



# UR Medicine Stroke & Cerebrovascular Center

## Stroke Education

### Subarachnoid Hemorrhage



The Joint Commission<sup>®</sup>



American Heart Association<sup>®</sup>  
American Stroke Association<sup>®</sup>

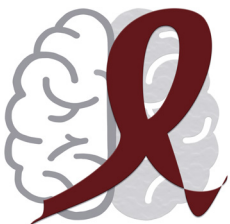
STROKE CERTIFICATION

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*References available upon request*



**Stroke**

**Awareness • Hope • Recovery • Support**

Together to end stroke.

# Stroke Care Team

## Welcome to the Comprehensive Stroke Center at UR Medicine's Strong Memorial Hospital

### My Medical and Rehab Care Team:

- » Attending Physician
- » Resident Physician
- » Nurse Practitioner
- » Physician Assistant
- » Nurse
- » Patient Care Technician
- » Social Worker
- » Care Coordinator
- » Physical Therapist
- » Occupational Therapist
- » Speech Therapist
- » Students



### Our medical, surgical, and rehabilitation team will work together to:

- Evaluate
- Diagnose the type of stroke
- Start treatment
- Provide therapy services
- Make a comprehensive discharge plan

# My Stroke Sheet

The type of stroke I had was:

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My signs and symptoms were:

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## My hemorrhagic stroke risk factors:

- High Blood Pressure
- Smoking
- Excessive alcohol Use
- Illegal Drug Use
- Bleeding Disorders
- Long-term Anticoagulation Use
- Blood Vessel Abnormalities
  - AVM
  - Cerebral Aneurysm
- Family History of Hemorrhagic Stroke
- Seizures
- Head Trauma

- Tumor
- Clotting Disorders

## Other stroke risk factors:

- Previous Stroke or TIA
- High Cholesterol
- Coronary Artery Disease
- Carotid Artery Disease
- Physical Inactivity
- Obesity/Overweight
- Diabetes
- Atrial Fibrillation
- Sleep Apnea
- Oral Contraceptives
- Hormone Replacement Therapy

My Goal Blood Pressure: \_\_\_\_\_

My Medications	What is it for?

# What is a Stroke?

Your brain cells need a constant supply of blood, oxygen, and nutrients to survive. A stroke occurs when a blood vessel gets blocked or bursts. This stops the blood, oxygen, and nutrients from going to the brain.

## Common Stroke Types

### Ischemic:

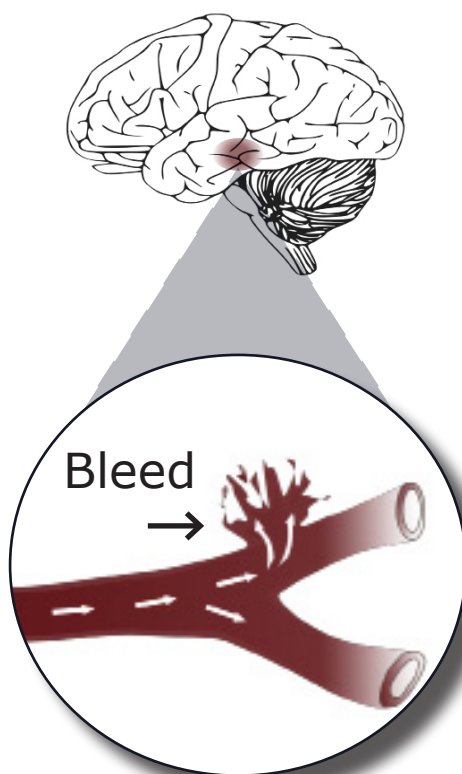
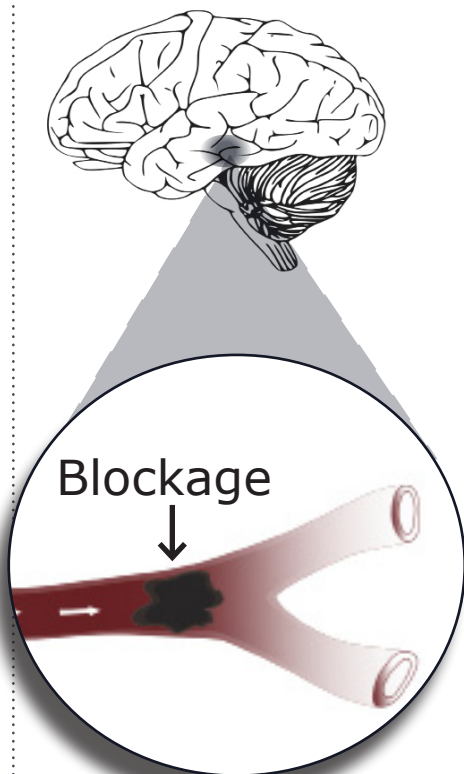
a blood vessel that supplies blood to the brain is blocked.

