



## Stroke: Causes and Risk Factors

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After reading the newsletter, the home health aide should be able to:

1. List two types of stroke and their causes.
2. Identify three risk factors for stroke.
3. Describe three signs and symptoms of stroke.

Mr. Brock is a 78-year old client who recently suffered a stroke. When he returned home after his hospital stay, Jen, the home health aide, took care of him. She helped him to move around, eat, go to the bathroom, and get dressed. She also offered encouragement and support, helping him to re-learn simple self-care tasks, like combing his hair. Mr. Brock said to her one day, "Jen, I don't know what I would have done without you. You helped me so much when I couldn't help myself, and I'm so grateful for that."

Clients who have been affected by stroke have many needs. This newsletter will discuss stroke, including its incidence, how it occurs, and its causes and risk factors. A future newsletter issue will focus on treatment and care of clients with stroke.

### What is a Stroke?

Stroke is a condition affecting the arteries in the brain. Most strokes occur when an artery in the brain is blocked by a clot, reducing or stopping the flow of blood to affected brain cells. Strokes can also occur when a blood vessel in the brain ruptures, which also affects blood flow to brain cells. Since normal blood flow is essential to provide the brain cells with oxygen and nutrients, a lack of circulation to an area can cause death of the cells. Neurologic problems may result, such



as paralysis and/or difficulty moving, speaking, reading or understanding.

Close to 800,000 people in the US have a stroke every year, causing 1 in every 20 deaths. Someone dies due to stroke every 4 minutes. Stroke is a leading cause of long-term disability, and each year, billions of dollars are spent on treatment and rehabilitation for victims of stroke. While the majority of strokes occur in people age 65 and over, they can affect people of any age, including infants and children.



### Causes and Risk Factors

There are two main types of stroke. The most common type is ischemic stroke, occurring when an artery that carries oxygen and nutrients to brain tissue is blocked. This type accounts for almost 90% of strokes. Ischemic strokes can occur when arteries are affected by atherosclerosis. This is a build-up of fatty tissue, called plaque, along the walls of the artery. This plaque can break or rupture, causing blockage of the blood flow. Ischemic stroke can also occur when a clot travels from somewhere else in the body and becomes trapped in an artery of the brain, blocking blood flow.

The second type is hemorrhagic stroke, caused when a blood vessel in the brain leaks or bursts. The escaping blood decreases normal

circulation to the brain tissue, and causes pressure to build up within the skull, damaging brain cells.

A condition similar to stroke, but without lasting effects, is a transient ischemic attack (TIA, or “mini-stroke”). A blood vessel serving the brain is temporarily blocked, usually by a small clot. This can produce many of the symptoms of a stroke, but the symptoms usually last only minutes to hours, and there is no permanent brain damage. TIA is a strong warning sign of future stroke, since over one-third of those affected will have a stroke within a year, and most of these occur within 90 days of the TIA. Therefore, people experiencing a TIA should receive prompt medical attention, even if they have no effects from it.

Risk factors for stroke include:

**Age:** While stroke can occur at any age, the risk increases with advancing age. Those over age 60 are at highest risk.

**Cardiovascular Disease:** Diseases that damage the blood vessels or cause clots to form increase the risk of ischemic stroke. These include diabetes, high blood pressure, atherosclerosis, heart failure, and heart disease. Atrial fibrillation also significantly increases the risk of stroke. This is a condition in which the heart pumps abnormally and allows blood to pool in it, causing development of clots.

**Race/Ethnicity:** African-Americans are at highest risk for stroke, compared to other groups. This is thought to be due to the higher incidence of high blood pressure and diabetes in this group.

**History of stroke:** A person whose brother, sister, parent, or grandparent had a stroke has a higher risk for stroke. Also, people who have had a previous stroke are at increased risk for stroke in the future.

**Blood vessel abnormalities:** An aneurysm is a weakening and bulging in the wall of an artery. If this leaks or ruptures in a brain vessel, a hemorrhagic stroke can occur. Another condition that raises stroke risk is AV (arteriovenous) malformation, an abnormal tangling of the arteries and veins in the brain. These vessels are more likely to leak or rupture than normal vessels.

