (clot retrieval procedure)
- Facilitate transfer to the UMass Memorial Medical Center when appropriate

STROKE RECOVERY AND SUPPORT

NATIONAL ORGANIZATIONS

AMERICAN STROKE ASSOCIATION

888-4-STROKE

(888-478-7653)

www.strokeassociation.org

AMERICAN BRAIN FOUNDATION

(866-770-7570)

www.americanbrainfoundation.org

AMERICAN DIABETES ASSOCIATION

800-ADA-DISC

(800-232-3472)

www.diabetes.org

ACADEMY NUTRITION AND DIETETICS ASSOCIATION

312-899-0040

www.eatright.org

NATIONAL DIABETES EDUCATION PROGRAM

www.ndep.nih.gov

AMERICAN LUNG ASSOCIATION

800-548-8252

www.lung.org

AMERICAN HEART ASSOCIATION

800-242-8721

www.heart.org

STROKE SUPPORT GROUPS IN CENTRAL MASSACHUSETTS

**Please contact the leaders of the individual support group before attending.*

**Dates, times and locations of support group meetings are subject to change.*

WORCESTER/UMASS MEMORIAL MEDICAL CENTER- STROKE SUPPORT GROUP

Contact: Kelsey Donahue 774-442-2819

Time: 5 -6 pm

Date: 2nd Wednesday of the month

Place: Virtual (Zoom)

Email: UMMMCStrokeSupport@umassmemorial.org

WORCESTER/FAIRLAWN - STROKE SUPPORT GROUP

Contact: Denise Baer-Rogan, 508-791-6351 extension 255

Time: 2 – 3:30 pm

Date: 4th Wednesday of the month

Place: Fairlawn Rehab, 1st floor cafeteria

189 May Street, Worcester, MA 01602

WORCESTER/FAIRLAWN - POST-CONCUSSIVE ADULTS - SURVIVORS AND FAMILY

Contact: Karla McAuliffe, 508-791-6351, extension 560

Time: 9:30 – 11 am

Date: 1st Wednesday of the month

Place: Fairlawn Rehabilitation Hospital, 2nd Floor Board Room

189 May Street, Worcester, MA 01602

WORCESTER/FAIRLAWN - CAREGIVERS

Contact: Megan Lyons, 508-612-9662

Time: 5 – 7 pm

Date: Last Wednesday of the month

Place: Fairlawn Rehabilitation Hospital, 2nd Floor Board Room

189 May Street, Worcester, MA 01602

GLOSSARY

ANGIOGRAPHY/ARTERIOGRAPHY

A test in which dye is injected into blood vessels, which are then examined using X-rays. The test can give the condition of veins and arteries and can also warn health care providers if there are blood clots.

ANTICOAGULANT/ANTICOAGULATION

Drugs that prevent blood from clotting, often referred to as a blood thinner. Several examples include Coumadin, Eliquis and Xarelto.

ANTIPLATELET

Drugs that prevent platelets from sticking together and clotting the blood. Two examples are aspirin and clopidogrel (Plavix).

APHASIA

Difficulty in using or understanding language caused by damage to the communication centers of the brain.

ASPIRIN (ASA)

Aspirin affects the body in many ways, but one is to prevent blood platelets from sticking together and forming blood clots.

ATRIAL FIBRILLATION

Very fast, irregular pumping of the heart muscle in the upper chambers (the atria). As a result, the heart can't pump blood as effectively allowing for clots to form inside the heart, which can flow to other areas of the body (such as the brain causing a stroke).

HEMIPLEGIA

Paralysis on one side of the body. It can also be called hemiparesis.

HYPERTENSION

Also known as high blood pressure. A chronic increase in blood pressure above the normal range. Blood pressure is high when it reaches 140/90 or above on several measurements.

NEUROLOGIST

A doctor who specializes in diagnosing and treating diseases of the brain and other parts of the nervous system.

WARFARIN (COUMADIN)

An anticoagulant that works by preventing blood clotting agents from forming in the liver.

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55 Lake Ave North, Worcester, MA 01655

Tel: 508-334-1000

UMass Memorial Medical Center - Memorial Campus

119 Belmont Street, Worcester, MA 01605

Tel: 508-334-1000

UMass Memorial HealthAlliance-Clinton Hospital

60 Hospital Road, Leominster, MA 01453

Tel: 978-466-2000

UMass Memorial - Marlborough Hospital

157 Union Street, Marlborough, MA 01752

Tel: 508-481-5000



UMass Memorial Health Care is the largest not-for-profit health care system in Central Massachusetts with more than 13,000 employees and 1,700 physicians, many of whom are members of UMass Memorial Medical Group. Our member hospitals and entities include UMass Memorial HealthAlliance-Clinton Hospital, UMass Memorial – Marlborough Hospital, UMass Memorial Medical Center and UMass Memorial – Community Healthlink, our behavioral health agency. With our teaching and research partner, the University of Massachusetts Medical School, our extensive primary care network and our cancer, diabetes, heart and vascular, orthopedic and surgery programs, UMass Memorial delivers safe, high-quality and compassionate care.

Visit www.umassmemorialhealthcare.org.



To find a physician in your community, call 855-UMASS-MD (855-862-7763).