- Thrombotic or Embolic
- Transient Ischemic Attack (TIA)

### Hemorrhagic:

a blood vessel in the brain breaks open and bleeds into or around the brain.

- Subarachnoid Hemorrhage
- Intracerebral Hemorrhage



## Stroke Facts:

### 5th

Leading cause of death in the U.S.

### #1

Cause of long-term disability in the U.S.

### Every 40 seconds

Someone in the U.S. has a stroke.

### 2 Million

Brain cells die each minute.

### 25%

More likely to have another stroke if you've had one in the past.

### 80%

Of strokes are preventable.

# Hemorrhagic Stroke

Hemorrhagic strokes are caused by a weakened blood vessel that ruptures and bleeds into or around the brain.

## Two Types of Hemorrhagic Strokes:

1. Intracerebral Hemorrhage
2. Subarachnoid Hemorrhage

▶ **13% of all stroke cases**

▶ **40% of all stroke deaths**



## Subarachnoid Hemorrhage

A Subarachnoid Hemorrhage (SAH) is a medical emergency and a form of hemorrhagic stroke. SAH is bleeding into the spinal fluid filled space on the outside of the brain called the subarachnoid space. Non-traumatic SAH is most commonly caused by an abnormal blood vessel that bursts, such as a cerebral aneurysm.

### **What is a cerebral (brain) aneurysm?**

Balloon-like bulge or weak spot of an artery wall that can burst, which releases blood into the subarachnoid space around the brain.

▶ **Genetic Risk:**  
All first-degree relatives should be screened for cerebral aneurysm.

# Signs and Symptoms

Remember to **BE-FAST!** Time is brain.

<b>B</b> alance	<b>E</b> yes	<b>F</b> ace	<b>A</b> rm	<b>S</b> peech	<b>T</b> ime
Sudden loss of balance	Loss of vision, blurry or double vision	Facial droop, numbness on one side	Weakness or numbness on one side of the body	Slurred speech or trouble speaking	Time to Call 911!

## The Most Common Signs of SAH Stroke:

- 1) **Sudden** “Thunderclap headache” or “worst headache of my life”
- 2) **Sudden** nausea, neck stiffness, or extreme sensitivity to light
- 3) Passing out or seizure

### Other common stroke symptoms:

- 4) **Sudden** numbness or weakness on one side of the body
- 5) **Sudden** loss of vision or double vision
- 6) **Sudden** dizziness, trouble walking, loss of balance
- 7) **Sudden** confusion, trouble speaking, or understanding



## Stroke Don'ts

- Ø **Don't** drive yourself to the hospital. Instead, **Call 9-1-1**
- Ø **Don't** eat or drink anything
- Ø **Don't** wait to get treatment
- Ø **Don't** take aspirin or any medication

# Risk Factors

A ruptured cerebral aneurysm is the **#1** cause of non-traumatic subarachnoid hemorrhage in adults.

## Non-Modifiable Risk Factors:

*Things I cannot change*

- Age
- Sex
- Family History
- Race
- Prior Stroke or TIA
- Clotting Disorder

## Modifiable Risk Factors:

*Things I can change or treat*

**Hypertension**, also known as high blood pressure, is the number one cause of stroke.

- It is the most important risk factor to control.

**Smoking** doubles your risk for ischemic stroke. It also increases the risk of aneurysm formation and hemorrhagic stroke.

