







# Understanding Stroke



# Stroke Symptoms

	<b>B</b>	<b>Balance – Sudden difficulty with balance</b>
	<b>E</b>	<b>Eyes – Sudden problems with vision in one or both eyes</b>
	<b>F</b>	<b>Face – Face or smile droops on one side</b>
	<b>A</b>	<b>Arms – Sudden weakness in arm or leg</b>
	<b>S</b>	<b>Speech – Unable to repeat a simple sentence, or slurred words</b>
	<b>T</b>	<b>Time – If you observe any of these symptoms, call 9-1-1 immediately</b>

# Your Stroke Prevention Plan

## Blood Pressure Control

**B**

Medicines:

\_\_\_\_\_

Blood pressure range: \_\_\_\_\_

## Reduce Cholesterol, Fats and Salt

**R**

Medicines:

\_\_\_\_\_

Foods:

low cholesterol  low fat  low salt

LDL: \_\_\_\_\_ Your target goal: \_\_\_\_\_

## Anticoagulants/Antithrombotics

**A**

Blood thinners you take:  aspirin  heparin  warfarin (Jantoven®)  
 apixaban (Eliquis®)  enoxaparin (Lovenox®)  clopidogrel (Plavix®)  
 ticagrelor (Brillinta®)  rivaroxaban (Xarelto®)  \_\_\_\_\_

Call your health care provider or go to the Emergency Department right away if you have black or tarry-looking stools.

## Increase Activity

**I**

How will you increase your activity level? What did your health care team suggest?

\_\_\_\_\_

\_\_\_\_\_

## No Tobacco Use/Drug Abuse

**N**

What is your plan to quit using tobacco or drugs?

\_\_\_\_\_

\_\_\_\_\_

## Blood Glucose Control

**S**

Medicines:

\_\_\_\_\_

Hemoglobin A1c: \_\_\_\_\_ Your target A1c range: \_\_\_\_\_

# Your Stroke Risks

See Chapter 2 to learn about risks you can and cannot control.

## Risks you can control. Check all that apply:

- |  |  |
|--|--|
| <input type="checkbox"/> high blood pressure | <input type="checkbox"/> extra weight              |
| <input type="checkbox"/> tobacco use         | <input type="checkbox"/> physical inactivity       |
| <input type="checkbox"/> atrial fibrillation | <input type="checkbox"/> carotid artery disease    |
| <input type="checkbox"/> diabetes            | <input type="checkbox"/> peripheral artery disease |
| <input type="checkbox"/> prediabetes         | <input type="checkbox"/> poor diet                 |
| <input type="checkbox"/> high cholesterol    | <input type="checkbox"/> alcohol abuse             |
| <input type="checkbox"/> heart disease       | <input type="checkbox"/> street drugs              |
























## Risks you cannot control. Check all that apply:

- |  |   |
|--|---|
| <input type="checkbox"/> age                       | <input type="checkbox"/> race   |
| <input type="checkbox"/> family history (genetics) | <input type="checkbox"/> previous stroke or transient ischemic attack (TIA) |
| <input type="checkbox"/> sex                       |   |



# Care After a Stroke — At a Glance

## For an Emergency, Call 911

<h3>Risk Factors</h3> 	<h3>Medicines</h3> 	<h3>Self-care</h3> 	<h3>Support for You and Your Care Circle</h3> 	<h3>When to Call Your Doctor</h3> 																		
<ul style="list-style-type: none"> <li>■ Lower your risk by controlling risk factors for another stroke:               <ul style="list-style-type: none"> <li>— high blood pressure</li> <li>— atrial fibrillation</li> <li>— heart disease</li> <li>— high cholesterol</li> <li>— diabetes</li> <li>— tobacco</li> <li>— extra weight</li> <li>— physical inactivity.</li> </ul> </li> <li>■ Talk with your health care provider about ways you can control your risk factors.</li> <li>■ Follow all your health care providers' treatment plans to control your risks.</li> </ul> <p><b>AllinaHealth</b></p> <p><a href="http://allinahealth.org">allinahealth.org</a></p>	<ul style="list-style-type: none"> <li>■ Take all of your medicines as directed each day.</li> <li>■ Talk with your health care provider or pharmacist if you miss a dose.</li> <li>■ If you are taking an anticoagulant (blood thinner), follow precautions to protect yourself from cuts and bruises.</li> <li>■ Talk with your health care provider before you start, stop or change the doses of herbal products and other medicines you take.</li> <li>■ Talk with your health care provider or pharmacist if you have any questions or concerns.</li> </ul>	<ul style="list-style-type: none"> <li>■ Eat healthful foods low in fat and cholesterol.</li> <li>■ Maintain a healthy weight.</li> <li>■ Choose water more often than coffee, tea, juice, pop or other beverages.</li> <li>■ Get at least 30 minutes of aerobic exercise 3 to 5 days a week. Aerobic exercise includes biking, swimming, dancing and walking.</li> <li>■ Keep all follow-up appointments, even if you feel well.</li> <li>■ Talk with members of your care circle (family, friends or others close to you) about how you feel.</li> </ul>	<ul style="list-style-type: none"> <li>■ Attend a stroke support group. See a list of support groups in the “Understanding Stroke” page 111.</li> <li>■ Learn about what type of stroke you had.</li> <li>■ Try to stay positive.</li> <li>■ Get enough sleep and eat healthful meals.</li> <li>■ Keep to your regular routines and traditions as much as possible.</li> <li>■ Stay busy with activities other than physical or occupational therapy. Ideas include:               <ul style="list-style-type: none"> <li>— regular exercise</li> <li>— visiting with friends</li> <li>— doing puzzles and games</li> <li>— volunteering.</li> </ul> </li> </ul>	<p><b>Call your doctor if you:</b></p> <ul style="list-style-type: none"> <li>■ have severe or unusual reactions to your medicine(s).</li> <li>■ have new symptoms or symptoms that get worse.</li> </ul> <p><b>When to Call 911</b></p> <table border="1" data-bbox="966 126 1429 483"> <tr> <td></td> <td><b>B</b></td> <td>Balance – Sudden difficulty with balance</td> </tr> <tr> <td></td> <td><b>E</b></td> <td>Eyes – Sudden problems with vision in one or both eyes</td> </tr> <tr> <td></td> <td><b>F</b></td> <td>Face – Face or smile droops on one side</td> </tr> <tr> <td></td> <td><b>A</b></td> <td>Arms – Sudden weakness in arm or leg</td> </tr> <tr> <td></td> <td><b>S</b></td> <td>Speech – Unable to repeat a simple sentence, or slurred words</td> </tr> <tr> <td></td> <td><b>T</b></td> <td>Time – If you observe any of these symptoms, call 9-1-1 immediately</td> </tr> </table> <p><small>Fast action can save brain function when having a stroke. There are a number of effective treatments for stroke. Time is a critical factor. Call 9-1-1 as soon as you notice symptoms start. Visit <a href="http://allinahealth.org/stroke">allinahealth.org/stroke</a> to learn more.</small></p> <p><small>© 2022 ALIINA HEALTH SYSTEM THE ALIINA HEALTH LOGO IS A TRADEMARK OF ALIINA HEALTH SYSTEM THIS DOES NOT REPLACE MEDICAL OR PROFESSIONAL ADVICE. IT IS ONLY A GUIDE. neuro-ah-48384 (11/22)</small></p> <p><b>AllinaHealth</b></p>		<b>B</b>	Balance – Sudden difficulty with balance		<b>E</b>	Eyes – Sudden problems with vision in one or both eyes		<b>F</b>	Face – Face or smile droops on one side		<b>A</b>	Arms – Sudden weakness in arm or leg		<b>S</b>	Speech – Unable to repeat a simple sentence, or slurred words		<b>T</b>	Time – If you observe any of these symptoms, call 9-1-1 immediately
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*Sixth edition*

**Developed by Allina Health.**

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The publisher believes that information in this manual was accurate at the time the manual was published. However, because of the rapidly changing state of scientific and medical knowledge, some of the facts and recommendations in the manual may be out-of-date by the time you read it. Your health care provider is the best source for current information and medical advice in your particular situation.

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## **Disclaimer**

This publication is for general information only and is not intended to provide specific advice or recommendations for any individual. The information it contains cannot be used to diagnose medical conditions or prescribe treatment. The information provided is designed to support, not replace, the relationship that exists between a patient and his/her existing physician.

For specific information about your health condition, please contact your health care provider.





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# Welcome

## Did You Know?

Your **care circle** is your family, friends and others close to you. This term will be used in this book.

You are being treated for a stroke. The information in this book will help you better understand strokes. You will learn about:

- types of stroke
- causes of stroke
- effects of stroke
- stroke risks
- warning signs
- rehabilitation (rehab) and recovery
- how members of your care circle can help.

By learning about strokes, you and members of your care circle can work toward a better recovery. This information may also help prevent a future stroke.

This book is meant as a guide. It does not replace medical or professional advice.

The way your body responds to a stroke is unique. If you have any questions about your rehab, recovery or general health, talk with your doctor or health care provider, such as your registered nurse, pharmacist or physical therapist.

Because the stroke has put you in a new situation, reading all of this information at once can be overwhelming. Look at the sections that apply to where you are right now in your recovery.

# Your Recovery Team



Members of your health care team may include any of the following:

■ **Advance practice provider**

An advance practice provider can treat illnesses and diseases. These providers include:

- clinical nurse specialists
- nurse practitioners
- physician assistants.

An advance practice provider and doctor work together as a team.

■ **Dietitian**

A dietitian will look at your food needs. They will work with the health care team to create a meal plan for you. They will also provide education about your meal plan.

■ **Emergency Medical Services and the hospital  
Emergency Department team**

They provide fast treatment to help your recover from your stroke.

■ **Hospitalist**

A hospitalist is doctor who specializes in adult medicine.

■ **Intensivist**

An intensivist is a doctor who specializes in intensive care.

■ **Internist**

An internist is a doctor who specializes in adult medicine.

■ **Neurologist**

A neurologist treats brain, spinal cord and nervous system problems and conditions.

■ **Nurses**

Nurses will closely watch your ability to eat, swallow and move (helping you change positions in bed and helping you get in and out of a chair or bed). They check your skin and check to make sure you have no problems going to the bathroom. Nurses will give you medicine and help with therapy.

They will educate you and your care circle about stroke and medicines. Nurses will also work with the rest of the health care team to make sure you and the members of your care circle have your emotional needs met.

Nurses will provide and coordinate your care. They will watch for neurological changes (speech, vision) that show your symptoms are getting better or worse.

■ **Occupational therapist (OT)**

The occupational therapist will look at your ability to do everyday activities. These include eating, brushing your teeth, getting dressed, bathing, doing housework and going to the bathroom.

They will also look at and treat problems related to your stroke. This includes problems with vision and thinking such as memory, judgment or safety. The OT helps you gain arm strength and coordination. They will let you know if you need special equipment after you leave the hospital.

■ **Pharmacist**

The pharmacist will supply the medicines ordered by your doctor. They will watch to make sure your medicines work together, and they will help manage your side effects.

■ **Physiatrist**

A physiatrist is a doctor who works in rehabilitation.

■ **Psychologist**

A psychologist is a doctor who can help you adjust to physical and emotional changes caused by stroke.

■ **Physical therapist (PT)**

The physical therapist treats problems with your balance, coordination, strength, walking and transfers (getting yourself in and out of a chair, bed or car). If needed, the PT will help you learn to use aids such as canes, walkers or wheelchairs. They will let you know if you need special equipment after you leave the hospital.

The PT will teach you balance and strength exercises and help you practice walking and transfers. They will also teach members of your care circle how to help you walk, transfer and do exercises.

■ **Social worker**

The social worker looks at your social and emotional needs and helps plan for your needs when you are ready to leave the hospital (at discharge). They will provide supportive counseling and information about community resources.

They will help you and members of your care circle with decisions about a new living place if needed. The social worker can also help get financial and insurance information for you.

- **Speech-language pathologist (SLP)**

A speech-language pathologist treats your problems with swallowing, speaking, understanding, reading and writing.

They will help you regain language skills or teach you other ways to communicate. The SLP will also help you with your attention span, problem-solving and memory skills.

- **Stroke outreach volunteer**

A volunteer who is a stroke survivor may meet with you on a one-to-one basis. Ask your social worker for more information.

- **Therapeutic recreation specialist (recreational therapist)**

A therapeutic recreation specialist helps improve your independence and everyday activities. They will provide recreation resources and opportunities to improve your health and well-being.

They will help you return to the leisure activities you enjoy and to learn how to get around in your community.

# Chapter 1: What Is a Stroke?

## Tip

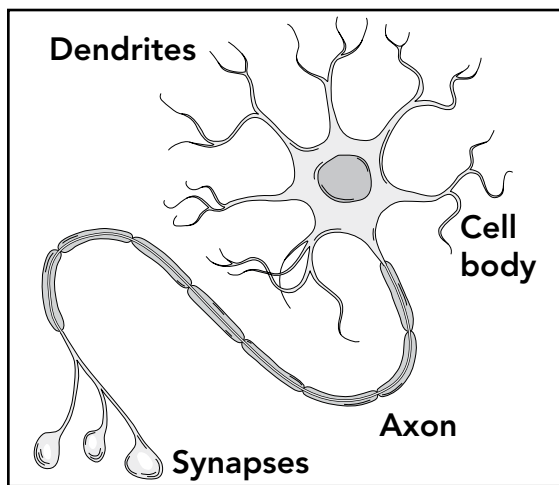
A stroke is a major medical event. There is no such thing as a minor stroke.

A stroke occurs when the flow of blood and oxygen to the brain is stopped or interrupted.

This happens because of a burst (ruptured) or blocked blood vessel. The brain needs a constant supply of blood and oxygen. It cannot store blood or oxygen.

A stroke can cause serious disability and can be life-threatening.

## The Role of Your Brain and Central Nervous System



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The different parts of a nerve cell.

Nerve cells in the brain (neurons) send signals to the rest of your body. These signals control your speech, movement, thinking process and senses (hearing, sight and touch).

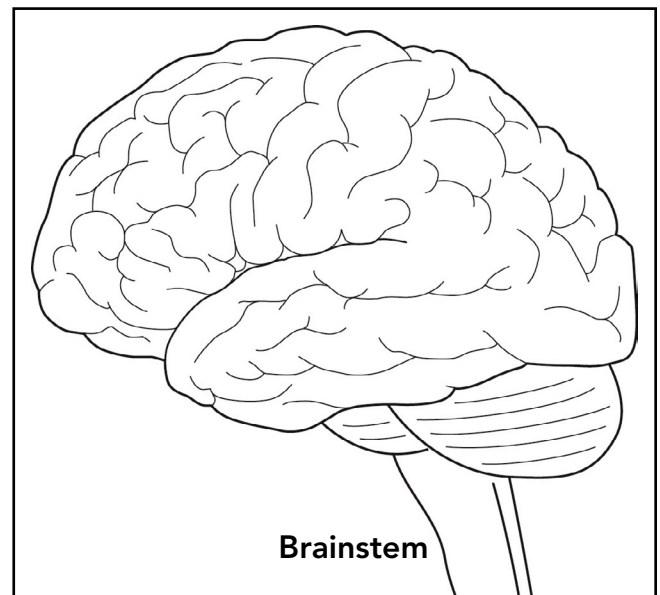
The part of your brain affected by a stroke determines how your body is affected.

The right side of your brain controls the left side of your body. Usually, the right side of your brain controls the ability to pay attention, be aware of your own body, or recognize things you see, hear or touch.

The left side of your brain controls the right side of your body. Usually, the left side of your brain controls the way you talk and understand speech.

The bottom part of your brain (brainstem) is connected to your spinal cord. The brainstem controls specialized functions, including:

- your eye movements
- swallowing
- breathing and heartbeat
- alertness.



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A side view of a brain.

# The Parts of Your Brain

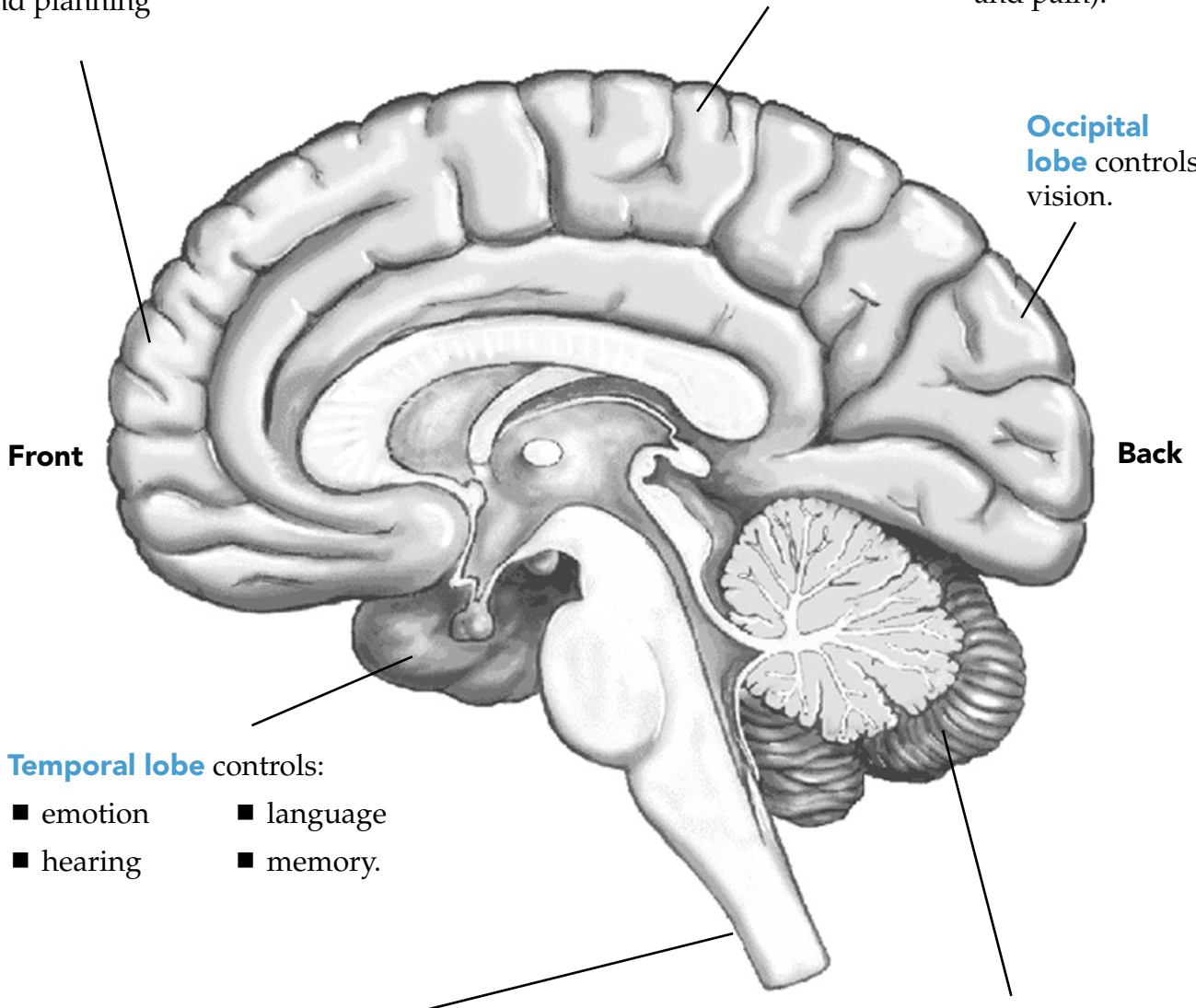
## Frontal lobe controls:

- behavior and self-control
- decision-making, problem solving and planning
- emotions
- movement
- language.

