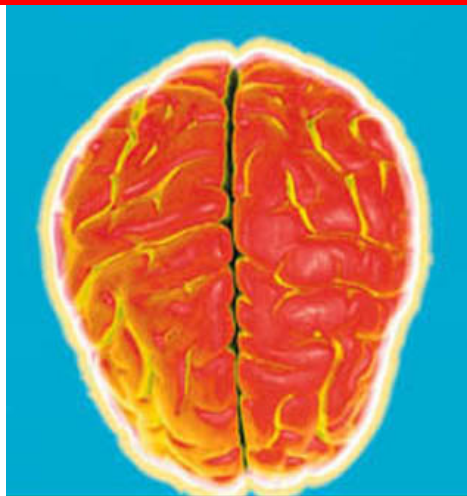


# Maryland Department of Health and Mental Hygiene Center for Preventive Health Services Heart Disease and Stroke Prevention Program

## 2007 Stroke Fact Sheet



### Stroke

A stroke happens when blood flow to the brain stops, causing brain cells to die. There are 2 types of strokes. In an *ischemic stroke*, an artery leading to the brain has a clot, preventing blood from reaching the brain. In a *hemorrhagic stroke*, a blood vessel bursts, causing bleeding in or around the brain.

### Transient Ischemic Attack (TIA)

A TIA is an important warning sign for a stroke. It is when a person has stroke symptoms that may last a few minutes or up to an hour, usually resulting in no lasting brain damage. A person having a TIA should see a doctor or go to the hospital immediately, because it often means that a major stroke may happen in the near future.

### Risk Factors for Stroke

Risk factors are conditions or behaviors that increase the likelihood of developing a disease. Everyone can take steps to lower the risk of stroke. Major risk factors for stroke include high blood pressure, previous heart attack or TIA, cigarette smoking, heart disease, diabetes, high cholesterol, physical inactivity, poor diet, obesity, and an abnormal heart beat known as atrial fibrillation. Some risk factors are not controllable; for example, risk of stroke increases with age and is higher in black residents than white.

### The Impact of Stroke

Stroke is the third leading cause of death in the United States and the #1 cause of disability. Approximately 700,000 people in the U.S. have a stroke each year, and almost 157,000 die<sup>1</sup>. That's about one stroke every 45 seconds! Fifty to 70% of stroke survivors will have mild disability or will recover, 15-30% will be fully disabled, and about 24% of strokes are fatal<sup>1</sup>. About 25% of people who recover from their first stroke will have another one within 5 years<sup>2</sup>.

In Maryland, stroke is the third leading cause of death across all races and genders. In 2005, 2,465 people died from a stroke in Maryland<sup>3</sup>.

### The Economic Impact of Stroke

Stroke is associated with high direct medical costs such as hospitalizations and doctor visits, as well as indirect costs including absence from work, disability and premature death. Americans paid an estimated \$57.9 billion in 2005 on medical and disability costs due to stroke<sup>1</sup>. The total cost of hospitalizations in Maryland due to stroke was almost \$163 million in 2005, with the average hospital stay costing \$12,095.

<sup>1</sup> American Stroke Association, [www.strokeassociation.org](http://www.strokeassociation.org)

<sup>2</sup> National Institute of Neurological Disorders and Stroke, [www.ninds.nih.gov/disorders/stroke/stroke.htm](http://www.ninds.nih.gov/disorders/stroke/stroke.htm)

<sup>3</sup> Maryland Department of Health and Mental Hygiene, [Maryland Vital Statistics Report 2005](#)

<sup>4</sup> Maryland Health Services Cost Review Commission (HSCRC), Ambulatory and Hospital Discharge Data, 2005

## Prevalence of Preventable Risk Factors in Maryland

### High Blood Pressure:

Blood pressure is the force of blood pushing against blood vessel walls. Excessive pressure on the artery walls causes atherosclerosis, or hardening of the blood vessels, which leads to reduced blood flow in the arteries. If blood flow to the brain is stopped, a stroke occurs. Having high blood pressure is the single most important risk factor for stroke.

The percentage of Maryland residents ever told by a health care provider that they have high blood pressure was 26.0% in 2005 (figure 2). There was little difference between the genders or races in Maryland's general population.

High blood pressure was the most commonly diagnosed condition in stroke patients in Maryland in 2005. Of those hospitalized with stroke, high blood pressure was more common in females than males and more common in black patients than in white patients (figure 1).