- **NYS Quitline:** 1-866-697-8487
- Ask your nurse or doctor about nicotine replacement

## Long-term Anticoagulation

**Use** can increase your risk of hemorrhagic stroke. Check with your doctor for guidance about this medication.

- It is important to know which drugs and foods have an effect on your medication.

## Excessive Alcohol and Illegal Drug Use

have been associated with hemorrhagic strokes. If you drink, do so in moderation.

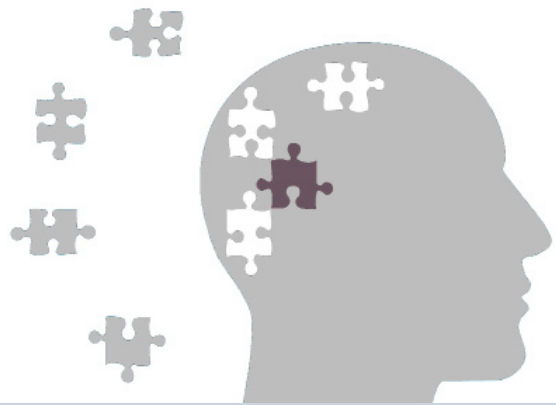
- Women: 1 drink per day
- Men: 1-2 drinks per day



# Changes with Stroke

## Effects of a stroke can impact:

- Physical Health
- Mental Health
- Emotional Health
- Behavioral Health



## Stroke Vocabulary

<b>Hemiparesis</b>	Weakness on one side of the body
<b>Hemiplegia</b>	No movement on one side of the body
<b>Dysphagia</b>	Trouble swallowing
<b>Aphasia</b>	Trouble speaking or understanding
<b>Dysarthria</b>	Slurred speech
<b>One-sided neglect</b>	Ignoring or forgetting your weak or paralyzed side
<b>Visual changes</b>	Decreased area of vision or trouble with perception
<b>Emotions</b>	Loss of emotional control and changes in mood
<b>Cognitive changes</b>	Problems with memory, judgement, or problem-solving
<b>Behavior changes</b>	Personality changes, improper language or actions

**Fatigue** is the most common change after a stroke. It may last for months, but will get better.

# Post-Stroke Depression

$\frac{1}{3}$

Post-stroke depression (PSD) affects more than 1/3 of stroke patients.

## When can it happen?

PSD can occur in weeks, months, or even years after your stroke.

## What is the cause?

A combination of genetics, social factors, and damage to your brain after a stroke can lead to depression.

## What are the symptoms?

- » Persistent sad or anxious feelings; irritability
- » Trouble sleeping and fatigue; trouble staying focused
- » Appetite changes or digestive issues
- » Feeling hopeless, helpless, and/or worthless
- » Loss of interest in activities, hobbies, or being social
- » Suicidal thoughts

## What are the treatment options?

**Medication.** Antidepressants can be prescribed to improve mood.

**Mental Health Therapy.** Medication can be combined with mental health therapy to improve outcomes.

## What if it's left untreated?

Post-stroke depression can stop progress of recovery and rehabilitation, which can lower your quality of life.

# Stroke Treatment

Medical and surgical treatment is based on the cause of the subarachnoid hemorrhage.

## Common treatment course:

- most people need emergent and intensive care
- symptom relief
- surgery to repair the bleeding blood vessel
- complication prevention and treatment



## What is the goal of treatment?

To reduce the brain damage caused by the bleeding using medications

## Surgical Treatment

If a cerebral aneurysm caused the subarachnoid hemorrhage, doctors may do surgery or another procedure to keep the bleeding from happening again.

## Common Procedures:

**Surgical clipping:** surgery to put a small metal clip on the aneurysm to stop the blood from leaking out.

**Endovascular coiling:** tiny coils will be placed in the aneurysm to seal it off from the artery using the cerebral angiogram procedure.