## Parietal lobe controls:

- movement
- memory, recognition
- sensory information (such as touch, temperature, and pain).

**Occipital lobe** controls vision.



## Temporal lobe controls:

- emotion
- hearing
- language
- memory.

## Brainstem controls:

- breathing
- heart rate
- eating
- swallowing
- sleeping
- wakefulness.

## Cerebellum controls:

- coordination
- balance
- movement
- posture.

# Causes and Types of Stroke

## Did You Know?

Blood carries oxygen and nutrients through your body.

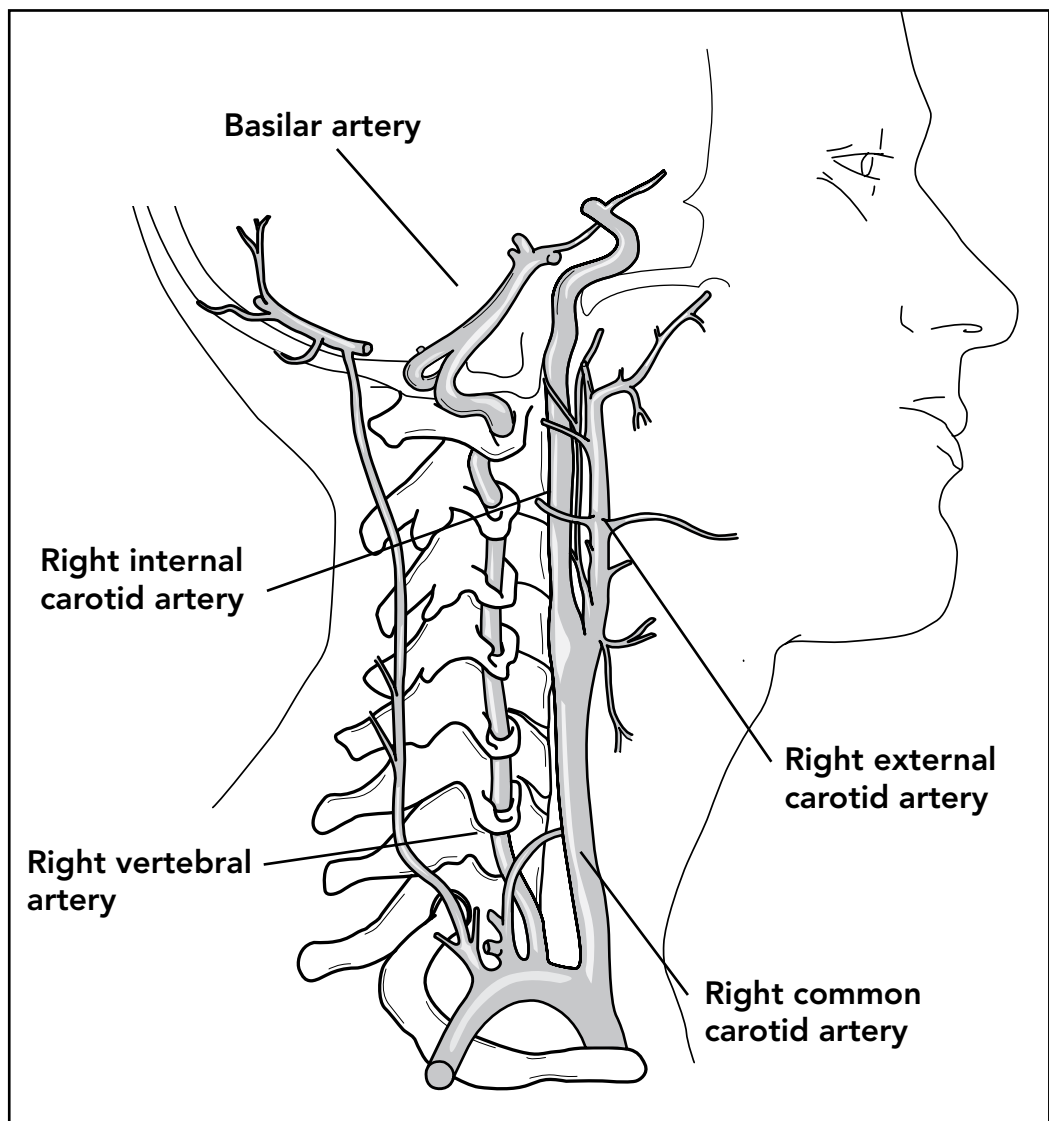
Your brain gets blood mainly through:

- 2 arteries in your neck (carotid arteries)
- 2 arteries near your spine (vertebral and basilar arteries).

These 4 arteries branch into other blood vessels that supply your brain with blood.

If blood cannot flow to your brain, your brain cells will start to die. Stroke symptoms will start to appear.

There are two types of stroke: ischemic and hemorrhagic.



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**A stroke may occur if an artery bursts or is blocked. This may prevent blood flow to the brain.**



## Tip

**Plaque** is a build-up caused by cholesterol. (See pages 24-25.)

## Ischemic strokes

This type of stroke happens when a blood vessel in the brain is blocked. There are two types of ischemic stroke:

### ❑ Thrombotic

Over time, fatty deposits (plaque) attach inside the artery walls. The plaque may narrow or close the artery. This may reduce blood flow to the brain.

A thrombotic stroke is caused by plaque build up and the sudden formation of a blood clot.

- **Large vessel:** This stroke occurs when a larger artery in the brain is blocked.
- **Small vessel (lacunar):** This stroke occurs deep in the brain when a smaller artery in the brain is blocked.

### ❑ Embolic

This occurs when a small blood clot forms in any part of the body and travels in the bloodstream to the brain. This clot becomes stuck and blocks a blood vessel.

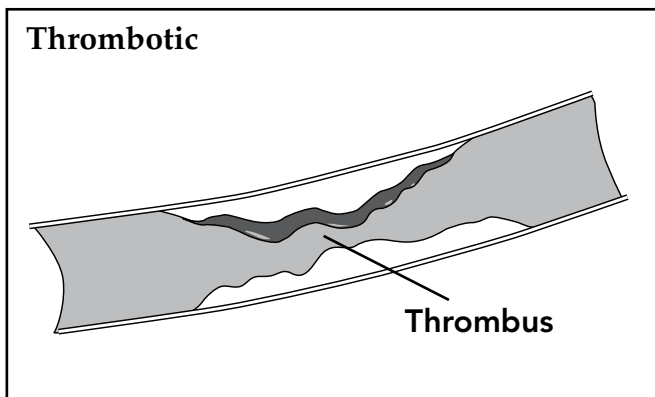
The blood clot often travels from the heart. A common cause of an embolic stroke is atrial fibrillation.

In more severe strokes, the large arteries in your brain or neck may be blocked. This blockage may cause permanent injury to a large part of the brain.

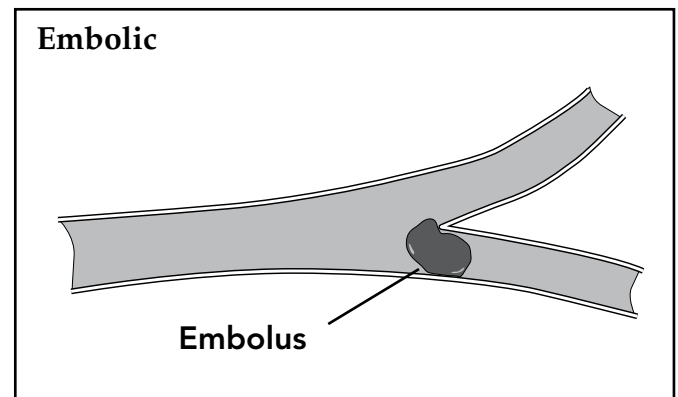
Ischemic strokes may lead to widespread brain injury. This injury can cause swelling in the brain. This swelling may lead to severe disability or death.

## Medical Term

**Atrial fibrillation** is an irregular heartbeat. Your heart's upper chambers quiver instead of beat in a regular rhythm. Blood pools in your heart and can form blood clots. This increases your risk of having a stroke.



**A thrombotic stroke occurs when plaque narrows artery walls and reduces blood flow to the brain.**



**An embolic stroke occurs when a small blood clot blocks a blood vessel.**

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## Warning

Do not ignore symptoms of a TIA.

Call 911 right away.

## Transient ischemic attacks (TIAs)

A thrombotic or embolic ischemic stroke may be called a TIA. It is sometimes called a “mini-stroke” or a “warning stroke.”

TIA stroke symptoms do not cause brain injury and they do not last. If you had a TIA, your risk for a larger stroke is higher.

**Important:** TIAs require the same immediate attention as a stroke.

## Hemorrhagic strokes

This type of stroke happens when a blood vessel in the brain ruptures and bleeds. There are two types of hemorrhagic stroke:

### ❑ Subarachnoid hemorrhage

It happens when blood leaks into the space between the brain and middle membrane that covers it. This is called the subarachnoid space.

Common causes include:

#### — Aneurysm

This happens when an artery or blood vessel becomes weak and bulges. A brain aneurysm is found on the arteries that supply blood to the brain. The aneurysm may become large and break (rupture).

#### — Arteriovenous malformation (AVM)

This occurs when blood flows directly from the arteries to veins, rather than passing through the capillaries first.

### ❑ Intracerebral hemorrhage

This occurs when a small blood vessel in the brain bursts and leaks. This causes bleeding in the brain.

Common causes include:

#### — High blood pressure

This can occur if you have high blood pressure, especially if it is not under control.

#### — Amyloid angiopathy

This occurs when proteins (called amyloid) build up on the walls of the arteries in the brain.



# Chapter 2: Your Risks, Prevention and Stroke Signs and Symptoms

## Stroke Risks and Prevention

Certain risks increase your chance of having a stroke. There are two types of risks: those you can control and those you cannot.

Your health care provider can help you learn what your risks are and how you can control them.

### What you can control

According to the American Stroke Association, you can control the following stroke risks:

### Did You Know?

Nearly half of American adults have high blood pressure and don't know it.

**Source: American Heart Association**

#### High blood pressure

This is the leading cause of stroke. High blood pressure puts stress on your blood vessel walls. This silent condition (known as hypertension) can lead to a stroke.

Your blood pressure is checked with two numbers. The top number (systolic) shows the pressure in your arteries when your heart beats. The bottom number (diastolic) shows the pressure in your arteries when your heart rests.

#### — Prevention:

- Ask your health care provider about what blood pressure is right for you.
- Have regular appointments with your health care provider to help manage your blood pressure. Together, you and your health care provider will decide on a treatment plan.

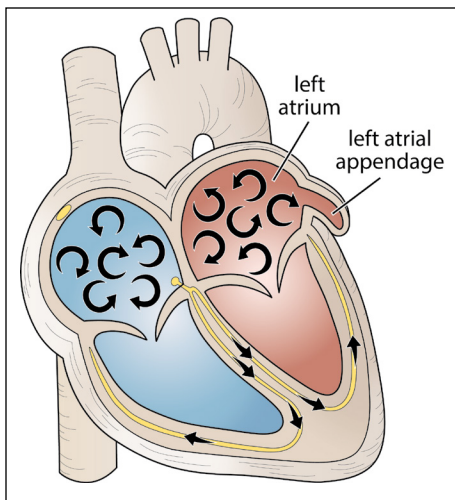
#### Tobacco use

Tobacco use doubles your stroke risk. It damages blood vessel walls, lowers the level of oxygen in your blood, makes plaque form more quickly in your arteries, raises your blood pressure and makes your heart work harder.

Your risk of stroke greatly increases if you smoke and use a birth control method that changes your hormones.

#### — Prevention:

- If you use tobacco products, stop. See the resource list on page 71 or ask your health care provider for how to quit.



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**Atrial fibrillation causes blood to pool in your heart due to an irregular heartbeat.**

### ❑ Atrial fibrillation (irregular heartbeat)

This is a heart rhythm that increases your risk for stroke. Your heart's upper chambers quiver instead of beating in a regular rhythm. Blood pools in your heart and can form blood clots.

These blood clots can travel through your bloodstream to your brain. Your risk for stroke increases if you have sleep apnea, atrial fibrillation, or both.

#### — Prevention:

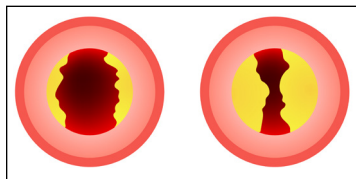
- Talk with your health care provider about how to treat atrial fibrillation and reduce your risk of blood clots forming in your heart.
- Talk with your doctor if you think you may have sleep apnea or if you have any problems managing your sleep apnea.

### ❑ Diabetes

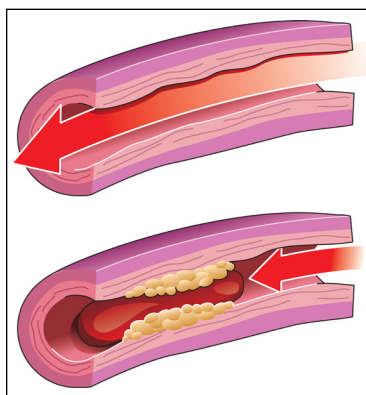
Having diabetes increases your risk for stroke and heart disease. If you have type 1 or type 2 diabetes, it is important to control your blood glucose.

#### — Prevention:

- Follow your health care provider's treatment plan.
- Eat healthful foods. Get regular exercise. Lose weight if you need to. Do not use tobacco products.



**Plaque (yellow substance) builds up on artery walls.**



**(Bottom) Plaque builds up on artery walls making it hard for blood to flow.**

**(Top) Blood flow through an artery with no plaque.**

### ❑ Prediabetes

Prediabetes means that your blood glucose levels are higher than normal but not high enough to be diabetes. This still puts you at risk for stroke and heart disease.

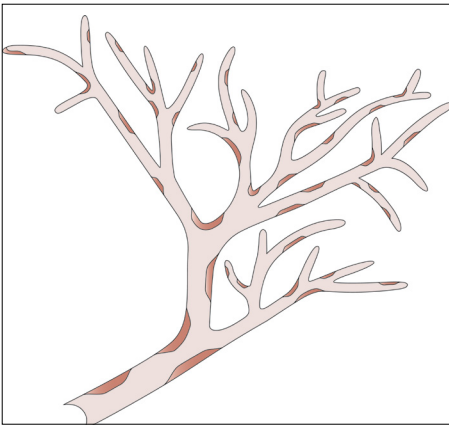
#### — Prevention:

- Have your blood glucose (A1c) tested each year.
- Eat healthful foods. Get regular exercise. Lose weight if you need to. Do not use tobacco products.

### ❑ High cholesterol

Cholesterol is a fat-like substance made by your liver and found in the food you eat. It can also run in your family (hereditary).

High density lipoprotein (HDL) cholesterol is known as the "good" cholesterol. HDL helps to get rid of extra cholesterol from your blood. Higher levels of HDL may decrease your risk of stroke and heart disease.



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**Plaque build-up slows or blocks blood flow through your blood vessels.**

Low density lipoprotein (LDL) cholesterol is known as the “bad” cholesterol. When too much LDL builds up on your artery walls, plaque forms and blocks blood flow in the blood vessels.

A piece of plaque can also break off and travel through the arteries to your brain where it can cause a stroke or TIA.

Higher levels of LDL may increase your risk of stroke and heart disease.

Triglycerides are a type of fat in your bloodstream.

High levels of triglycerides can increase your risk of stroke and heart disease.

— **Prevention:**

- Eat healthful foods. Get regular exercise. Lose weight if you need to. Do not use tobacco products.
- Ask your health care provider about what cholesterol level is right for you. Together, you and your health care provider will decide on a treatment plan.
- Have regular appointments with your health care provider to manage your cholesterol. Because of your family history, you may need to take medicine to lower your cholesterol.

**Heart disease**

There are many types of heart disease, including heart failure and heart valve disease. Heart disease increases your risk for stroke.

— **Prevention:**

- Manage your stress. Eat healthful foods. Get regular exercise. Do strength and stretching exercises.
- Do not use tobacco products.
- Talk with your health care provider about how to prevent and treat your heart disease.

**Extra weight**

Carrying extra weight strains your circulatory system. It also makes you more likely to have high cholesterol, high blood pressure and diabetes.

— **Prevention:**

- Losing as little as 5 to 10 pounds can make a difference!
- Talk with your health care provider about how to lose weight.





### ❑ Physical inactivity

Lack of exercise increases your risk for stroke, high blood pressure, high cholesterol, heart disease and diabetes.

#### — Prevention:

- Get at least 150 minutes of exercise each week.
- Talk with your health care provider before you start a regular exercise routine.

### ❑ Carotid artery disease

There are 2 major vessels that carry blood to your brain. When plaque builds up in these neck arteries, you are at risk for an ischemic stroke (see page 18).