**Lifestyle Factors:** Cigarette smoking, obesity, excessive alcohol intake and physical inactivity can all contribute to stroke risk.



Some of these risk factors can be improved by the individual, such as stopping smoking, losing weight, and treating cardiovascular disease. Others, such as age, family history, and race/ethnicity, cannot be changed.

## Effects of Stroke

The effects caused by a stroke can vary greatly from person to person, depending on the type of stroke, how severe it is, and what part of the brain is affected. Because major nerves cross from one side of the brain to the opposite side of the spinal cord, each side of the brain controls the opposite side of the face and body. Therefore, a stroke affecting the right side of the brain will affect the left side of the face and body. Stroke can affect every aspect of a person’s being, including mobility, communication, self-care, judgment, behavior, emotions, and interactions with others.



Signs of stroke usually occur suddenly and without warning, and include:

- numbness or weakness on one side of the face or body
- drooping of one side of the mouth
- severe headache
- vision problems
- confusion
- difficulty speaking or understanding words
- dizziness, stumbling or falling

The American Heart Association recommends using the letters FAST to recognize stroke and get help:

F– Face drooping

A– Arm weakness

S– Speech difficulty

T– Time to call 911

If a client experiences any symptoms that may indicate stroke, call 911 and notify the nurse immediately. Immediate treatment may help to prevent permanent disability or death.

Stroke can result in long-term or permanent effects, including:

- paralysis
- weakness
- inability to speak, understand, read or write words
- difficulty chewing and swallowing
- memory loss
- vision problems, such as areas of blindness
- incontinence
- seizures
- muscle spasms
- depression and other emotional changes

By being alert for signs of stroke, and acting quickly if they occur, healthcare providers can help clients to receive prompt treatment to reduce the risk of disability and death.



## Stroke: Causes and Risk Factors

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

Directions: Place the letter of the one best answer in the space provided.

- \_\_\_\_ 1. Stroke occurs when an artery serving the brain ruptures or becomes blocked, decreasing the amount of oxygen and nutrients going to an area of the brain.  
A. True  
B. False
  
- \_\_\_\_ 2. The most common type of stroke is:  
A. hemorrhagic  
B. AVM  
C. subdural  
D. ischemic
  
- \_\_\_\_ 3. A hemorrhagic stroke is most likely to be caused by which of the following?  
A. TIA  
B. aneurysm  
C. atherosclerosis  
D. clot
  
- \_\_\_\_ 4. Stroke can occur in persons of any age.  
A. True  
B. False
  
- \_\_\_\_ 5. A client has all of the following risk factors for stroke. Which one can she change to decrease her risk of stroke?  
A. she smokes 1 pack of cigarettes/day  
B. her mother died of a stroke at age 56  
C. she is African-American  
D. she is 72 years old

- \_\_\_\_\_ 6. A person who has a transient ischemic attack (TIA):
- A. does not require medical attention, since symptoms go away quickly
  - B. has avoided a major stroke and is not likely to have any further problems
  - C. is at high risk for a future stroke
  - D. is likely to have long-lasting effects caused by the TIA
- \_\_\_\_\_ 7. The effects of a stroke for an individual depend on the:
- A. severity of the stroke
  - B. type of stroke
  - C. area of the brain affected
  - D. all of the above
- \_\_\_\_\_ 8. Signs of stroke usually develop slowly, over a period of days to weeks.
- A. True
  - B. False
- \_\_\_\_\_ 9. Which of the following is most likely to be a sign of stroke?
- A. chest pain
  - B. tingling in both feet
  - C. difficulty speaking
  - D. blue color around the lips
- \_\_\_\_\_ 10. A client who has a stroke on the left side of the brain is most likely to experience weakness or paralysis of the:
- A. left arm and leg
  - B. right arm and leg
  - C. right arm and left leg
  - D. left arm and right leg