**During your stay in the hospital, doctors and nurses will watch for problems, such as:**

- Increased intracranial pressure
- irregular heartbeat
- seizures
- blood clots in the legs
- lung infections
- dehydration
- Other complications: re-hemorrhage, hydrocephalus, and vasospasm

**Complications of Subarachnoid Hemorrhage**

	<b>Definition</b>	<b>Symptoms</b>	<b>Treatment</b>
<b>Re-hemorrhage</b>	re-bleeding of an aneurysm	sudden and severe neurological decline or coma	secure the aneurysm using surgical clipping or endovascular coiling
<b>Hydrocephalus</b>	buildup of cerebrospinal fluid that causes increased pressure in the brain	fatigue, difficulty walking or moving the legs	remove excess cerebrospinal fluid using external drains
<b>Vasospasm</b>	abnormal narrowing of arteries due to irritation by blood in the subarachnoid space	signs of an ischemic stroke	Digital Subtraction Angiography (DSA) for intra-arterial therapy

# Stroke Prevention

## Medications

### Anti-hypertensives

Anti-hypertensives are medications that lower your blood pressure and/or heart rate. There are many different kinds.

**Common names:** amlodipine (Norvasc), carvedilol (Coreg), diltiazem (Cardizem), hydrochlorothiazide (Microzide), lisinopril (Zestril), losartan (Cozaar), and metoprolol (Lopressor) are just a few of the most frequently prescribed.

### Anti-Seizure Medications

Anti-seizure medications are used to prevent seizures. It is important to take your medication exactly as prescribed. There are many risks if you suddenly stop taking this medication.

### Common Names:

levetiracetam (Keppra)

- Do **NOT** stop taking this medication without talking to your health care provider.

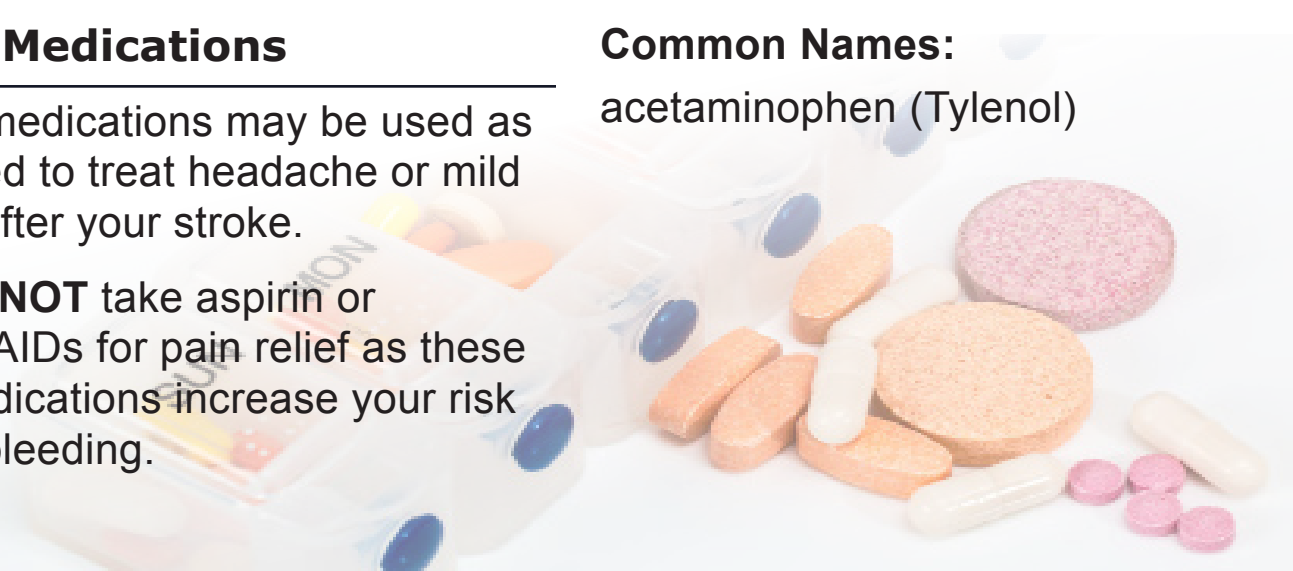
### Pain Medications

Pain medications may be used as needed to treat headache or mild pain after your stroke.