#### — Prevention:

- Your health care provider may order tests to find out how much plaque you have.
- Removing the plaque may help prevent stroke in some cases. Your provider may recommend a procedure to open the artery.
- You may be prescribed medicine to lower the risk of stroke from the plaque.

### ❑ Peripheral artery disease (PAD)

In PAD, cholesterol and plaque build up in your blood vessel walls and cause your blood vessels to narrow. This may reduce blood flow. You have a higher risk of carotid artery disease and stroke.

#### — Prevention:

- Talk with your health care provider about how to manage and treat PAD.

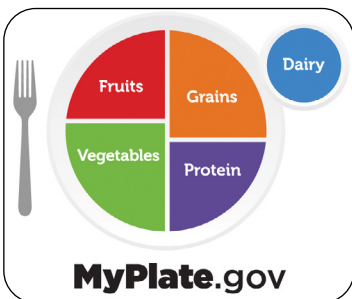
### ❑ Poor diet

Eating foods high in saturated fat, trans fat and cholesterol can make your blood cholesterol levels go up. Eating foods high in sodium (salt) can raise your blood pressure. Eating foods high in calories can make you gain weight.

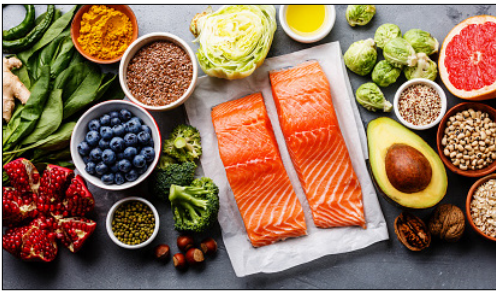
The Mediterranean diet is an eating pattern based upon the foods grown around the Mediterranean Sea.

#### — Prevention:

- Eat mostly plants. Try to eat an even amount of vegetables and fruits each day.
- Use herbs and spices to season your foods. Herbs and spices add flavor to your foods without adding many (if any) calories.



Eat at least 5 servings of fruit and vegetables each day. See pages 61-62 or visit [myplate.gov](http://myplate.gov) to learn more.



- Choose whole grains and legumes. Whole grains and legumes are packed with minerals, vitamins and fiber.
- Skip low-nutrient foods and heavily processed foods such as chips, candy and ice cream.
- Choose healthful fats. Good sources of healthful fats include olive oil, nuts and fatty fish (salmon, tuna, halibut, herring or sardines).
- Choose lean proteins. Good sources of lean protein include skinless chicken and turkey, eggs, and lean beef and pork (loins or chuck).
- Chew each bite thoroughly. Eat slowly and savor your food.
- Drink plenty of water. You're well hydrated when your urine is pale yellow to clear in color.

#### **Alcohol abuse**

Drinking too much alcohol can lead to a stroke.

##### — **Prevention:**

- If you are a male, drink no more than 2 alcoholic drinks each day. If you are a female, drink no more than 1 alcoholic drink each day.
- Do not drink alcohol if you are pregnant.
- Ask your health care provider for help if needed.

#### **Drug abuse**

Using street drugs changes your blood pressure and increases your risk for stroke. Misusing prescription medicine (especially when mixed with alcohol and other medicines) can cause several health problems, including stroke.



##### — **Prevention:**

- If you use street drugs, stop. Ask your health care provider for how to quit.



## Did You Know

- Every 40 seconds, someone in the United States has a stroke. Every 3.5 minutes, someone dies of stroke.
- Nearly 1 in 4 strokes occurs in people who have had a previous stroke.

**Source: Centers for Disease Control and Prevention**

## Did You Know

- Racism causes discrimination, stress and depression among groups that have been economically and socially marginalized.  
  
These experiences, along with racism and community violence, can cause toxic stress.
- When toxic stress occurs over and over it can cause long-lasting damage to the body and brain. This results in worsening health among Black adults.

**Source: American Heart Association**

## What you cannot control

According to the American Stroke Association, the stroke risks you cannot control are:

### ❑ Age

A stroke can happen to anyone.

- Stroke is more common in adults older than age 55.
- Your chance of having a stroke increases with your age.

### ❑ Family history (genetics)

A history of heart disease or stroke can increase your stroke risk.

- You are at a higher risk for stroke if any of these family members had a stroke – especially if they were younger than age 65:
  - grandparent
  - parent
  - brother or sister.

### ❑ Sex

Females\* have unique risks for stroke, including:

- having high blood pressure during pregnancy (leading cause of stroke among females who are pregnant or recently gave birth)
- using certain types of birth control medicines – especially if you smoke.

### ❑ Race

- The risk of having a first stroke is nearly twice as high for Black adults as for white adults.
- Black adults have the highest rate of death due to stroke.
- Stroke is a leading cause of death among Black women.

### ❑ Stroke or transient ischemic attack (TIA)

If you have already had a stroke or TIA (see page 19), you have a higher risk of having another stroke.

**\*Females at birth.**

# Stroke Signs and Symptoms: Call 911

## Tip







You may notice stroke symptoms when you wake up.

Call 911 right away if you have or anyone with you has any stroke symptoms.

- **Balance**  
Sudden loss of balance or coordination, trouble walking or dizziness
- **Eyes**  
Sudden blurred, double or loss of vision in one or both of the eyes
- **Face**  
Face or smile droops on one side
- **Arms**  
Sudden weakness, numbness or paralysis in an arm, hand or leg, usually only on one side of the body
- **Speech**  
Sudden trouble speaking or understanding language, including confusion, slurred words or being unable to repeat a simple sentence
- **Headache**  
sudden severe headache (the worst headache of your life) with no known cause

Signs and symptoms may last a short time and disappear. Do not delay in getting help. A stroke is a medical emergency.

**Call 911 right away if you have any of these symptoms.**

	<b>B</b>	Balance – Sudden difficulty with balance
	<b>E</b>	Eyes – Sudden problems with vision in one or both eyes
	<b>F</b>	Face – Face or smile droops on one side
	<b>A</b>	Arms – Sudden weakness in arm or leg
	<b>S</b>	Speech – Unable to repeat a simple sentence, or slurred words
	<b>T</b>	Time – If you observe any of these symptoms, call 9-1-1 immediately



# Chapter 3: Emergency Department

## Tip

**Call 911 right away if you have or anyone you are with has symptoms of stroke.**

**The sooner you get to the hospital, the more treatment options you may have.**

Treatment started within the first few hours is important to prevent brain injury.

Treatment begins in the Emergency Department. The Emergency Department may use a “stroke code.” This code calls a specialized stroke team to your bedside. This process helps you quickly get care.

Members of your stroke team will determine if you are having a stroke by reviewing your:

- health history
- symptoms
- physical exam
- test results.

They may talk with members of your care circle about treatment options.

## Tests

### Tip

Members of your stroke team will talk with you if you need other tests.

### Blood tests

- You will have a blood test. This helps your stroke care team identify your available treatment options.

### Imaging tests

- **CT (computed tomography) scan**  
You will have a CT scan. This scan uses X-ray and a computer to get an in-depth look at your brain. The result is an image that provides a clear and detailed picture.

A CT scan will be done to rule out hemorrhage (bleeding) as the type of stroke.

The scan usually takes less than 5 minutes.

- **CT angiography (CTA)**  
This test uses CT technology to get a 3-D view of your blood vessels. Like a CT scan, a CTA uses X-ray and a computer. It provides an in-depth look at your blood vessels. You will have an intravenous (IV) contrast injection to help see your blood vessels better.

A CTA may be done to identify your possible treatment options.

The scan usually takes less than 5 minutes.

### **MRI (magnetic resonance imaging)**

This is a way to look inside your body without using X-rays. MRI does not use radiation.

MRI uses a magnetic field to make three-dimensional (3-D) images of your brain. These images show the injured area of your brain.

The scan usually takes 45 to 90 minutes.

### **Heart test**

#### **Electrocardiogram (EKG)**

This is a heart rhythm test done at the bedside. An EKG may be done to find the cause of your stroke and identify treatment options.

The scan usually takes less than 5 minutes.

## **Treatment**

### **Important**

Not all strokes can be treated with medicine, especially if arrival to the Emergency Department is delayed.

Your treatment will depend on your type of stroke. There are several types of treatment.

#### **Ischemic stroke treatment**

Your stroke care team may start treatment to dissolve or remove a blood clot.

### **Medicine**

#### **Thrombolytic (tenecteplase)**

This medicine is used to treat strokes caused by blood clots. It works by quickly dissolving the clot and allowing blood to flow through the artery.

You can only get this medicine in the hospital. You will receive it through an intravenous (IV) line in your hand or arm. This medicine should be given as soon as possible after the start of stroke symptoms.

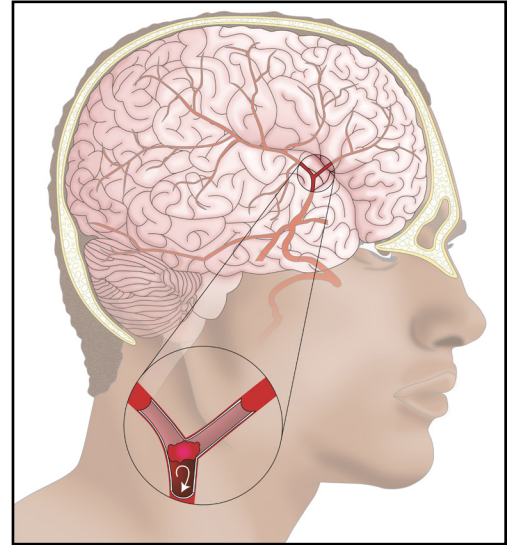
This medicine may cause bleeding (including bleeding into the brain). Your health care provider will determine if a thrombolytic medicine is right for you.

## Procedure

### **Mechanical thrombectomy (intra-arterial treatment)**

This procedure is done to open a large artery that is blocked by a blood clot. (See the drawing.)

A long, narrow tube (catheter) is inserted through a large artery in your groin and guided to the blood clot. The doctor inserts a device through the catheter to break up and remove the blood clot. The goal is to restore blood flow.



© Allina Health System

### **Hemorrhagic stroke treatment**

Your stroke care team will start treatment to stop the bleeding in your brain. Your treatment may also help reduce pressure on your brain.

## Medicine

### **Blood pressure medicine**

High blood pressure may lead to more bleeding in your brain. You may receive medicine through an intravenous (IV) line to quickly manage your blood pressure.

## Transfusion

### **Transfusion**

If you are taking anticoagulant medicine (known as blood thinners), your blood will not clot as quickly. During a stroke, this medicine may lead to more bleeding in your brain.

To control your blood clotting, you may need a blood transfusion. This may help your blood clot quicker and lead to less bleeding in your brain. You will receive a blood product that is compatible with your blood type.



# Chapter 4: Hospital Stay and Recovery

## Medicines

### Important

Call your health care provider if you have severe or unusual reactions to your medicine(s).

### Tip

There are several types of blood thinners. You be on one or more.

### Tip

Your health care provider will tell you how to get your medicine. You can buy some medicine over-the-counter. You will need a prescription to get other types of medicine.

Taking your medicine as directed is important. Your health care provider will decide which medicines you should take. This depends on your:

- medical history
- cause of stroke
- allergies.

The following are some medicines you may take. Your health care provider will give you more information about your medicine.

### Medicines to help prevent blood clots

You may have other medicines prescribed during your hospital stay not listed here. Take them as directed.

#### Anti-platelets

Platelets circulate (move) in your blood and help form blood clots. Anti-platelet medicines help keep the blood from clotting. These medicines are known as blood thinners. Some types of anti-platelets include:

#### Aspirin

Aspirin is often the first choice to prevent another stroke. Over-the-counter medicines like Tylenol®, Advil® or Aleve® do not keep the blood from clotting. Only aspirin can keep your blood from clotting.

If aspirin upsets your stomach, you may take a coated aspirin.

#### Extended release dipyridamole and aspirin combination (Aggrenox®), clopidogrel (Plavix®), and others

Like aspirin, these medicines keep your blood from clotting. You can only get these medicines with a prescription. Your health care provider will decide if any of these medicines will work better for you than aspirin.



## ❑ Anticoagulants

Other parts of your blood (besides platelets) can help cause blood clots. Anticoagulant medicines keep you from getting blood clots and help break up blood clots that form. These medicines are known as blood thinners.

Some types of anticoagulants include:

### ❑ warfarin (Jantoven®)

Warfarin is a common medicine to prevent stroke. You will need to have a blood test called the international normalized ration (INR) to decide the best dose for you.

You will need to have regular blood tests to determine the best dose for you. If you have questions about warfarin, ask your health care provider.

### ❑ apixaban (Eliquis®)

Apixaban is a common medicine to prevent stroke. You will not need to have the INR blood test for this medicine.

### ❑ Other anticoagulants

Common anticoagulants include dabigatran (Pradaxa®), rivaroxaban (Xarelto®), heparin, and enoxaparin (Lovenox®).

You do not need to have the INR blood test with these medicines.

## Medicines to lower cholesterol

### ❑ Anti-hyperlipidemics

These medicines lower the cholesterol levels in your blood. This has many benefits. One group of these medicines, known as “statins,” has been shown to help reduce the risk for stroke in people who have high cholesterol.

Common statins include atorvastatin (Lipitor®), lovastatin (Altoprev®), pravastatin (Pravachol®), rosuvastatin (Crestor®), and simvastatin (Zocor®).

If you are already taking an anti-hyperlipidemic medicine and have a stroke, you may start taking a statin or your cholesterol medicine(s) may be changed.

### ❑ Other anti-hyperlipidemics

Common anti-hyperlipidemics include ezetimibe (Zetia®) and evolocumab (Repatha®).

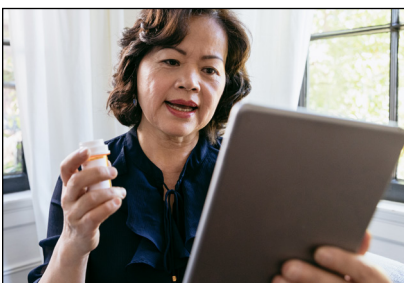
## Tip

If you aren't able to tolerate a statin, you may start a different medicine.

# Medicine Dos and Don'ts

## Important

Keep a current list of your medicines with you in case of emergency.



## What to do

### Safety

- Talk with your doctor, nurse or pharmacist if you have any questions about your medicine.
- Have all of your medicines filled at one pharmacy.
- Use a pill box or guide to manage your medicines.
- If you are seeing more than one health care provider, be sure to tell each one which medicines you are taking.
- Allow extra time for refills if you use a mail order pharmacy.

### Taking medicine

- Take the dose your health care provider most recently prescribed. If you are unsure, ask your primary care provider.
- Ask your primary care provider or pharmacist what to do if you miss a dose.
- Ask your doctor or pharmacist if there are foods or other medicines you should not have while taking this medicine. Some foods and medicines may affect your medicine.
- Take your medicine as directed each day.

### Storing medicine

- Keep **all** medicines (prescription, over-the-counter, herbals and vitamins) out of reach of children and pets.
- Keep all medicines in their original bottles or in a pill box.
- Keep all medicines away from heat, light and humidity. Do not keep medicines in the bathroom or near the kitchen sink.

### Travel

- Plan ahead for vacations. Check how much medicine you have and call your pharmacy to refill your prescription, if needed. Do not be caught without enough of your medicines when you are away from home.
- If you are flying, check with your airline for details about bringing medicines on board.

### General

- Understand why you are taking your medicines.
- Learn the generic and brand names of your medicines. For example, acetaminophen is the generic name and Tylenol® is the brand name.

## What not to do

- Do not let your medicines run out. Make sure you call your pharmacy at least 1 week before you need a refill.
- Do not take medicines prescribed for someone else.
- Do not take any more or less than the prescribed dose of any medicine on your own without your primary care provider's instructions.
- Do not keep outdated medicine.
- Do not stop taking your medicines unless you have talked with your health care provider.

## Bring Your Medicines to Your Provider Appointments



Bring all of your medicines or a complete list to your provider appointments. Put your medicine bottles and boxes into a bag and bring it with you to your appointments or use the "My Medicine List" on pages 117-118.

Include all:

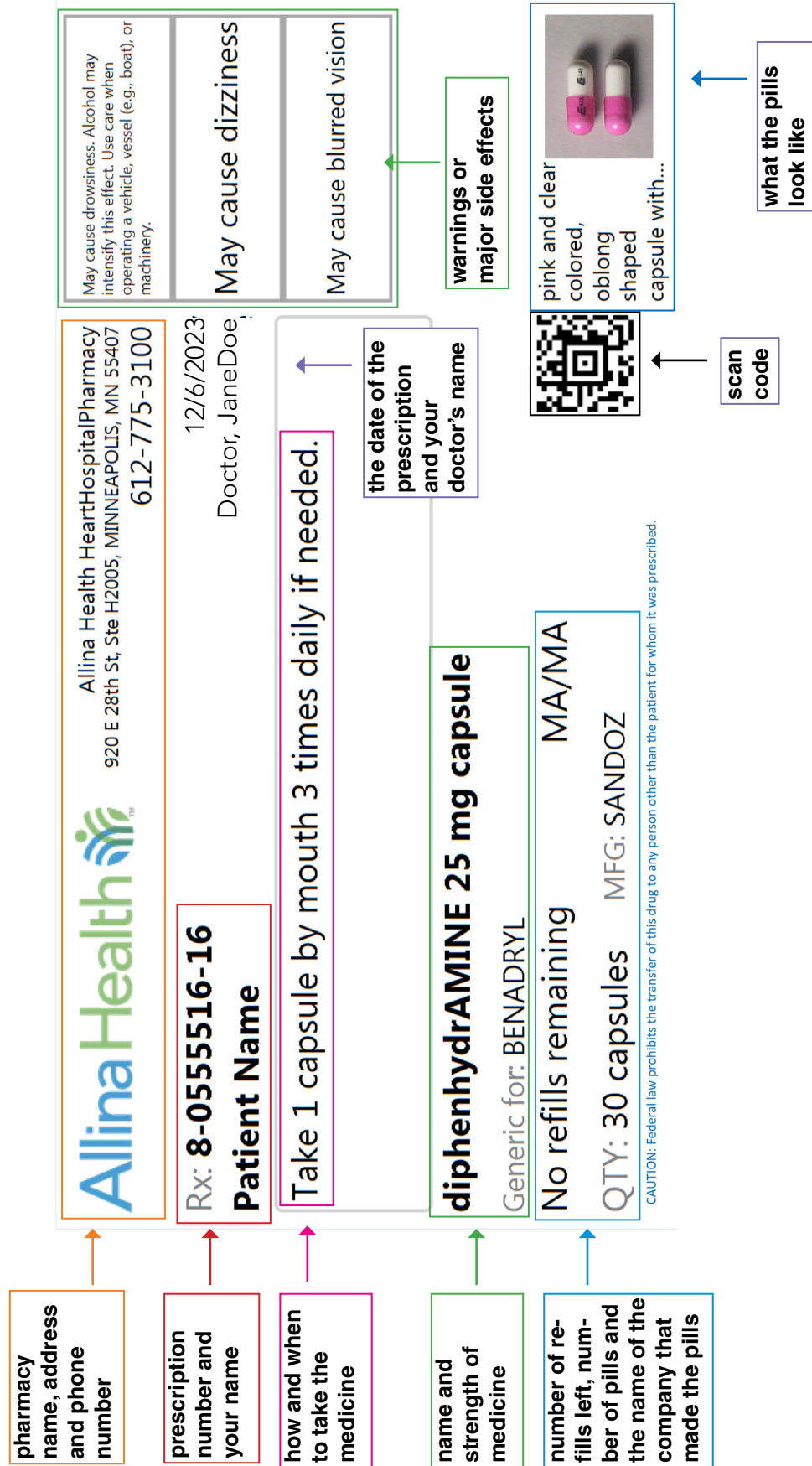
- prescription medicines
- over-the-counter medicines
- herbals
- natural products.