### Common Names:

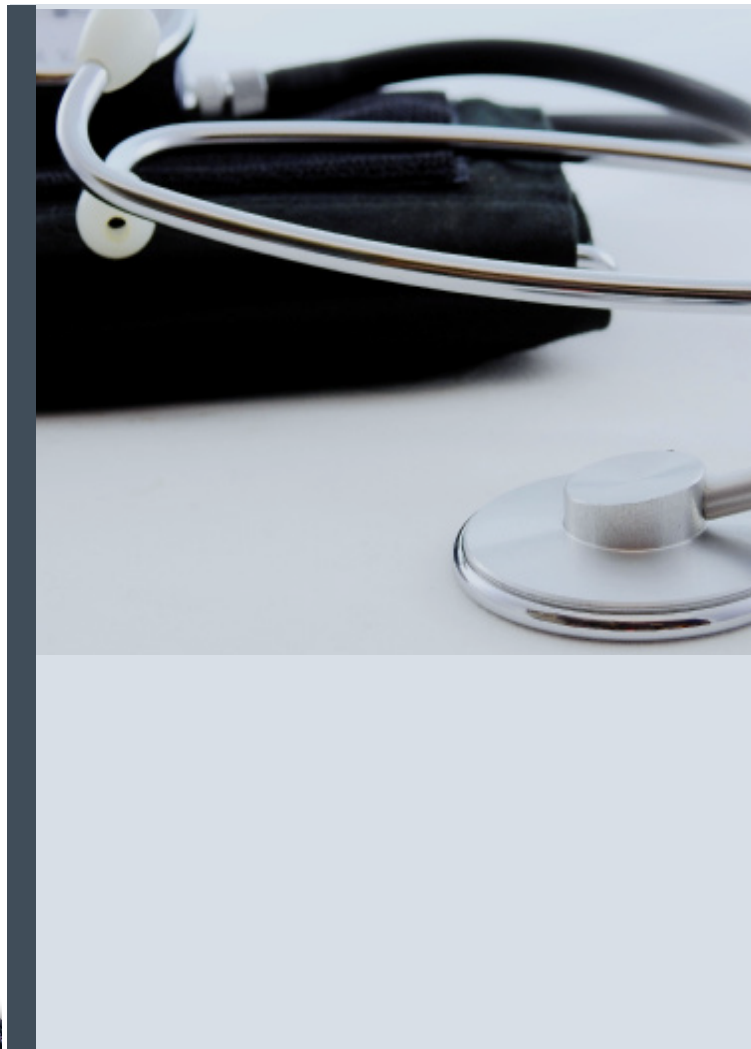
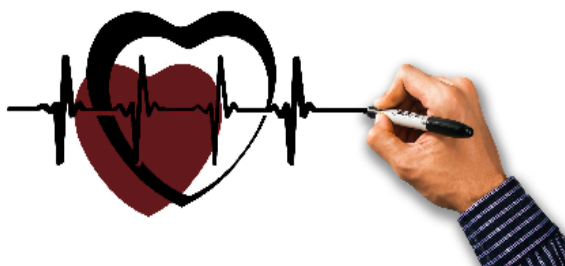
acetaminophen (Tylenol)

- Do **NOT** take aspirin or NSAIDs for pain relief as these medications increase your risk of bleeding.



## How do I manage my blood pressure?

- Medications are often needed in order to prevent another stroke. It is very important that you take the medications as directed and do not skip doses.
- Keep track of your blood pressure using a diary or notebook.
- Exercise: Be more physically active. Try taking the stairs or taking a walk every day.
- Healthy diet: eat a heart-healthy diet and lower your salt intake.

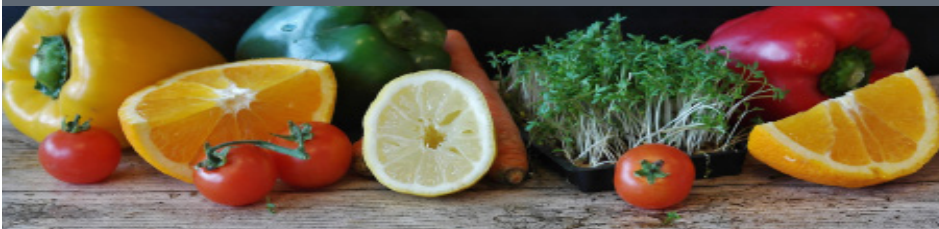


**Questions?** Ask your doctor or nurse for more information on medical or surgical treatment of SAH.



# Stroke Prevention

## Lifestyle Modification



### Healthy & Balanced Diet

Small changes can make a big difference.