Medicines can work against each other so your health care provider needs to know what you are taking.

## How to Read Your Prescription Label

The label on your prescription medicine has a lot of information on it. To learn how to read it, see the label on the next page.

## Example of a prescription label



# Tests

The following are some of the tests you may have during your hospital stay.

## Blood tests

These tests are used to look for stroke risks or conditions that may have led to your stroke. Blood tests are done to check:

- your cholesterol levels
- how your blood clots, such as partial thromboplastin time test (PTT) and international normalized ratio (INR)
- your blood glucose levels
- the level(s) of medicine in your blood.

## Swallow tests

You may have problems with swallowing or moving your mouth. This can make you cough or choke on food or drinks. Swallow tests are used to help find the cause of these problems.

There are two types of swallow tests:

- **at your hospital bed:**  
A speech-language pathologist or nurse will watch you eat foods and drink liquids. This will help tell if other tests are needed or what foods and liquids are safest for you.
- **video swallow:**  
You will swallow some barium (a white liquid that shows up on X-ray) to simulate “normal” eating. A video X-ray is taken as you swallow the barium.

A radiologist and speech-language pathologist can study your ability to swallow. They will check for aspiration (if food and liquids are going into your windpipe).





## Tip

Members of your health care team will make you as comfortable as possible during an MRI. Tell someone if you are uncomfortable in closed-in spaces.



## Tip

During an ultrasound, a wand-like instrument makes sound waves. As the ultrasound wand is moved over your body pictures appear on a screen and are recorded.

## Imaging tests

These are done to find the area of the brain affected by the stroke, make an early prognosis and rule out other medical conditions.

### MRI (magnetic resonance imaging)

This test looks inside your body without using X-rays. MRI does not use radiation.

MRI uses a magnetic field to make three-dimensional (3-D) images of your brain. These images show the injured areas of your brain. This can help your health care team determine how serious your stroke was.

Your nurse will complete a checklist with you to make sure you are able to have an MRI.

### Magnetic resonance angiogram

This test uses MRI technology to get a 3-D view of your blood vessels.

### Angiogram

This procedure uses X-ray to see your blood vessels. A radiologist (doctor of X-ray) inserts a tube (catheter) into an artery in your groin and threads it to the arteries in your neck and head.

They inject contrast into your blood vessels to help them show up on the X-ray. This test helps rule out problems with blood vessels in the neck and brain.

### Carotid ultrasound

This test uses high-frequency sound waves to create an image of your arteries and blood flow on a computer screen. This lets your health care provider see if your arteries are narrowed or damaged.

Ultrasound is most often done on the carotid arteries in your neck. Ultrasound does not use radiation and has no side effects.

### Transcranial Doppler

This test measures blood flow through the major vessels in your brain.

## Heart tests

Heart problems increase your risk of having a stroke. Common heart problems include:

- atrial fibrillation (irregular heartbeat)
- heart attack
- heart failure
- if you have an artificial heart valve.

Some of the most common tests used to check your heart are:

### **Blood tests**

Certain enzymes and proteins are released when your heart is damaged. Your health care provider can use these tests to tell if you had a heart attack.

### **Electrocardiogram (EKG)**

This test records the electrical activity of your heart. Small patches (discs) attached to your chest “pick up” the electrical activity from your heart. This activity goes through wires to the EKG machine where it is recorded on a moving strip of paper.

### **Transthoracic echocardiogram (TTE)**

This is an ultrasound study of your heart muscle, heart valves and pericardium (the sac surrounding your heart). This test uses sound waves to see how well your heart is working.

A wand-like instrument makes the sound waves. As the ultrasound wand is moved over your chest, pictures of your heart appear on a screen and are recorded.

#### — **Contrast echo (bubble study)**

Saline (salt water) solution is injected into an arm vein. Ultrasound tracks the solution as it flows through your heart. This will let them see if there is an abnormal opening between the right and left sides of your heart. This test can be done at the same time as the TTE.

### **Transesophageal echocardiogram (TEE)**

This records ultrasound images of your heart. The transducer, about the size of a normal piece of food, is mounted on the end of a flexible tube, about the size of your index finger. The tube is placed in your mouth and guided down your esophagus (swallowing tube).

You will be given medicine to help numb the back of your throat. This will make swallowing the tube easier.

## Tip

After the TEE, members of your health care team will make sure you can safely swallow before you can eat or drink.

# Procedures Based on Types and Causes of Stroke

## Hemorrhagic stroke

Depending on the cause of your stroke, you may have:

### Embolization

This procedure is done to prevent bleeding in your brain by closing off an aneurysm. An aneurysm occurs when a blood vessel in your brain becomes weak and bulges.

A long, narrow tube (catheter) is inserted through an artery in your groin or wrist and guided to the aneurysm in your brain. Your doctor then threads small wires through the catheter into the aneurysm. This device fills the aneurysm and helps prevent it from bleeding. You will be unconscious (not awake) during this procedure. The wires do not need to be removed.

### Clipping

This surgery is done to stop the blood flow to a brain aneurysm. A metal clip(s) is placed across the base of the aneurysm. This stops blood flow to the aneurysm and makes it less likely for the aneurysm to bleed. You will be unconscious (not awake) during surgery.

The clips do not need to be removed. They will not set off metal detectors. You will be able to have MRIs.

### Craniotomy

This is a surgery to remove part of the skull (the bone flap) to reach the brain for treatment. The location and size of the craniotomy will depend on your stroke. You will be unconscious (not awake) during surgery.

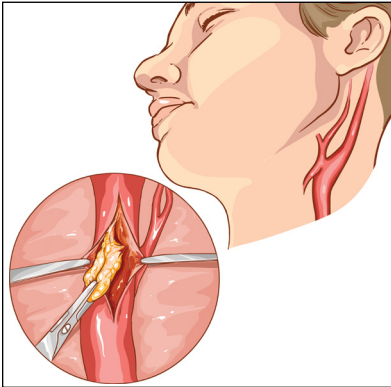
### Ventriculostomy

This procedure uses gravity to drain excess fluid from your brain. A catheter is inserted into your ventricle (a chamber in your brain) and drains into a collection bag. This helps reduce pressure on your brain. You could be conscious (awake) or unconscious (not awake) during surgery.



## Tip

Your surgeon will determine which carotid procedure is right for you: carotid endarterectomy or transcatheter arterial revascularization.



These carotid procedures are done to remove plaque from the carotid artery in your neck.

## Ischemic stroke

Depending on the cause of your stroke, you may have:

### **Mechanical thrombectomy (intra-arterial treatment)**

This procedure is done to open a large artery that is blocked in your brain.

A long, narrow tube (catheter) is inserted through a large artery in your groin and guided to the blood clot. Your health care team will use a device to grab and remove the blood clot. This will open the blood vessel and restore normal blood flow. You will be conscious (awake) during surgery.

### **Carotid endarterectomy**

This surgery is done to help prevent a stroke by improving blood flow to your brain.

Your surgeon makes an incision along the side of your neck, opens the carotid artery and removes the plaque. The surgeon then closes the incision. You will be unconscious (not awake) during the surgery.

### **Transcatheter arterial revascularization**

This surgery is done to help prevent a stroke by improving blood flow to your brain.

Your surgeon makes an incision over your carotid artery and inserts a stent. You will be unconscious (not awake) during the surgery.

### **Transfemoral artery carotid stent**

This surgery is done to help prevent a stroke by improving blood flow to your brain.

Your surgeon makes an incision in an artery in your leg. A stent is guided to and inserted into your carotid artery. You will be unconscious (not awake) during the surgery.

### **Craniotomy**

This is a surgery to remove part of the skull (the bone flap) to reach the brain. The location and size of the craniotomy will depend on your stroke. You will be unconscious (not awake) during surgery.

### **Ventriculostomy**

This procedure uses gravity to drain excess fluid from your brain. A catheter is inserted into your ventricle (a chamber in your brain) and drains into a collection bag. This helps reduce pressure on your brain. You could be conscious (awake) or unconscious (not awake) during surgery.

# Chapter 5: Rehabilitation and Recovery

## The Goal of Rehabilitation



The brain heals more slowly than many other parts of the body. Recovery from a stroke is different for each person. It can often take months or years to recover.

Your goal is to be as independent as you can. You may learn new skills, improve your physical condition and learn how to do tasks in different ways.

Because a person with a stroke has specific needs, recovery will be different for each person. The recovery often includes medical care, natural recovery, rehabilitation and the gradual return to your everyday activities.

It is important to follow your health care provider's instructions about recovery.

Rehabilitation usually starts in the hospital. You may continue with it after your hospital stay. Together, you and members of your health care team and care circle will make rehabilitation choices before you leave the hospital.

## Rehabilitation Program



Your program may include:

- learning about your stroke
- learning ways to help you safely eat, brush your teeth, get dressed, bathe, do housework and go to the bathroom
- strengthening exercises for arms and legs
- learning how to do recreational activities
- receiving emotional support
- testing and treatment for problems with:
  - vision
  - driving
  - swallowing and eating
  - communication
  - reading and writing
  - memory, attention span and problem-solving skills

- learning how to:
  - take medicines
  - regain bowel and bladder control
  - get in and out of a chair, bed or car
  - position yourself in a bed or chair
  - get around your home and community
  - enjoy your favorite leisure activities.

## Planning for Care After Your Hospital Stay



Making plans for when you leave the hospital is an important part of your recovery. Your health care team will work with you and members of your care circle to plan for your discharge. This planning begins early during your hospital stay.

Depending on your needs, your plan for discharge may include rehabilitation after your hospital stay. There are different types available.

The type of rehabilitation you will need depends on:

- your ability to take part in therapy
- your medical and nursing needs
- your care circle
- the resources available in your community.

Possible options for after your hospital stay are listed on page 53. A social worker or other member of your health care team will talk with you while you are in the hospital to help decide which option is right for you.

# Rehabilitation Options

## Tip

You may not need rehabilitation after your hospital stay. Talk with your social worker about your options.



Not everyone needs rehabilitation after a hospital stay. If you do, you have options. The type of rehabilitation you receive depends on your ability to take part in therapy, your medical and nursing needs, and your caregiver.

### Hospital programs

These are for people who need doctor and nurse care every day. These programs are done in special rehabilitation hospitals or in "acute care" hospitals.

You will stay in the hospital where you have therapy. The length of time you stay in a hospital program depends on your needs and goals.

### Skilled nursing facility

This care is for people who need 24-hour care. You will receive short-term or long-term care for your health needs. Your stay will depend on your needs.

### Transitional care unit (TCU)

This care is for people who need more help and health care services every day than what they can get at home. Most people stay in a TCU for 2 to 4 weeks. Your stay will depend on your needs.

### Outpatient programs

These are for people who live at home. They go to a rehabilitation facility for treatment a few times a week.

### Home care

These programs let people receive services in their own homes when they are unable to leave their homes.

# Returning to Driving



Being able to drive may be a priority for you. It is important to know how your brain injury can affect your ability to drive.

Do not drive until your doctor says you are able. Your doctor may want you to take a comprehensive driver assessment to test your ability to drive safely.

Your brain injury may cause changes that could affect your ability to drive.

## Vision and perception

Vision is what your eyes can see. Perception is how your brain understands what your eyes (and other body parts) are telling it.

- The following can make it hard to see the road or other vehicles:
  - blurry vision
  - double vision
  - loss of peripheral vision (not being able to see cars next to you)
  - visual neglect (you might miss signs or traffic hazards on the right or left side)
  - light sensitivity (glare from the sun or car headlights).
- You may have trouble judging distance and speed between your vehicle and other objects.

## Fatigue

Fatigue (feeling very tired) can make it hard to have enough energy to drive safely.

When you get tired, your brain can't process all of the information it is getting. You can't focus and concentrate.

Fatigue puts you at risk for causing an accident such as not stopping at a stop sign, changing lanes without looking or falling asleep.

## Cognition (attention and memory)

- Driving takes a lot of attention.
  - You need to be able to focus and switch your attention quickly.
  - You need to be able to identify what is important (such as vehicles around you, road work or the speed limit) and what isn't as important.
- Memory problems can make it hard for you to remember where you are going or what was happening around you.
- You might have trouble anticipating other drivers' actions or making the right decision on how to react. You might react too slowly or react without thinking about what could happen (such as switching lanes without looking).
- You might have trouble recognizing road signs or understanding written and spoken directions.
- Your insight or self-awareness might be affected. You might think you are OK to drive and know how to operate your vehicle yet you don't know your limits or know that you might not be safe to drive.

## Physical ability

You may still be able to drive if you have issues with moving, strength and coordination. Adaptive equipment such as a wheelchair lift, hand controls or swivel seating can be installed into your vehicle.

- Talk with your doctor to learn if adaptive equipment for your vehicle is right for you. This can help you return to driving safely.
- You will need an assessment to identify what equipment you need. You will need training to learn how to use the adaptive equipment.
- You will need to pass the Minnesota road test to have the adaptive equipment added as a restriction on your driver's license.



## Videos to Watch

Making Lives Work is a series of videos describing how Courage

Kenny Rehabilitation Institute can help after a stroke. Scan the QR code with your phone or visit

[allinahealth.org/courage-kenny-rehabilitation-institute/about-us/making-lives-work](http://allinahealth.org/courage-kenny-rehabilitation-institute/about-us/making-lives-work).



## Emotions

Driving can be overwhelming. You might:

- have trouble staying calm
- get frustrated with other drivers or bad weather
- worry about driving if your brain injury happened in a motor vehicle accident.

Consider talking with a mental health care provider, a driver rehabilitation specialist or both. They can help you get ready to return to driving.

## Medicines can affect your ability to drive

Some medicines cause side effects that can affect your driving.

- Prescription medicines can make you dizzy, blur your vision or relax your muscles.
- Over-the-counter medicines (including vitamins, naturals and herbals) can interact with your prescribed medicines. This means your medicines might work stronger or weaker than they should.

**Important:** Before you drive, check with your doctor or pharmacist if you:

- have questions about your current medicines
- have changes to your medicines
- have a new prescription medicine
- are thinking about taking a new or different medicine.

## Whom to contact for more information

For more information about the Courage Kenny Rehabilitation Institute's Driver Assessment and Training Services:

- go to [account.allinahealth.org/services/583](http://account.allinahealth.org/services/583)
- call 612-775-2829
- send an email to [CKRIDrivingService@Allina.com](mailto:CKRIDrivingService@Allina.com).

## Role of Your Care Circle

### Tip

See Chapter 7 for information just for members of the care circle.



Members of your care circle are important to your recovery. They need to understand what you are going through and how the stroke has affected you.

The adjustment may be easier if your care circle knows how to handle problems that may come up after you leave the hospital. Your care circle can also help by giving you support and encouragement.

You can let members of your care circle can help you recover by:

- knowing that your progress may be slow
- visiting and talking with you
- sitting with you in silence
- letting you know you are still needed and important
- supporting your rehabilitation decisions
- becoming educated about your condition and recovery
- going or asking to go to therapy sessions
- supporting and encouraging you to meet your milestones during your recovery
- showing confidence in your improvement
- working with members of your health care team to create a healing environment at home
- sharing responsibilities
- being realistic in knowing you may have recovery limits.



## Tips for Reducing Stress During Your Recovery

- Take your recovery one day at a time. Be hopeful for a successful recovery.
- Create a regular routine or write lists of what needs to be done to help plan and organize your day.
- Appreciate each small gain. Your emotions and ability to do things may vary from day-to-day because of fatigue. You may need to learn how to do things in different ways or try new ways of doing tasks, talking, speaking and organizing your social life.
- Expect that members of your care circle will improve their skills and knowledge. They are learning right along with you.
- Plan for breaks so you and members of your care circle are not together all the time. Time apart is important for both you and these individuals. Try to do activities that get you both out of the house.
- Ask family members and friends to help.
- Try relaxation, massage or meditation to cope with your stress.
- Track your progress on a calendar with big days. Write what you can do each day. Remember: you will see both good and bad days.
- Join a support group.



Be patient with and kind to others. You may feel irritated or upset some times, but do not blame anyone. Do not take your frustrations out on others. Talk with a family member, friend, professional or support group about your feelings.

# Progressive Muscle Relaxation

Progressive muscle relaxation is a short and easy exercise to help you relax and relieve some of your pain.

## Getting started

Find a relaxing position. You may sit down or lie on your back in bed. Be sure your legs and hands are not crossed.

You may close your eyes. If you prefer, you can keep your eyes open, but focus on one spot in front of you.

Bring your attention to your breathing. Think about where your breath comes in and out of your nose or mouth. Think about how your chest moves up and down with each breath.

Imagine a gentle, safe wave of relaxation that will slowly and warmly flow through your body. The wave can help you find those places that need to relax and give them permission to relax.