- ↓ Reduce saturated fats
- ↓ Reduce sugar intake
- ↓ Reduce salt intake

#### Diets for Brain and Heart Health:

- The DASH (Dietary Approaches to Stop Hypertension) Diet
- Mediterranean Diet

#### American Heart Association

##### Recipes:

[recipes.heart.org](http://recipes.heart.org)

#### Meal assistance?

Check for Meals On Wheels or online food delivery.

### Healthy Eating Shopping List

#### Fruits & Vegetables:

bananas, apples, oranges, strawberries, blueberries, sweet potatoes, spinach, broccoli, carrots, eggplant, kale

#### Dairy, Cheese, &

**eggs:** low-fat or fat-free dairy products

#### Meat & Seafood:

skinless poultry and fish rich in omega 3 fatty acids (salmon, tuna, trout), beans

#### Bread, Pasta, & Cereal:

whole wheat pasta and breads, quinoa, couscous, oatmeal, brown rice, high-fiber cereal

### Weight Loss & Physical Activity

Regular exercise strengthens the body and helps you lose weight. It can also lower your risk of heart disease, high cholesterol, diabetes, and stroke.

#### American Heart Association

##### Recommendations:

**30 minutes** of exercise daily

- ▶ or 150 minutes of moderate-intensity exercise per week

**2 days** of strength training per week

- ▶ Use resistance or



## Stroke Prevention Checklist

- Lower blood pressure
- Quit smoking
- Limit alcohol intake:  
Men: 1-2 drinks/day  
Women: 1 drink/day
- Do not use illegal drugs
- Eat a healthy, balanced diet
- Take all medications as prescribed
- Exercise 30 minutes per day
- Manage medical conditions
- Attend follow-up appointments
- Get enough sleep
- Reduce stress



## Join a Support Group

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

Find a support group in your area. Support groups are available for both patients and caregivers!

Help  
Support  
Connect



## Patient and Family Resources

**Social workers** provide services both in the hospital and the community setting.

### UR Medicine Social Work

585-275-2851

[urmc.rochester.edu/social-work/](http://urmc.rochester.edu/social-work/)

Monday-Friday 8am-5pm

### Social work can help with:

- Respite care or caregiver relief
- Adult day care programs
- Transportation programs
- Community resources



**Call  
911**

**for any new  
stroke symptoms!**



## American Stroke Association Resources:

### American Stroke Association

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

### Support Group Registry

Support groups by ZIP Code

[strokeassociation.org/strokegroup](http://strokeassociation.org/strokegroup)

1-888-4-STROKE (888-478-7653)

### Support Network

Online support community

[strokeassociation.org/](http://strokeassociation.org/supportnetwork)

[supportnetwork](http://strokeassociation.org/supportnetwork)

### Stroke Connection Magazine

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

### Warmline

Ask questions and get support

1-888-4-STROKE (888-478-7653)

### Tips for Daily Living Library

[strokeassociation.org/tips](http://strokeassociation.org/tips)

## **Finger Lakes 211 Lifeline**

### ***Finding Local Resources***

Connecting people with community, social, health, and government services for help with housing, food, mental health, employment, and financial resources.

## **Contact Information:**

211lifeline.org

Dial 2-1-1 or

1-877-356-9211



### **UR Medicine Outpatient Stroke Center**

- **Neurology:**  
(585) 275-2530
- **Neurosurgery:**  
(585) 273-1900

## **Additional Resources:**

### **Internet Stroke Center**

strokecenter.org

### **National Institute of Health**

stroke.nih.gov

ninds.nih.gov

### **National Rehabilitation Information Center**

Stroke rehabilitation and disability resources

naric.com

### **Centers for Disease Control**

cdc.gov/stroke

### **Aphasia hope Foundation**

Aphasia information and resources  
aphasiahope.org

### **Respite Care**

eldercare.gov

### **Caregiver Action Network**

http://caregiveraction.org

### **Family Caregiver Alliance**

https://www.caregiver.org