You can also imagine this wave in any way you find most comfortable. You may see it as light, water or just a feeling.

If your mind wanders, gently bring it back to your breathing.



## **Relax from your head to your feet**

- Bring your attention to the top of your head and begin to imagine a wave.
- With your next breath out, feel the wave flow through your head. Feel your jaw soften and relax.
- Breathe in.
- With your next breath out, focus on the back of your neck. Let it soften and relax.
- Breathe in.
- With your next breath out, imagine the wave moving through each arm all the way to your hands. Feel your hands become slightly heavier where they are lying.
- Breathe in.
- With your next breath out, imagine the wave of relaxation roll gently and safely down your spine. Let all of your back muscles relax and soften.
- Continue to breathe. Feel the wave flow as you breathe out.
- Let the wave flow through your pelvic area and hips into your upper legs and thighs.
- Breathe in.
- With your next breath out, allow the wave to find those areas in your legs and knees that need to relax. Give them permission to relax.
- Breathe in.
- With your next breath out, feel the wave move into your calves, then your feet. Feel your feet become a little heavier.
- Take two deep breaths. Imagine any remaining stress gently flowing out the bottoms of your feet.

Take a moment to observe the still place you created.  
With practice, relaxation will become easier.

# Nutrition

## General Tip

According to the United States Department of Agriculture, you should:

- eat smaller portion sizes
- make half of your grains whole
- make half of your plate vegetables and fruits
- drink fat-free or low-fat milk
- eat lean proteins.

Be sure to drink six to eight 8-ounce glasses of liquids (especially water) each day.

Visit [myplate.gov](http://myplate.gov) for more information.

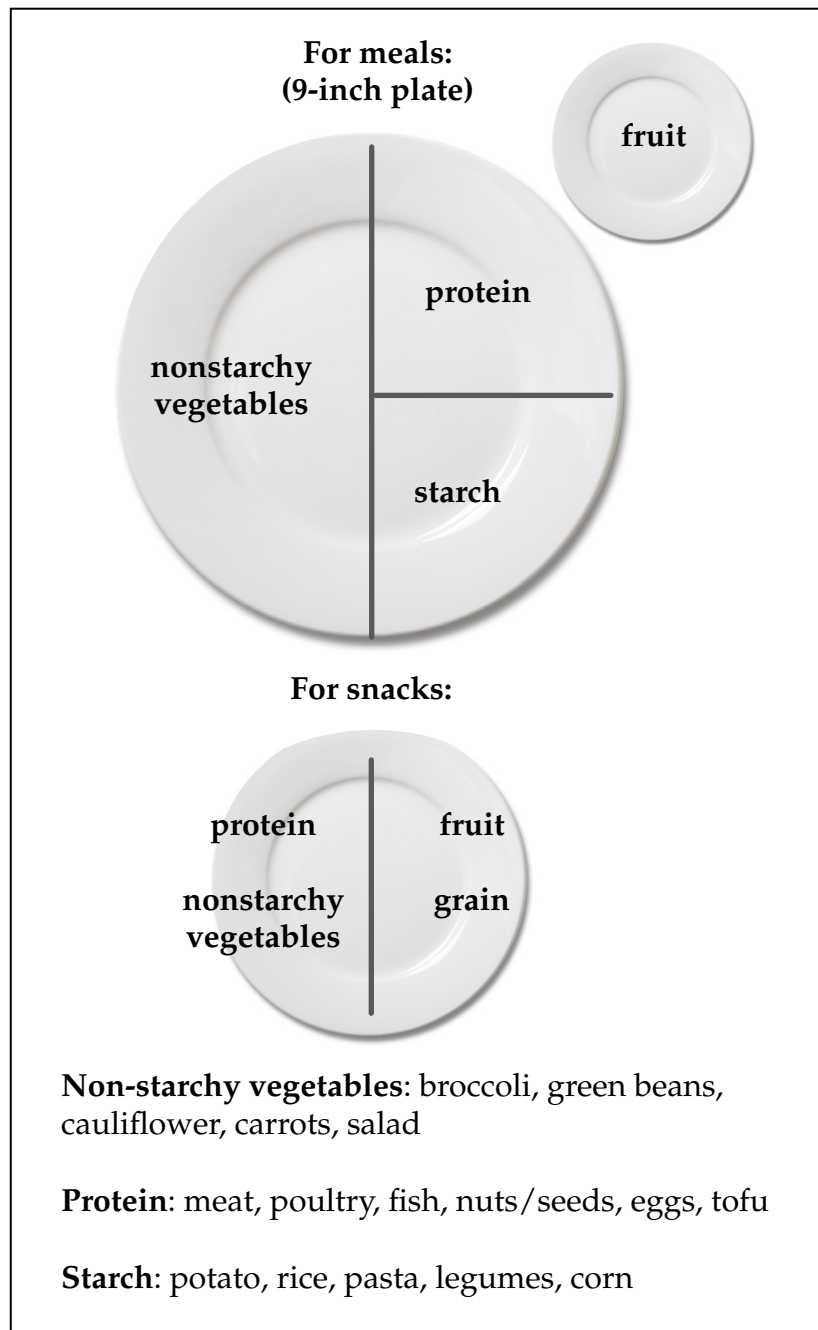
## Important

Talk with your health care provider if you have questions about your nutrition and recovery.

Eating well-balanced meals and snacks will help you recover quickly and help you feel your best. What you eat after your brain injury affects your well-being.

If you do not eat enough of the right foods, you will become tired and less able to take care of yourself. Be sure you make time to eat — even if you do not feel hungry.

When you are planning your meals and snacks, try to think about what your plate should look like.

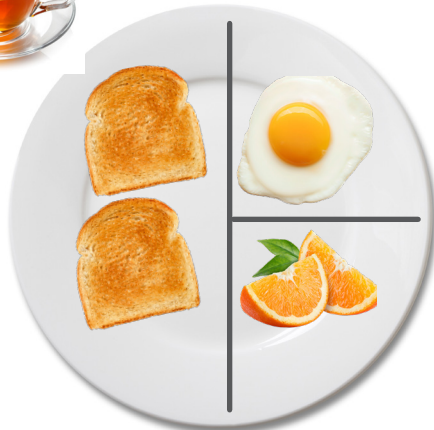


Here are some examples of well-balanced meals and a snack.



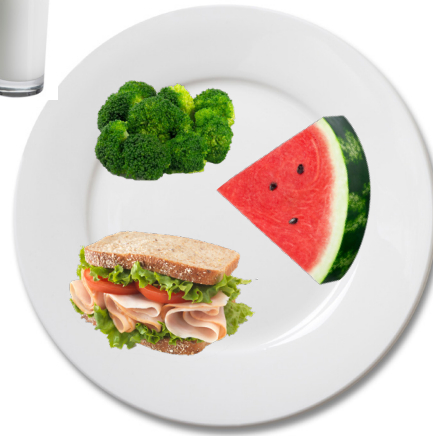
**At breakfast:**

- plain tea
- 2 pieces dry toast
- 1 fried egg
- 2 orange wedges



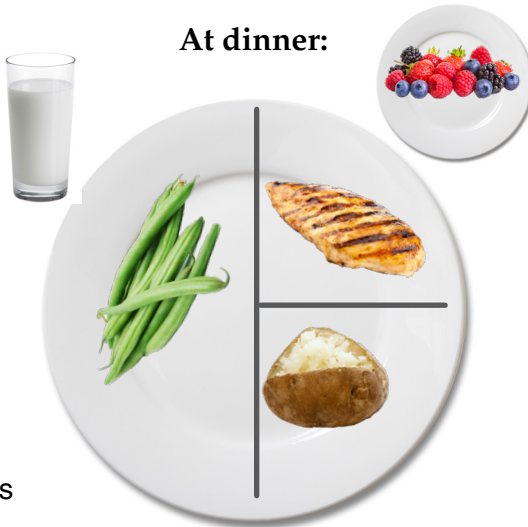
**At lunch:**

- 1 glass low-fat milk
- 1 turkey sandwich with 2 pieces whole grain bread, tomato and lettuce
- side of broccoli
- 1 slice watermelon



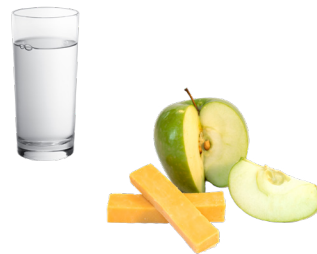
**At dinner:**

- 1 glass low-fat milk
- 1 grilled chicken breast
- 1 baked potato, plain
- green beans
- 1 serving of mixed berries



**For a snack:**

- 1 glass water
- 1 apple
- 2 slices cheddar cheese



**Tip**

Eat foods high in vitamin C to help absorb the iron that comes from plants such as spinach.

For example, eat an orange with an iron-fortified cereal.

Good sources of vitamin C are broccoli, tomatoes, kiwi, strawberries, peppers, potatoes and cabbage.

**Nutrients important for your recovery**

Eating foods rich in the following nutrients are important for your recovery.

- **Protein:**  
Protein helps repair and build healthy tissue.
- **Iron:**  
Iron works in each of your body's cells to help make energy.
- **Vitamin C:**  
Vitamin C helps your body repair damaged tissues, keeps your bones and teeth strong, and helps your body absorb iron.
- **Calcium:**  
Calcium helps build and maintain your bones, your muscles move, your blood clot, and your nerves send messages.
- **Fiber:**  
Fiber helps your body produce regular bowel movements.

# Your Exercise Program

## Why exercise is important

Getting regular exercise will help:

- prevent another stroke, if you had one
- maintain a healthy weight
- reduce the risk for heart disease, diabetes, obesity, certain cancers and joint conditions
- reduce levels of anxiety and stress
- improve your self-esteem and confidence
- improve concentration and memory
- maintain good blood pressure and cholesterol levels
- give you an overall feeling of well-being
- build endurance and increase your metabolism
- you relax and sleep better
- provide healthy blood flow to your brain
- improve your mood
- improve your thinking and memory
- improve your walking ability
- treat your pain.

## Your goals

- Your eventual goal is 30 minutes of exercise at least 3 to 5 days each week. Aerobic exercise uses large muscle groups and raises your heart rate (like biking, walking and swimming).
- During aerobic exercise you should be able to talk (singing would be hard).
  - Your rate of perceived exertion (how hard you are working) should be between light and somewhat hard.

## How you can exercise

- Follow your exercise program from your physical therapist or doctor:
  - aerobic exercise
  - strength training
  - flexibility and balance.
- Ask your physical therapist or primary care provider if you do not have an exercise program or if you are having a hard time starting one.



- Do what you can based on your abilities.
- Walk around your house.
- Walk around your neighborhood.
- Do something you enjoy. Dance to your favorite songs.
- Join a fitness center (if you are able).
- Start small.
  - Exercise for 5 minutes 5 times a day.
  - Add 1 to 3 minutes each day as you are able.

### **Signs you are doing too much**

As you exercise you should be aware of your body's response. Signs you are doing too much include:



- feeling dizzy or lightheaded
- nausea (upset stomach) and vomiting (throwing up)
- cold sweat
- being short of breath (unable to have a conversation)
- exhaustion or unusual fatigue (very tired)
- feeling as if your heart is suddenly racing or pounding
- any chest pain or pressure in your teeth, arm, jaw, ear, neck or between your shoulder blades.

**Call your doctor if the symptoms do not go away after resting. Call 911 if you cannot reach your doctor. Do not drive yourself to a clinic or Emergency Department.**

# Tobacco Use is Dangerous



## Did You Know

- Smoking doubles your risk for stroke.

**Source: Illinois Department of Health**

- Smoking causes nearly 1 out of every 3 deaths from heart disease and stroke.

**Source: Centers for Disease Control and Prevention**

- Cigarette smoke contains more than 7,000 chemicals. More than 70 can cause cancer.

**Source: U.S. Food & Drug Administration (FDA)**

Tobacco products include cigarettes, electronic nicotine delivery systems (ENDS, includes e-cigarettes), cigars, smokeless tobacco (dip or chew), hookahs, pipes, roll-your-own, and oral nicotine products.

Tobacco use is especially dangerous to your blood vessels and arteries. It can cause atherosclerosis, a build-up of plaque (fatty substances found in your blood). Over time, the plaque hardens and narrows your blood vessels and arteries.

Smoking also makes the blood vessels and arteries sticky. This leads to “obstructions” in blood flow, meaning that your blood cannot flow easily.

The side effects of using tobacco can result in needing stents, coronary artery bypass surgery or both to keep your blood vessels and arteries open. It can also lead to stroke or heart attack.

Tobacco use:

- causes stroke and heart disease
- increases your heart rate
- increases your blood pressure
- lowers your good (HDL) cholesterol
- makes your heart work harder (adding stress to scarred or weakened blood vessels and arteries)
- can interfere with how well your heart medicines work.

Smoking even 1 cigarette a day:

- causes your heart rate and blood pressure to increase, and your major blood vessels to become smaller, causing your heart to work harder
- causes your blood to clot faster; tobacco users have a higher chance of stroke and heart attack
- reduces the amount of oxygen in your bloodstream, making you short of breath
- slows your ability to heal.





## Secondhand smoke

Secondhand smoke is a mixture of smoke coming from the burning tips of cigarettes, pipes and cigars and smoke exhaled by someone who is smoking.

Anyone around secondhand smoke breathes in the chemicals from the tobacco smoke. Secondhand smoke causes death and disease in people who do not smoke. Secondhand aerosol from vaping is also not safe. The aerosol has many of the same residual chemicals as cigarettes.

Even briefly breathing secondhand smoke can damage the lining of blood vessels and cause your blood to become stickier. These changes can cause a deadly heart attack.

## Did You Know

Smokeless tobacco is not a safe alternative to smoking.

In addition to nicotine, it contains *a lot* of sugar. This can make it harder to control your blood glucose levels.



## Smokeless tobacco

Smokeless tobacco is also called spit tobacco, chewing tobacco, chew, plug, snuff or dip. Smokeless tobacco contains a mix of 4,000 chemicals, including as many as 30 or more that are linked to cancer, according to the FDA.

For example, the nicotine levels in 1 tin of smokeless tobacco is roughly equal to 4 packs of cigarettes. These chemicals move from your mouth to all parts of your body through your bloodstream. It affects your heart by increasing your heart rate and blood pressure. This can lead to a stroke.

## E-cigarettes

E-cigarettes are known by many names such as e-cigarettes, e-cigs, vapes and electronic nicotine delivery systems (ENDS).

These products use an “e-liquid” found in pre-filled or refillable cartridges, disposables or pods. The liquid is heated to create an aerosol that the user breathes in. The heat can turn some of the chemicals into known cancer-causing chemicals.

- The liquid that goes in the e-cigarettes can contain:
  - **nicotine**
    - Nicotine is the addictive drug in tobacco.
  - **chemical flavorings**
    - Current studies show “flavors” added to e-cigarettes are harmful. They are linked to problems with the heart, lungs and brain.

## Did You Know

E-cigarettes can cause many harms to your body such as seizures, lightheadedness, vomiting, nausea, rapid heart rate, and abnormal heart rhythms.



- Users can be exposed to a significant amount of nicotine. Different brands can deliver the same amount of nicotine as low as 2 packs of cigarettes and as high as 19 packs of cigarettes, depending on the number of puffs in the device.

### Heated tobacco products

Heated tobacco products heat a processed tobacco leaf. When you take a puff, you breathe the nicotine from the tobacco leaf into your lungs.

These products are marketed as “heat-not-burn” products. Research suggests that heated tobacco products contain many of the same harmful ingredients as regular cigarettes and others.

The chemicals in the air from heated tobacco products contain lower levels of harmful ingredients than the smoke from regular cigarettes. This does not mean heated tobacco products are safe.

### Oral nicotine products

Oral nicotine products are available as gum, pouches, lozenges, toothpicks and gummies. These products can deliver nicotine levels as low as 2 milligrams and as high as 12 milligrams.

Beware of any oral nicotine products that market themselves as “safer” or “cleaner” than tobacco. They claim to be “tobacco-free” or promote their products as a safer way to quit using tobacco.

Whether the nicotine comes from a leaf (natural) or the lab (synthetic), it is dangerous.

## Benefits Of Quitting Tobacco

### Did You Know?

In 1 year of quitting smoking, your risk of heart disease is reduced by more than half. Quitting also reduces the risk of a second heart attack if you’ve already had one.

**Source: National Institutes of Health**

### Within...

- **8 hours:**  
The carbon monoxide level in your blood drops to normal and the oxygen level in your blood increases to normal. Your breathing starts to improve.
- **24 hours:**  
Your chance of a heart attack decreases.
- **48 hours:**  
Nerve endings start to grow again. Your senses of smell and taste improve.
- **2 weeks:**  
Your circulation improves and your lung function increases.



- **1 to 9 months:**  
Your cough, stuffy nose and shortness of breath decrease.  
Your energy level increases.
- **1 year:**  
Your chance of heart disease is cut in half.
- **4 to 5 years:**  
Your chance of a stroke is the same as someone who does not use tobacco. Your chance of dying from lung cancer is cut in half.
- **5 to 10 years:**  
Pre-cancerous cells are replaced with normal cells.
- **10 years:**  
Your risk of cancer, stroke, and heart disease is close to the same of someone who has never used tobacco.

Source: World Health Organization

## Quitting Tobacco

### Getting started

- Make a list of reasons for quitting.
- Think positively.
  - Believe you can.
  - Remind yourself, “I’m choosing not to smoke today.”
  - Remember that it’s “not that I can’t smoke, it’s that I’m choosing not to.”
  - Tell yourself often: “I can do this.”
  - Visualize yourself as someone who doesn’t use tobacco.
- Use relaxation breathing.
  - Inhale to count of 8.
  - Hold to count of 4.
  - Exhale to count of 8.
- Substitute items for cigarettes.
  - Chew gum.
  - Suck on hard candy.
  - Chew on straws or toothpicks.
  - Eat low-calorie snacks.

- Keep your hands busy.
  - Play cards.
  - Read books.
  - Put together puzzles.
  - Play with rubber binders.
  - Make crafts.
  - Write letters.
  - Draw.
  - Paint.
- Concentrate on the good things in your life!
- Change your environment:
  - Change your routine to help avoid temptation. Even small changes can lower the craving to smoke.
  - Get rid of all cigarettes, ashtrays and lighters in your home, car, desk or office.
  - Change your favorite smoking areas to make them remind you less of smoking.
  - Make your home and vehicles smoke free.
- Get support from others:
  - Talk to your family, friends or coworkers about how to support you while you quit.
  - See if others you know would like to quit with you. This way you can support each other through the tougher times of quitting.
- Plan your reward for each day you do not smoke. Think about small, pleasurable activities you can do during your day that give you joy. Long-term rewards are helpful as well, but the small rewards are just as important.
- Remember that even the most intense craving lasts only 5 to 10 minutes. Wait it out. Tell yourself, “This too shall pass.”



## Avoiding a relapse

- Think about what you are gaining from quitting tobacco, instead of focusing on what you've given up. For example, "It's easier to play with my kids or grandkids."
- Have a plan for how you will deal with unexpected urges. (Take a walk, make a call.)
- Think your way through difficult situations ahead of time whenever you can.
- Think about past quitting attempts and what was helpful to you. Reuse them again if possible or try something new.
- Explore ways to move your body with safe and realistic expectations. Increasing your physical activity can help you manage weight gain and work through emotions that otherwise would make you want to smoke.
- Avoid foods high in calories and fat. Sugar can increase cravings to smoke. Limit large amounts of sugar.
- Drink lots of water. Ice water may be helpful in getting rid of a craving.
- Reward yourself when you reach milestones: 1 day, 1 week, 2 weeks, 1 month, etc.
- Go to places where you cannot smoke. Stay away from the places you used to smoke.
- Think about the money you saved!
- Think of quitting as an act of love for those you care about and for yourself!

# Resources for Quitting Tobacco



## Product-specific Resources

- financial aid Nicotrol® inhaler
  - 1-844-989-PATH (7284)
  - [pfizerrxpathways.com](http://pfizerrxpathways.com)
- Plant Extracts aromatherapy
  - 1-877-999-4236
  - [plantextractsinc.com](http://plantextractsinc.com)

## Allina Health (if you had a recent hospital stay)

- Tobacco Intervention Program at Abbott Northwestern Hospital
  - 612-863-1648
- Tobacco Intervention Program at Mercy Hospital
  - 763-236-8008
- Tobacco Intervention Program at River Falls Area Hospital
  - 715-307-6075
- Tobacco Intervention Services at Allina Health United Hospital – Hastings Regina Campus
  - 715-307-6075
- \*United Hospital Lung and Sleep Clinic Tobacco Cessation Program
  - 651-726-6200
- \*Penny George™ Institute for Health and Healing (LiveWell Center) tobacco intervention coaching
  - 612-863-5178

## Other

- Quit Partner
  - 1-800-QUIT-NOW (1-800-784-8669) or [quitpartnermn.com](http://quitpartnermn.com)
  - American Indian: 1-833-9AI-QUIT or [aiquit.com](http://aiquit.com)
  - Spanish: 1-855-DEJELO-YA (1-855-335-3569) or [quitpartnermn.com/es](http://quitpartnermn.com/es)
  - [asiansmokersquitline.org](http://asiansmokersquitline.org)
- online tobacco cessation support
  - [smokefree.gov](http://smokefree.gov)
- American Lung Association/Tobacco Quit Line
  - 651-227-8014 or 1-800-586-4872

\*There may be a cost to you.  
Check with your insurance provider.



# Chapter 6: Effects of Stroke

## Effects on Everyday Activities

### Tip

Your stroke and recovery are unique to you. You may have one or more changes that affect your ability to do everyday activities.

Talk with your health care provider about your changes and recovery.

### Important

Some everyday activities may be dangerous.

Ask your health care provider what activities are no longer safe for you and how to live a healthy lifestyle.

Your health care provider may want you to keep track of the activities that are and are not safe for you to do during your recovery.

Your stroke may affect how you think, move, feel, or a combination of these ways. Changes after your brain injury may be short-term or long-lasting. Changes may range from mild to severe.

Your changes will depend on:

- the area of your brain affected by the injury
- how bad your injury is (from mild to severe).

Some everyday activities may be more difficult or may not be safe for you. Your brain injury may affect your ability to:

- eat
- bathe
- get dressed
- use the toilet
- do housework
- cook
- use the phone
- handle money
- write
- speak
- coordinate your body movements
- drive or get around the community
- take care of children
- interact with other people.



## How Stroke May Affect You

Stroke usually affects one side of the brain. Movement and sensation for one side of the body is controlled by the opposite side of the brain.

This means that if your stroke affected the left side of your brain, you will have changes with the right side of your body. If your stroke affected the right side of your brain, you will have changes with the left side of your body.

Changes that may happen after a stroke on either side of the brain include the following.



### Abnormal muscle tone

This is a brain problem that can make your movements slow and jerky. There are different stages of muscle tone recovery.

- Your arm, leg or joint may be limp and floppy.
- Your arm, leg or joint may move on its own when your muscle tone starts to return. It does not always do what your brain tells it to do.
- Your arm, leg or joint begins to respond to your brain.

### Bladder changes

You may have problems urinating or controlling your urine (incontinence).

### Bowel changes

Constipation is the most common problem after a stroke. This may be caused by lack of liquids or limited physical activity. Your doctor or nurse can help you regain your regular bowel pattern.

### Cognitive problems

You may have problems with memory, thinking, attention or learning. For example, you may have trouble:

- concentrating
- following directions
- interacting with other people
- organizing or prioritizing your day
- making decisions
- understanding what is safe





- problem-solving such as:
  - thinking of all the steps needed to solve problems
  - coming up with other solutions if the first does not work
- doing everyday activities when a routine is changed or stopped
- remembering information or events such as:
  - what someone just told you
  - the current time and date
  - what you have read
  - if you took your medicine.

### □ **Coordination problems**

You may have reduced hand-eye coordination. When reaching for an object, your arm may waver or your hand may overshoot the object.



### □ **Dysarthria (dis-AR-three-a)**

Dysarthria is a motor speech problem. This means you are not able to coordinate the movement of your mouth to form words or sounds. You know the right words, but you have problems saying them.

It is not caused by confusion. It is caused by weakness, lack of coordination, or loss of feeling in your lips, tongue and mouth muscles. Dysarthria may affect your:

- word pronunciation
- voice
- speech rate
- rhythm
- resonance (how deep and clear your voice sounds)
- breath control for speaking.

### **Tip**

Just because your loved one has problems using language, does not mean they can't think clearly. Most people know what they want to say, they just have trouble putting their thoughts into words.

## Signs of Aspiration

Call your health care provider if you have any of these signs:

- a wet-sounding voice
- breathing you can hear
- struggling when breathing or swallowing
- shortness of breath
- rattling sound in your lungs
- higher body temperature.

## □ Dysphagia (dis-FAY-ja)

Dysphagia is a swallowing problem usually caused by weakness or loss of feeling in your tongue, lips, throat or palate (roof of your mouth).

It may cause problems with:

- moving food around your mouth
- having food stick in your throat
- coughing or choking on liquids or solids (aspiration).

If you have swallowing problems, you may need to have a video swallow study. (See page 44 for more information.)

A member of your health care team will recommend the correct diet for you. They may recommend some ways to help your swallowing. These may include:

- correct body and head positions
  - Stay as upright as you can.
  - If you are in bed, make sure the head of the bed is as high as it can go.
  - Bend your knees so you will not slide.
  - Put pillows behind your back.
  - Keep your head slightly bent downward. This will keep food and liquid from going into your lungs (aspiration).
- correct food texture
- correct food quantity
- correct feeding utensils and containers.

If you cannot eat or drink by mouth, you will need to get your nutrients by a tube. This will keep food and liquids from getting into your lungs.

- A nasogastric feeding tube is passed through your nose and esophagus to your stomach. This will be used for short-term tube feedings.
- A gastrostomy tube is put through your abdominal wall into your stomach. This will be used for long-term tube feedings when your recovery is slow.

The dietitian will suggest which tube feeding product will fit your recovery schedule. Members of your health care team will closely watch your tube feeding for any problems or adjustments.

Your ability to swallow may return during recovery. You will receive updates on your progress.

To reduce your risk of choking during your recovery:

- Check with your doctor if you cough when you swallow.
- A cough is your body's natural protection against choking. Do not try to stop this cough.
- **Call 911 right away** if you cannot clear your airway.
- You may be prescribed thickened liquids by your health care team. This will help you swallow safely.

### **Emotional changes**

Emotional changes should not be taken lightly. Emotional well-being can affect your recovery. See the section on emotional effects on pages 84-86.

### **Endurance problem**

You may find you are unable to do a task or activity for a long period of time. This should get better as you get stronger.

### **Fatigue**

Fatigue is a feeling of tiredness that can keep you from doing the things you normally do or want to do. It is common to feel tired more quickly after a brain injury. You may need more sleep or rest.

You may notice your symptoms are worse when you are tired. This should improve with rest and time.

Fatigue may cause you to:

- be unable to do a task or activity for a long period of time
- need more concentration or effort to do things
- feel more tired when you are stressed or anxious.

You may also have more trouble with coordination, vision, speech, movement, controlling your emotions or other problems when you are tired.



## **Hemiparesis (hem-ee-par-Ee-sis) or Hemiplegia (hem-ee-PL EE-ja)**

You may have weakness, partial or complete paralysis of one side of your body or just one arm or one leg.

- If the stroke was on the left side of your brain, the right side of your body will be affected.
- If the stroke was on the right side of your brain, the left side of your body will be affected.

## **Impulsivity**

You may act without planning ahead.

## **Judgment**

You may not know your own limits. You may act without thinking about the consequences of your actions. You may misinterpret situations. You may be unable to judge, problem-solve, organize, use higher-reasoning skills or all of these.

## **Memory problems**

You may have poor memory. This may lead to problems retaining, blending and recalling information.

## **Sensation changes**

You may have numbness or loss of feeling in different parts of your body. This may cause you to have trouble knowing where you place or how you position a part of your body (such as your hand or foot).

## **Sexuality concerns**

It is rare that a medical concern would keep you from sexual activity. Fear may keep you from being intimate with your partner. You may feel anxiety about how you look, changes in your relationship or rejection.

Talk with your partner about how you feel. Talk about how the two of you can become close and tender again. Talk with your doctor if you are having intimacy concerns.

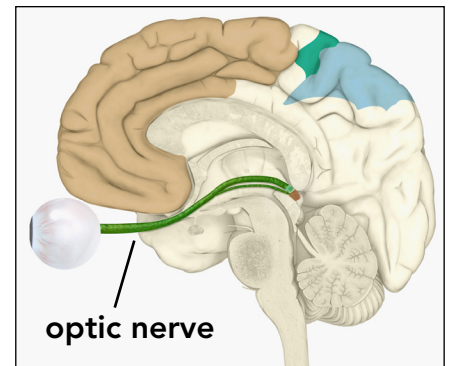


## ❑ Vision changes

Problems with vision are common after a stroke or brain injury. Most problems happen between the brain and the optic nerve.

When brain signals are interrupted, your brain can't understand what it is "seeing." This means you may have problems with your vision that can affect all areas of your life.

During the first few months of your recovery, your eyes are going through rapid changes while working toward normal vision. Managing your symptoms can help your vision recover.



**Vision is more than just seeing clearly. Your visual system is a complex network of brain cells that process and interpret your visual experience. Damage to anything in the visual network can cause issues with your vision.**

## Common issues

- ❑ vision loss
- ❑ blurred vision
- ❑ double vision
- ❑ weakness with the muscles around your eyes
- ❑ problems with your side (peripheral) vision
- ❑ problems quickly focusing after doing a close activity or hobby such as reading or knitting
- ❑ problems looking at a computer, TV or phone screen
- ❑ problems looking at moving objects
- ❑ problems focusing in a busy environment
- ❑ problems judging the distance of objects
- ❑ feeling like the floor is tilted (causing you to lean)
- ❑ having other issues such as:
  - thinking words are blurry or moving on a page or screen
  - having issues understanding what you are seeing
  - being unaware of one side of your visual field.





## How you may feel

You may have some or all of the following:

- eye strain
- dizziness
- nausea (feel like throwing up)
- vomiting (throwing up)
- headaches
- sensitivity to light
- feeling more tired than usual
- feeling overwhelmed in busy spaces such as a grocery store or while driving
- feeling anxious
- trouble tolerating noises, smells or visual details
- trouble with visual movements such as video games or reading.

The good news is managing your visual deficits can help reduce these issues.

## How to manage vision issues

### Take breaks

- Take breaks before you have symptoms.
- Rest your eyes every 10 minutes by looking 20 feet away for 20 seconds.
- Do something else that has fewer vision demands.
- Use palming.
  - Cover your eyes with your hands.
  - Take slow or deep breaths.



### Adjust lighting

- Try different tinted glasses for outdoor use and screen time.
- Turn off overhead lights and use task lighting (such as a desk lamp).



## Manage screen time

- Limit screen time.
- Take breaks.
- Try different backgrounds and screen lighting.

## Doing near tasks

- Use rulers, index cards or guides to improve your visual focus.
- Change the size of text on your computer.

## Reduce visual clutter

- Create clean places you can work in.
- Use a basket for items you use most often.
- Put away clutter for 5 minutes each day in rooms you use often.
- Keep items where they belong.
- Keep items you use the most handy.



## Avoid overstimulation

- Plan ahead when you have to go somewhere that could lead to overstimulation.
- Try to rest in a quiet room or listen to soothing music or a meditation.
- Wear an eye mask while you rest.

## When to talk with your health care provider

Talk with your health care provider if:

- your vision does not get better
- you have any new symptoms
- you need adaptive or community resources
- you have questions or concerns.

## Know what triggers your symptoms

Processing visual information can take a lot of energy and may cause you to have symptoms.

Changing your environment or task can help your vision and lower the energy you need.



Mark the things that trigger your symptoms.

- lighting
- screen time (computer, phone, TV, video games or movies)
- near tasks (reading, or moving from 1 document to another or 1 line to the next)
- visual distractors (such as clutter)
- busy environments (such as grocery stores, malls, stadiums and other public places)
- other \_\_\_\_\_
- other \_\_\_\_\_

## How Stroke May Affect Your Mental and Emotional Health

You may have emotional, behavioral or other mental health changes. Talk with your health care provider if your emotional changes become severe or if they do not go away. You may find help by talking with a social worker or psychologist.

You may have one or more of the following changes.

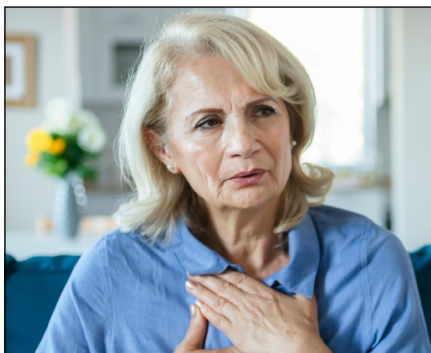
### Anxiety

Anxiety is a strong feeling of fear and may involve constant worry. Intense anxiety is a temporary reaction to the stresses of everyday life. Some anxiety is normal.

You need to get help when you have physical symptoms that keep you from feeling healthy and affect your work or social life. Severe and chronic (long-lasting) anxiety needs treatment.

Common symptoms of anxiety include:

- dizziness or feeling lightheaded
- racing or pounding heartbeat
- trouble breathing (too rapid, short of breath or unable to breathe)
- feeling like you will throw up
- tense muscles or shaking
- worrying a lot
- irritability or restlessness
- trouble concentrating
- problems sleeping due to worrying
- avoiding situations that make you uncomfortable.



## Thoughts of Death or Suicide

Depression can include feelings of hopelessness or worthlessness and even thoughts of suicide.

**Call the National Suicide Prevention Lifeline at 988 if you are having thoughts of death or suicide.**

Contact your primary care provider to let them know.



## □ Depression

Clinical depression is a serious medical illness. It is not something you have made up in your head. It is more than just feeling “down” or “blue” for a few days. It is normal for you to feel sad after a brain injury. But there is a deeper sadness that may show up right after a brain injury or many weeks later.

You may have feelings of helplessness, hopelessness and poor self-esteem. These feelings can go on for weeks or months. Depression can even affect how often you become ill or how well you heal after your stroke.

You need to call your doctor right away if you have any of the following symptoms:

- feeling sad, blue or down in the dumps
- losing interest in things you used to enjoy
- feeling sluggish, restless or unable to sit still
- feeling worthless or guilty
- having an increase or decrease in appetite or weight
- having problems concentrating, thinking, remembering or making decisions
- having trouble sleeping or sleeping too much
- losing energy or feeling tired all the time
- having headaches
- having aches and pains
- having digestive problems
- having sexuality problems
- feeling pessimistic or hopeless
- being anxious or worried
- having relationship problems with members of your care circle
- having thoughts of death or suicide.



### **Emotional lability (limited control over your feelings and reactions)**

You may have limited control over your feelings and reactions. You may laugh, cry or get upset more easily or at the wrong times.

### **Loss of inhibition**

You may have changes in how you interact with other people. You may have these types of behaviors:

- aggression or violence
- impulsiveness or no self-control
- temper outbursts (verbal or physical)
- inappropriate social behavior
- inappropriate sexual behavior
- inappropriate use of alcohol, street drugs (heroin, marijuana, methamphetamine) or both.

### **Mood swings**

You can go from being happy to being sad or angry without warning. Your mood swings may vary.

### **Self-centeredness**

You may be focused on your needs and not be paying attention to members of your care circle.



# How Location of Stroke May Affect You

## □ Left Brain Stroke

### Tip

In some left-handed people, language is controlled by the right side of the brain and awareness by the left side of the brain.

In most people, the left side of the brain controls the ability to speak and understand language. These are the most common language symptoms of a left brain stroke.

### □ Anomia

You may not recall the names of everyday objects.

### □ Aphasia (a-FAY-zha)

Aphasia is a language problem that affects your ability to:

- speak
- read
- write
- listen
- deal with numbers
- understand speech or written words
- think of words when talking or writing.

How much trouble you have with aphasia depends on the type, location and severity of your brain injury.

Aphasia means you have problems speaking and understanding language. You may be unable to find the words you need or put sentences together. This is like having a word “on the tip of your tongue.”

To know why a stroke can cause so many different problems, it is helpful to understand how speech works.

- Expressive speech: you can say in words what you are thinking.
- Receptive speech: you understand what someone is saying to you.

A speech-language pathologist (or speech therapist) can help with these problems. They will do an exam that includes your ability to:

- speak aloud
- listen and understand
- write
- read and understand.



This exam can also which areas of speech and language have been affected. See pages 102-105 for information about how to communicate with someone who has aphasia.

### ❑ **Apraxia (motor apraxia)**

You may not be able to do purposeful movements even though your muscles and senses are working normally.

### ❑ **Verbal apraxia (a-PRAX-ee-a)**

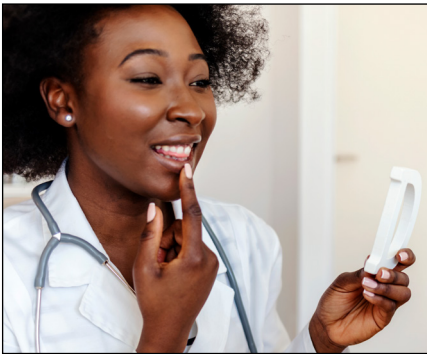
Verbal apraxia is a motor speech problem. This means you are not able to coordinate the movement of your mouth to form words or sounds.

It is not caused by loss of feeling or muscle weakness.

You know the right words, but you have problems forming words or putting sounds together.

You may have problems with word pronunciation:

- saying words clearly  
You may substitute (or replace) a correct sound with an incorrect sound. For example, a “cup of coffee” may come out as “a puck of pappy” or a “bup of foppe.”
- saying sentences clearly  
You may repeat a single syllable or phrase. For example, “I dunno” may come out as “do-do-do.”



## ❑ Right Brain Stroke

In most people, the right side of the brain controls thinking skills such as attention, memory and reasoning. These are the most common symptoms of a right brain stroke.

### ❑ Agnosia

You may not be able to recognize objects, faces, voices or places.

### ❑ Anomia

You may not recall the names of everyday objects.

### ❑ Attention span

You may be unable to focus attention on a conversation or tasks for long periods of time.

### ❑ Denial

You may deny that you had a stroke. Some people even deny that their paralyzed arm or leg belongs to them. They look at the paralyzed arm or leg and believe it belongs to someone else.

### ❑ Neglect

You may ignore the left side of your body or your environment. This means you may not turn to look toward your left side or you may not recognize things that are on your left.

### ❑ Perseveration

You may have difficulty following instructions or answering many questions asked one right after the other. You may repeat answers or movement even though a new instruction was given or a new question asked.

### ❑ Visual/spatial problems

You may have problems judging distance, size, position and rate of movement and how parts relate to a whole.



## ❑ Posterior Stroke

A posterior circulation stroke means the stroke affects the back area of your brain. This includes your brain stem, cerebellum (the area responsible for balance and coordination) and occipital lobes (the area responsible for vision).

Changes that may occur include the following.

### ❑ Ataxia

You have a loss of coordinated arm or leg movements.

### ❑ Double vision

You may have problems with your vision because your eye movement is limited in one or both eyes.

### ❑ Vertigo

You have dizziness that makes you feel like you are spinning.

### ❑ Visual field loss

You may not be able to see anything toward your left or right.



## **Brainstem Stroke**

The brainstem connects the brain and the spinal cord. It controls many important functions, such as breathing, blood pressure and heart rhythm. Changes that may occur after a stroke in the brainstem include the following.

### **Breathing problems**

### **Coma**

You are unable to wake up or move.

### **Dysphagia**

You have a swallowing problem caused by weakness or loss of feeling in your tongue, lips, palate, throat or all. See pages 78-79 for more information on dysphagia.

### **Heart problems**

### **Hearing loss**

### **Hemiparesis or hemiplegia**

You have weakness, partial or complete paralysis on your left side or right side or both.

### **“Locked in” state**

You appear to be aware of your surroundings, but are unable to speak or respond in a meaningful way.

### **Sensation changes**

You have numbness or loss of feeling on your left side or right side or both.

## **Multiple Stroke (Pseudobulbar State)**

A multiple stroke means several small (lacunar) strokes happen in a short time on both sides of your brain. You may feel weakness or loss of feeling on either side of your body.

In addition to changes that occur in the left and right sides, you may also have confusion, dementia or both.





# Chapter 7: For the Care Circle Members

## What to Consider About Visitors

Your loved one may or may not want to have visitors during the hospital stay. Respect your loved one's wishes about when they would like to see members of their care circle.

Each hospital has different visitor rules. Ask your loved one's health care team about rules for your area.

### How to help your loved one



- Limit visitors to no more than 2 at a time to protect your loved one from too much stimulation.
- Limit visits to 10 to 15 minutes, unless you are just sitting with your loved one and not talking or doing an activity.
- Keep your conversations brief and clear. Give just 1 piece of information at a time.
- Speak slowly with a calm, quiet voice. Give your loved one time to respond.
- You may put up a few family photos in your loved one's room. Limit cards, balloons and flowers. Consider putting photos and cards in a small album.
- Do not use your phone when your loved one is in the room. If you need to use your phone, go into the hallway.
- If the room phone keeps ringing, talk with a nurse about your options.
- Keep the television, music and computer off unless you know your loved one enjoys it. Limit screen and music time to no more than 20 minutes to protect your loved one from too much stimulation.
- Remove clutter in your loved one's room.
- Check with staff before giving your loved one anything to eat or drink.
- Share these tips with others who visit.
- Talk with any member of your loved one's health care team if you have any questions or concerns.

## Just for the Caregiver

Your loved one will have specific needs after a stroke. This means you may need to learn new skills or change your role with them.

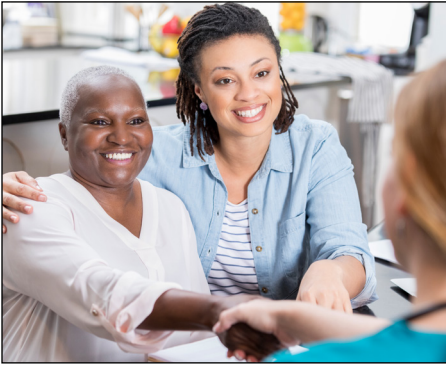
It is important that you learn about your loved one's safety, physical and emotional needs.

Here are some tasks you may do:



- Keep notes about discharge plans. Ask about anything that is not clear.
- Help to make sure your loved one takes their medicines the right way at the right time.
- Help to make sure your loved one follows recommendations for eating, exercising and resting.
- Help your loved one practice the skills learned in rehabilitation.
- Help your loved one solve problems and learn how to do things.
- Help your loved one with tasks done before the stroke. This includes using tools, buttoning a shirt and doing housework.
- Help your loved one with personal care if needed.
- Help your loved one's speech if needed. Include them in family activities even if they cannot actively participate.
- Arrange for any needed community services.
- Help your loved one schedule and attend follow-up appointments.
- Help keep your loved one safe. Be aware of your loved one's limitations (such as cooking, driving or returning to work).

# Preparing to Care for Your Loved One



## Important

You are not alone. Help is available to help you care for your loved one.

See the resources on pages 113-115.

Think about how your role may change with your loved one. This can help you prepare to provide care. Ask yourself the following questions:

- What are my loved one's needs?
- Who can best help meet my loved one's needs?
- Am I ready or able to help my loved one recover?
- What resources will I need to care for my loved one?  
Do I know where to go for those resources? (See pages 113-115.)
- Will this care need to be scheduled around my work or other activities?
- If others are helping care for my loved one, who will be the main person providing care?

You will have time to talk with your loved one's health care team before discharge (leaving the hospital) to make plans for care after discharge.

Your loved one's brain injury and needs are unique. It is important that you learn about your loved one's safety, physical and emotional needs.

Your loved one's health care team will help you decide what type of care and how much care your loved one needs. You may need to learn new skills or change your role with your loved one.

## Your Role in Providing Care



Below are some tasks you may need to do.

- Keep notes about your loved one's care plan after leaving the hospital. Ask about anything that is not clear.
- Help make sure your loved one:
  - takes their medicines correctly and on time
  - eats well, exercises and rests (see pages 61-64).
- Help your loved one:
  - practice the skills learned in therapy
  - solve problems
  - learn or relearn how to do things
  - with personal care such as bathing or using the toilet
  - with tasks they did before the brain injury. This may include using tools, buttoning a shirt and doing housework.
  - communicate if needed. Include them in family activities even if they cannot actively participate.
- Arrange for any needed community services.
- Learn all you can about brain injury symptoms, treatment and care.
- Check out education classes or information in your community.
- Talk to your loved one's health care team if you have any questions or concerns.

## Taking Care of Yourself



Taking care of yourself is just as important as taking care of your loved one.

Continue to take care of yourself. Consider the following.

- Take time each day to be by yourself, or take 1 or 2 days off during the week. This can refresh you and help you provide better care.
- Get out of the house for a quick break such as having lunch, going for a walk with a friend, or going to the gym.
- Take time to do activities you enjoy.
- Ask your loved one's care circle for help.
- Ask about community agencies, volunteer groups, churches, respite care or nursing agencies that can help you.
- Talk to a psychologist about how your life has changed.
- Join a support group to talk with other caregivers about their experiences and feelings. (See page 115.)

## Support Groups



Support group members share common experiences about caring for a loved one. Members “lend an ear” so you can share your feelings with others who may have similar needs and feelings.

Support groups can also give you ongoing education, tips and sources of help in the community.

Support group members can become your new friends or give you support. See page 115.

## Tips for Reducing Stress

### Tip

Visit the Penny George® Institute for Health & Healing at [allinahealth.org/pennygeorge](http://allinahealth.org/pennygeorge) to learn more about services, classes and programs.



- Take stroke recovery one day at a time. Be hopeful for a successful recovery.
- Appreciate each small gain your loved one makes. Your loved one’s emotions and ability to do things may vary day to day. They may need to learn how to do things in different ways or try new ways of doing tasks, talking, speaking and organizing their social life.
- Expect that your skills and knowledge of how to provide care will improve. This is a time of learning for both you and your loved one.
- Plan for breaks so you and your loved one are not together all the time. Time apart is important for both you and your loved one. Try to do activities that get you both out of the house.
- Ask your loved one’s care circle to help.
- Try relaxation, massage, exercise or meditation to cope with your stress. Ask a nurse about your options.
- Learn from others who have had similar experiences. Read about them or join a support group.
- Be patient with and kind to each other. You may feel frustrated some times. Do not take your frustrations out on others. Talk with a family member, friend, professional or support group about your feelings.

# Progressive Muscle Relaxation

Progressive muscle relaxation is a short and easy exercise to help you relax.

## Getting started

Find a relaxing position. You may sit down or lie on your back in bed. Be sure your legs and hands are not crossed.

You may close your eyes. If you prefer, you can keep your eyes open, but focus on one spot in front of you.

Bring your attention to your breathing. Think about where your breath comes in and out of your nose or mouth. Think about how your chest moves up and down with each breath.

Imagine a gentle, safe wave of relaxation that will slowly and warmly flow through your body. The wave can help you find those places that need to relax and give them permission to relax.

You can also imagine this wave in any way you find most comfortable. You may see it as light, water or just a feeling.

If your mind wanders, gently bring it back to your breathing.

## Relax from your head to your feet

- Bring your attention to the top of your head and begin to imagine a wave.
- With your next breath out, feel the wave flow through your head. Feel your jaw soften and relax.
- Breathe in.
- With your next breath out, focus on the back of your neck. Let it soften and relax.
- Breathe in.
- With your next breath out, imagine the wave moving through each arm all the way to your hands. Feel your hands become slightly heavier where they are lying.
- Breathe in.



- With your next breath out, imagine the wave of relaxation roll gently and safely down your spine. Let all of your back muscles relax and soften.
- Continue to breathe. Feel the wave flow as you breathe out.
- Let the wave flow through your pelvic area and hips into your upper legs and thighs.
- Breathe in.
- With your next breath out, allow the wave to find those areas in your legs and knees that need to relax. Give them permission to relax.
- Breathe in.
- With your next breath out, feel the wave move into your calves, then your feet. Feel your feet become a little heavier.
- Take two deep breaths. Imagine any remaining stress gently flowing out the bottoms of your feet.

Take a moment to observe the still place you created.  
With practice, relaxation will become easier.

## Guided Imagery

You can use your imagination to help you breathe easier.  
Guided imagery helps manage distress and gives you a better sense of well-being.

- Think about a pleasant or restful place. It can be anywhere: a beach, a cabin, the woods or a safe place at home.
- Let happy thoughts of your favorite scene or place relax you.
- Close your eyes and picture that scene or place.
- Focus on the sights, sounds and smells of your favorite scene or place as you relax.
- Let your body relax and your breathing become deeper.



# How Aphasia Affects Your Loved One's Speech and Understanding

## Medical Term

**Aphasia** (a-FAY-zha) is a language problem.

Aphasia means your loved one has problems understanding language and speaking. They may be unable to find the right words or put sentences together. Not all strokes cause aphasia.

This means your loved one's brain may have problems with:

- speaking
- listening
- reading
- writing
- dealing with numbers.

## Tip

Just because your loved one has problems using language does not mean they cannot think clearly.

Most people know what they want to say, they just have trouble putting their thoughts into words.

Some people with aphasia:

- are unable to use nouns or verbs while others have trouble with little words like *the* and *of*
- speak easily while others struggle to make a sound (Sometimes they are hard to understand.)
- may be unaware that their speech is unclear
- have trouble retrieving the right words they want to say
- know the right words but cannot form them with their lips, tongue and teeth (may cause stuttering or slurred speech)
- have problems understanding simple commands and more complex material.

## Tips to Help You and Your Loved One Communicate

- Do not assume your loved one cannot understand what is being said. Never say anything you would not want your loved one to hear.
- Work closely with the speech-language pathologist. You can help improve and maintain your loved one's communication skills by following the home program.
- Learn when is the best time of day to work on communication skills. Try to use that time whenever you can. Good times are when your loved one is well-rested. Mornings can be a good time after a good night's sleep.
- Set up a routine.
- Let your loved one rest several times each day.
- Respect your loved one's wishes about when they would like to see members of their care circle. Your loved one may want to wait until they have adjusted or improved their communication skills. Slowly get your loved one back into social situations.
- Include your loved one in communication even if they seem unable to speak or understand.
- Let your loved one share in life-affecting decisions.
- Encourage your loved one to be as independent as they can.



### Helping your loved one listen

- Reduce distractions. Close the door. Turn off the TV or radio. Pull the curtains.
- Limit the number of people in the conversation.** Try to avoid large groups.
- Sit down so your loved one can see you. This will help them be more relaxed.
- If your loved one wears hearing aids, make sure they wear them, have them turned on, and the batteries are working.



## Helping you speak

- Speak slowly.
- Use short, simple sentences.
- Pause between sentences to give your loved one time to “digest” what you have said and respond.
- Give your loved one directions, questions or one piece of information at a time.
- Talk about things your loved one can see. Use photos, hand movements or facial expressions.
- Write down any request you have for your loved one. This way they can read what you are asking.
- Watch for signs your loved one understands you. Repeat or rephrase what you are saying if needed.
- Do not ask your loved one to talk and do another task at the same time.
- Try not to switch topics too quickly or often.
- Keep conversations short and to the point.



## Helping your loved one speak

- Allow at least 30 seconds for your loved one to respond, follow a direction or to tell you something.
- Remind your loved one to:
  - speak slowly
  - speak clearly.
- Encourage your loved one to use other ways of communication such as:
  - write it first and read it out loud
  - gesture the meaning or what someone would do with it
  - draw a picture
  - point to the picture, object or word on a chart
  - describe it in other words.
- If your loved one tries 2 or 3 times and gets frustrated, ask them to take a short break. Have them try again in a few minutes.



## Helping you listen

- Be patient.
- Do not interrupt. Give your loved one at least 30 seconds to respond. Try to look relaxed while you wait.
- Let your loved one know when you do not understand. For example try saying, "I am not understanding you."

## Aspiration

### Medical Term

When food, drink, saliva or vomit accidentally enters the lungs, it could cause an infection. This is known as **aspiration**.

After a stroke, some people are more likely to cough or choke on liquids or solids. This can cause aspiration. It is common for people who have dysphagia (see pages 78-79) to be at risk for aspiration.

Watch your loved one for signs of aspiration:

- a wet-sounding voice
- breathing you can hear
- struggling when breathing or swallowing
- shortness of breath
- a rattling sound in their lungs
- fever.

If you think your loved one has aspiration:

- do not try to stop the coughing. Coughing is the body's natural protection against choking.
- have your loved one stop eating and drinking until they stop coughing and the airway is clear
- make sure you or your loved one talks about aspiration with a speech-language pathologist or doctor. They can check for aspiration and may give tips to reduce the risk of choking.

### When to call 911

Call 911 if your loved one:

- has a blue or purple tinge to their skin color
- is not breathing for more than 30 seconds
- is unable to speak or cough.



# Sexual Behavior and Sexual Activity

## Important

Talk honestly with your loved one's health care provider about your questions or concerns.

If the health care provider doesn't know there is a problem, they can't help.



It is common for people with brain injuries to have a change in sexual behavior or sexual activity.

There are two common types of changes: hyposexuality and hypersexuality.

## Hyposexuality

Your loved one may lose interest in sex, feel depressed, cry or get upset more easily or at the wrong times. This may be the result of sexual dysfunction or physical changes caused by the brain injury.

The most common types of sexual dysfunction are:

- lack of arousal and orgasm
- erectile dysfunction (ED or impotence). This is the inability to get or keep an erection long enough for sexual intercourse.

Fear about physical changes may keep your loved one from being intimate. They may feel anxious about:

- how they look
- changes in their relationship
- rejection.

It is important for you to know how to deal with hyposexuality.

- Talk openly with your loved one's health care provider about your loved one's hyposexuality. Talk about any questions or concerns you have.
- If your loved one is also your sexual partner, it may be helpful to talk with a licensed family or marriage counselor about any concerns you may have.

## Learn More

Visit the American Stroke Association to learn more about [intimacy after stroke](#). Go to [stroke.org](#) > About Stroke > Effects of Stroke > Emotional Affects of Stroke.



## Hypersexuality

Your loved one may have increased sexual thoughts, feelings or behaviors.

Hypersexuality may cause inappropriate sexual behavior such as:

- talking explicitly about sex
- making offensive or bad sexual comments or gestures
- touching others.

It is important for you to know how to deal with inappropriate sexual behavior.

- Talk with your loved one's health care team about what to do if there are inappropriate sexual behaviors. Common questions include:
  - What do I do if they touch someone inappropriately?
  - How should I react if they start talking sexually?
  - How should others respond to my loved one's inappropriate behavior?

Talk openly with your loved one's health care provider about any other questions or concerns you have.

- Talk with your loved one's care circle about what kinds of sexual behavior are appropriate and what are not.
- If your loved one is also your sexual partner, it may be helpful to talk with a licensed family or marriage counselor about any concerns you may have.
- Talk with your loved one's health care provider about the risks of sexually transmitted infections.



# Reducing Brain Over-stimulation

## Over-stimulation

To help your loved one recover from a brain injury, it's important to help them not get over-stimulated.

Their brain is unable to make sense of all of the information coming in such as sounds, lights, touches and smells.

In the early stages of rehabilitation, it is important to provide an environment that reduces brain over-stimulation so they can participate in rehab.

Members of the health care team will work to keep your loved one on a regular schedule and plan their care in a quiet, dimly lit environment. Without this, your loved one may become overwhelmed and more confused. They may withdraw and shut down or even become aggressive.

The amount of stimulation your loved one receives will increase as they improve.

## Signs to Watch for

Signs your loved one may be over-stimulated:

- being restless or trying to move around
- repeating the same words or sounds
- having a lack of attention
- being easily distracted
- being confused, irritated or being verbally aggressive
- being physically aggressive
- not wanting to be touched or withdrawing from interactions with staff or visitors.

Tell a member of the health care team if you think your loved one is over-stimulated.

## How To Help Your Loved One

- Limit visitors to no more than 2 at a time.
- Limit visits to 10 to 15 minutes, unless you are just sitting with your loved one and not talking or doing an activity.
- Keep your conversations brief and clear. Give just one piece of information at a time.
- Do not use your phone when your loved one is in the room. If you need to use your phone, go into the hallway.
- If the room phone keeps ringing, talk with a nurse about options.
- Keep the television, music and computer off unless you know your loved one enjoys it. Limit screen and music time to no more than 20 minutes.
- You may put up a few family photos in your loved one's room. Limit cards, balloons and flowers. Consider putting photos and cards in a small album.
- Remove clutter in your loved one's room.
- Speak slowly with a calm, quiet voice. Give your loved one time to respond.
- Check with staff before giving your loved one anything to eat or drink.
- Share these tips with others who visit.

Talk with any member of your loved one's health care team if you have any questions or concerns.



## Environmental Management System

Courage Kenny Rehabilitation Institute uses a system of communication that identifies how the environment should be managed for each person based on where they are in the rehabilitation process. This is called the environmental management system (EMS).

The system is based on a traffic light:

- red light: full restrictions
- yellow light: some restrictions
- green light: limited or no restrictions.

The level may change based on your loved one's needs and health care team's advice.

	Red Light	Yellow Light	Green Light
<b>Lighting</b>	<ul style="list-style-type: none"> <li>■ dim/dark at night</li> <li>■ natural light during the day</li> </ul>	<ul style="list-style-type: none"> <li>■ as they can tolerate</li> </ul>	<ul style="list-style-type: none"> <li>■ no restrictions</li> </ul>
<b>Noise</b>	<ul style="list-style-type: none"> <li>■ completely quiet</li> </ul>	<ul style="list-style-type: none"> <li>■ avoid loud, annoying, or ongoing noises</li> </ul>	<ul style="list-style-type: none"> <li>■ no restrictions</li> </ul>
<b>Room décor</b>	<ul style="list-style-type: none"> <li>■ none or very limited</li> </ul>	<ul style="list-style-type: none"> <li>■ a small amount is OK</li> <li>■ avoid violent or sexual content</li> <li>■ avoid busy or active posters</li> </ul>	<ul style="list-style-type: none"> <li>■ no restrictions</li> </ul>
<b>TV, video, music</b>	<ul style="list-style-type: none"> <li>■ none</li> </ul>	<ul style="list-style-type: none"> <li>■ no more than 20 minutes at a time (not during scheduled rest breaks)</li> </ul>	<ul style="list-style-type: none"> <li>■ no restrictions</li> </ul>
<b>Visitors</b>	<ul style="list-style-type: none"> <li>■ family only</li> <li>■ 1 visitor at a time</li> <li>■ limit visit to 10 minutes or less</li> </ul>	<ul style="list-style-type: none"> <li>■ family, close friends, and clergy</li> <li>■ no more than 1 or 2 visitors at a time</li> <li>■ limit visits to 15 minutes or less</li> </ul>	<ul style="list-style-type: none"> <li>■ no restrictions</li> <li>■ must follow the hospital visitation policy</li> </ul>
<b>Touch, handling</b>	<ul style="list-style-type: none"> <li>■ limit touch and handling except as absolutely needed for medical care</li> </ul>	<ul style="list-style-type: none"> <li>■ as they can tolerate</li> </ul>	<ul style="list-style-type: none"> <li>■ no restrictions</li> </ul>
<b>Treatment location</b>	<ul style="list-style-type: none"> <li>■ in the room or in a private treatment area</li> </ul>	<ul style="list-style-type: none"> <li>■ in a private or semi-private treatment area</li> </ul>	<ul style="list-style-type: none"> <li>■ anywhere</li> </ul>
<b>Notes</b>	These help prevent agitation later, help your loved one tolerate and benefit from rehabilitation therapies and keep your loved one safe and comfortable.	Red light restrictions will be used at the first sign(s) of agitation or withdrawal.	These provide cues to help your loved one recognize symptoms of overload, understand what adds to it and understand how to reduce stimulation.

# Chapter 8: Resources

## Allina Health Resources

- **Allina Health Home Health**  
651-635-9173
- **Courage Kenny Rehabilitation Institute**  
612-863-4200 or 1-866-880-3550
  - Adaptive Sports & Recreation:  
612-775-2277 or [allinahealth.org/adaptivesports](http://allinahealth.org/adaptivesports)
  - Aquatics, fitness and wellness:  
612-775-2306
  - Driver Assessment and Training:  
612-262-7855
  - Vocational Services:  
612-775-2569
- **Financial assistance**  
612-262-9000 or 1-800-859-5077
- **Mental Health & Addiction Connection**  
1-866-603-0016
- **Penny George® Institute for Health and Healing**  
612-863-3333 or [allinahealth.org/pennygeorge](http://allinahealth.org/pennygeorge)
- **Transportation**
  - Allina Health Emergency Medical Services:  
651-241-4400
  - non-emergency medical transportation:  
651-222-0555
- **Neuroscience Research**
  - research and clinical studies
  - [allinahealth.org/research/areas-of-research/neuroscience-research](http://allinahealth.org/research/areas-of-research/neuroscience-research)

## Community Resources

- **Adaptive recreation**
  - Capable Partners:  
612-299-1329
  - Reach for Resources, Inc.:  
952-200-3030
  - Wilderness Inquiry:  
612-676-9400
  - Parks and Recreation Department:  
You can find information on local programs through your city.  
Visit your city's website to learn more.
- **Adult day care programs**
  - Minnesota Department of Human Services:  
Visit [mn.gov/dhs](http://mn.gov/dhs) to learn more about local licensed service providers.  
Click *General public* and then *Licensing*.
  - Wisconsin Adult Day Services Association:  
[wadsa.org](http://wadsa.org)
- **Adult protective services**
  - Minnesota Adult Abuse Reporting Center:  
1-844-880-1574
  - Wisconsin:  
Visit [dhs.wisconsin.gov/aps](http://dhs.wisconsin.gov/aps) to learn more about adult protective services.  
Click *Elderly Adults-at-Risk Helplines* in the left navigation bar to find your county agency and contact information.
- **Brain Injury Alliance**
  - Minnesota:  
612-378-2742 or 1-800-669-6442
  - Wisconsin:  
262-790-9660 or [admin@biaw.org](mailto:admin@biaw.org)
- **Courage Kenny Rehabilitation Institute Adaptive Sports & Recreation:**  
612-775-2277 or [allinahealth.org/adaptivesports](http://allinahealth.org/adaptivesports)

### ■ Suicide & Crisis Lifeline (Minnesota)

- Suicide & Crisis Lifeline:  
988

### ■ Crisis services (Wisconsin)

- HOPELINE:  
Text “HOPELINE” to 741741
- Prevent Suicide Wisconsin:  
Visit [preventsuicidewi.org](http://preventsuicidewi.org) to find a suicide prevention coalition or crisis line near you. Under Learn, click *Wisconsin Suicide Prevention Plan*.

### ■ Resource centers (Minnesota)

- Disability Linkage Line®:  
1-866-333-2466
- Senior LinkAge Line®:  
1-800-333-2433

### ■ Resource centers (Wisconsin)

- Aging and Disability Resource Centers:  
[dhs.wi.gov/adrc](http://dhs.wi.gov/adrc)

### ■ Respite care

- Call your local nursing homes, home health agencies, adult day care centers or county Department of Social Services.

### ■ Stroke associations

- American Stroke Association®:  
[stroke.org](http://stroke.org) or 1-888-478-7653
- Minnesota Stroke Association:  
[strokemn.org](http://strokemn.org) or 763-553-0088
- National Institute of Neurological Disorders and Stroke:  
[ninds.nih.gov](http://ninds.nih.gov)

### ■ Transportation (Minnesota)

- Metro Mobility:  
Call 651-602-1111 or visit [mnhelp.info](http://mnhelp.info) to find local transportation services. Type “medical appointment transportation” in the search bar.

### ■ Transportation (Wisconsin)

- Medicaid and BadgerCare Plus non-emergency medical transportation:  
1-866-907-1493
- Tender Care Transport:  
715-835-2435

### ■ Transportation (National)

- Independent Living Research Utilization:  
[ilru.org](http://ilru.org)
- United Way:  
211 or 651-291-0211

### ■ Department of Veterans Affairs

- Minnesota:  
1-888-546-5838
- Wisconsin:  
1-800-947-8387

### ■ Disability parking permits (Minnesota)

- Driver and Vehicle Services:  
Call 651-297-3377 or visit [dmv.org/mn-minnesota/disabled-drivers.php](http://dmv.org/mn-minnesota/disabled-drivers.php) to learn more about disability parking permits.

### ■ Disability parking permits (Wisconsin)

- Wisconsin Division of Motor Vehicles:  
Call 608-264-7169 or visit [dmv.org/wi-wisconsin/disabled-drivers.php](http://dmv.org/wi-wisconsin/disabled-drivers.php) to learn more about disability parking permits.

### ■ Meals on Wheels (Minnesota)

- Metro area:  
612-623-3363
- Greater Minnesota:  
Visit [meals-on-wheels.com](http://meals-on-wheels.com) and click *Get Meals* to learn more about home-delivered meals.

### ■ Meals on Wheels (Wisconsin)

- Visit [gwaar.org](http://gwaar.org) to learn more about home-delivered meals. Click *Technical Assistance* and then *Nutrition Program*.

■ **Vocational rehabilitation services (Minnesota)**

- Minnesota Employment and Economic Development:
  - Metro area: 651-259-7114
  - Greater Minnesota: 1-800-657-3858

■ **Vocational rehabilitation services (Wisconsin)**

- Wisconsin Division of Vocational Rehabilitation:  
608-261-0050 or 1-800-442-3477

## Support Groups

■ **American Stroke Association**

- 1-888-478-7653 or [stroke.org](http://stroke.org)

### Allina Health

■ **Abbott Northwestern Hospital:**

- 612-863-4317 or 612-863-4576

■ **Abbott Northwestern Hospital YESS (Young Enthusiastic Stroke Survivors):**

- 612-863-4317 or 612-863-4896

■ **Buffalo Hospital:**

- 763-684-3855

■ **Cambridge Medical Center:**

- 763-688-7782

■ **Courage Kenny Rehabilitation Institute Stroke Program coordinator**

- 612-863-4317

■ **Courage Kenny Rehabilitation Institute – Golden Valley Campus:**

- 612-863-4872

■ **Mercy Hospital:**

- 763-236-8910

■ **New Ulm Medical Center:**

- 1-507-217-5685 or 1-507-217-5686

■ **United Hospital:**

- 651-241-4823





## Directions for My Medicine List

1. **ALWAYS KEEP THIS FORM WITH YOU.** You may want to fold it and keep it in your wallet along with your driver's license. Then it will be available in case of an emergency.
2. Write down all of the medicines you are taking and list all of your allergies. Add information on medicines taken in clinics, hospitals and other health care settings — as well as at home.
3. Take this form with you on all visits to your clinic, pharmacy, hospital, physician, or other providers.
4. **WRITE DOWN ALL CHANGES MADE TO YOUR MEDICINES** on this form. When you stop taking a certain medicine, write the date it was stopped. If help is needed, ask your doctor, nurse, pharmacist, or family member to help you keep it up-to-date.
5. In the "Notes" column, write down why you are taking the medicine (Examples: high blood pressure, high blood sugar, high cholesterol).
6. When you are discharged from the hospital, someone will talk with you about which medicines to take and which medicines to stop taking. Since many changes are often made after a hospital stay, a new list may be filled out. When you return to your doctor, take your list with you. This will keep everyone up-to-date on your medicines.

## How does this form help you?

- This form helps you and your family members remember all of the medicines you are taking.
- It provides your doctors and other providers with a current list of ALL of your medicines. They need to know the herbals, vitamins, and over-the-counter medicines you take!
- With this information, doctors and other providers can prevent potential health problems, triggered by how different medicines interact.



For copies of the My Medicine List and a brochure with more tips, visit the Minnesota Alliance for Patient Safety's Web site at [www.mnpatientsafety.org](http://www.mnpatientsafety.org) or call (651) 641-1121.

# Minnesota Stroke Association

2277 Highway 36 West, Ste 200 | Roseville, MN | 55113-3830 | 612-378-2742 | 800-669-6442

## Authorization to Participate in Resource Facilitation

As part of your rehabilitation, we offer follow-up services through the Minnesota Brain Injury Alliance/Minnesota Stroke Association Resource Facilitation Program. This confidential and voluntary telephone follow-up service DOES NOT REPLACE any medical or rehabilitation follow-up care that you may need. It is intended to provide you and your family with information about brain injury or stroke and assistance in accessing services and supports. Participation begins on the date signed. A Resource Facilitator will contact you by telephone approximately six (6) weeks from the time you return this form. If you prefer contact sooner, please call the number listed above.

I, \_\_\_\_\_, give permission for myself or my child to be part of the Resource Facilitation Follow-Up Program with the Minnesota Brain Injury Alliance/Minnesota Stroke Association.

Name: \_\_\_\_\_ Telephone: \_\_\_\_\_

Address: \_\_\_\_\_ Email: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ Best Time to Call: \_\_\_\_\_

Date of Birth: \_\_\_\_\_ Gender: Male  Female  Language Spoken \_\_\_\_\_

Brain Injury Cause: \_\_\_\_\_

Stroke

Date of Incident: \_\_\_\_\_ Date of Hospital Discharge: \_\_\_\_\_

Caregiver or Guardian of Patient/Individual: \_\_\_\_\_ Relationship: \_\_\_\_\_

Address (if different then Patient/Individual): \_\_\_\_\_

Email: \_\_\_\_\_ Telephone: \_\_\_\_\_

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Signature of Patient/Individual or Guardian

Date

Professional Completing this Referral (Social Worker, Discharge Planner, Health Care/Rehabilitation Professional, etc):

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Name/Title of Professional

Organization

Email/Phone

Send Completed Form to: Minnesota Brain Injury Alliance / Minnesota Stroke Association  
Attn: Resource Facilitation  
2277 Highway 36 West, Suite 200  
Roseville, MN 55113-3830

Fax to: 612-378-2789 or Scan and E-mail to: [info@braininjurymn.org](mailto:info@braininjurymn.org) [subject line: RF Referral]

January 2020







# Learn more about the Allina Health account



**Easy appointment scheduling**  
In-person and virtual visits,  
appointment reminders and updates



**Care for the whole family**  
Gain access to another person's  
account (proxy access)



**Virtual care options**  
On-demand urgent care and  
scheduled virtual visits



**Prescriptions and billing**  
Manage payments, order refills and  
track prescriptions



**Info all in one place**  
Health records, lab results and  
appointment notes



**Communicate with your  
care team**  
Send and review messages

Make health care easier with an online, all-in-one way to manage care.

Get started at  
[AllinaHealth.org/account](https://AllinaHealth.org/account)

**Allina Health** 



# Nondiscrimination in Health Programs and Activities

## *Affordable Care Act – Section 1557*

Allina Health complies with applicable federal civil rights laws and does not discriminate on the basis of race, color, national origin, age, disability, gender identity or sex. Allina Health does not exclude people or treat them differently because of race, color, national origin, age, disability, gender identity or sex.

### Allina Health:

- provides free aids and services to people with disabilities to communicate effectively with us, such as:
  - ◊ qualified sign language interpreters, and
  - ◊ written information in other formats (large print, audio, accessible electronic formats, other formats)
- provides free language services to people whose primary language is not English, such as:
  - ◊ qualified interpreters, and
  - ◊ information written in other languages.

If you need these services, ask a member of your care team.

If you believe that Allina Health has failed to provide these services or discriminated in another way on the basis of race, color, national origin, age, disability, gender identity or sex, you can file a grievance with:

Allina Health Grievance Coordinator  
P.O. Box 43  
Minneapolis, MN 55440-0043  
Phone: 612-262-0900  
Fax: 612-262-4370  
GrievanceCoordinator@allina.com

You can file a grievance in person or by mail, fax or email. If you need help filing a grievance, the Allina Health Grievance Coordinator can help you.

You can also file a civil rights complaint with the U.S. Department of Health and Human Services, Office for Civil Rights, electronically through the Office for Civil Rights Complaint Portal, available at <https://ocrportal.hhs.gov/ocr/portal/lobby.jsf>, or by mail or phone at:

U.S. Department of Health and Human Services  
200 Independence Avenue, SW Room 509F, HHH Building  
Washington, D.C. 20201  
1-800-368-1019, 800-537-7697 (TDD)

Complaint forms are available at <http://www.hhs.gov/ocr/office/file/index.html>.





[allinahealth.org](http://allinahealth.org)