### High Cholesterol:

Having too much cholesterol in the blood can lead to plaque buildup in the arteries, which clogs arteries and can cause a blockage. If an artery leading to the brain is blocked, a stroke occurs.

The percentage of Maryland residents ever told by a health care provider that they have high cholesterol levels was 33.2% in 2005 (figure 2). High cholesterol was more common in males than females and more common in white residents than black residents in Maryland's general population.

High cholesterol was the second most commonly diagnosed condition in stroke patients in Maryland in 2005. Of those hospitalized with stroke, high cholesterol was more common in males than females and more common in white patients than in black patients (figure 1).

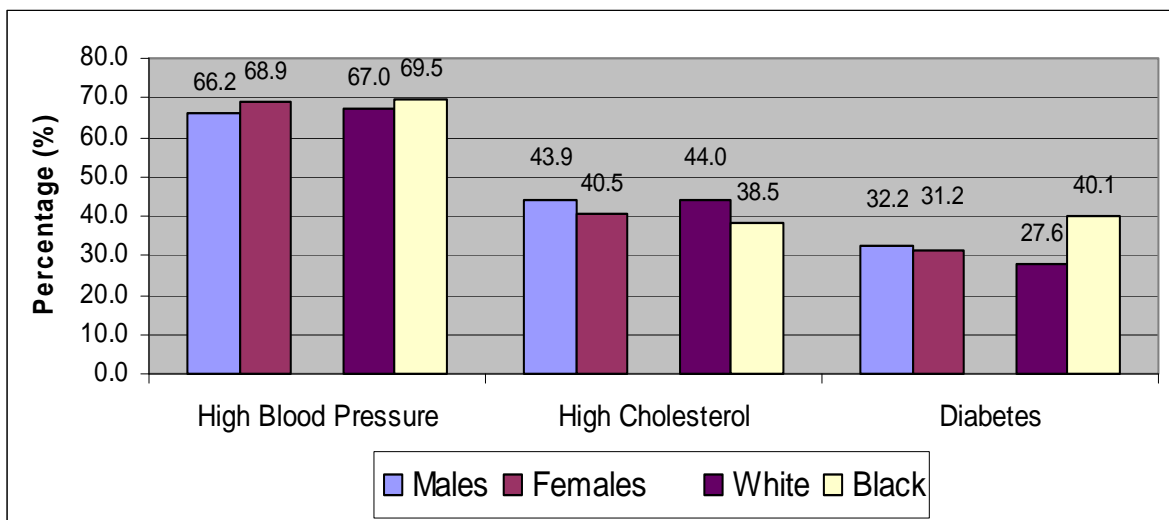
### Diabetes:

Diabetes occurs when the body either does not produce enough insulin or doesn't properly use insulin to control blood sugar levels. Elevated blood sugar levels may cause atherosclerosis, which can lead to reduced blood flow in the arteries. If blood flow to the brain is stopped, a stroke occurs.

The percentage of Maryland residents ever told by a health care provider that they have diabetes was 7.2% in 2005 (figure 2). There was little difference between the genders or races in Maryland's general population.

Diabetes was the third most commonly diagnosed condition in stroke patients in Maryland in 2005. Of those hospitalized with stroke, diabetes was more common in black patients than white patients (figure 1).

**Figure 1: Commonly Diagnosed Conditions in Maryland Stroke Patients by Gender and Race, 2005**



Source: Maryland Health Services Cost Review Commission (HSCRC), Ambulatory and Hospital Discharge Data, 2005

### Smoking:

Nicotine and carbon monoxide in cigarette smoke damage the cardiovascular system in many ways, and limit the amount of oxygen carried in the blood. Cigarette smoking leads to atherosclerosis, which leads to reduced blood flow in the arteries. Nicotine also causes blood platelets to become sticky, making clots more likely to form in the blood vessels. If a clot is formed and blood flow to the brain is stopped, a stroke occurs.

The percentage of current smokers in Maryland was 18.9% in 2005 (figure 2). There was little difference between the genders in smoking prevalence, and smoking is much more common among black Marylanders than white Marylanders.

### Physical Inactivity:

Not getting regular physical activity is a risk factor for high blood pressure, high cholesterol, and diabetes, all of which are the primary risk factors for stroke.

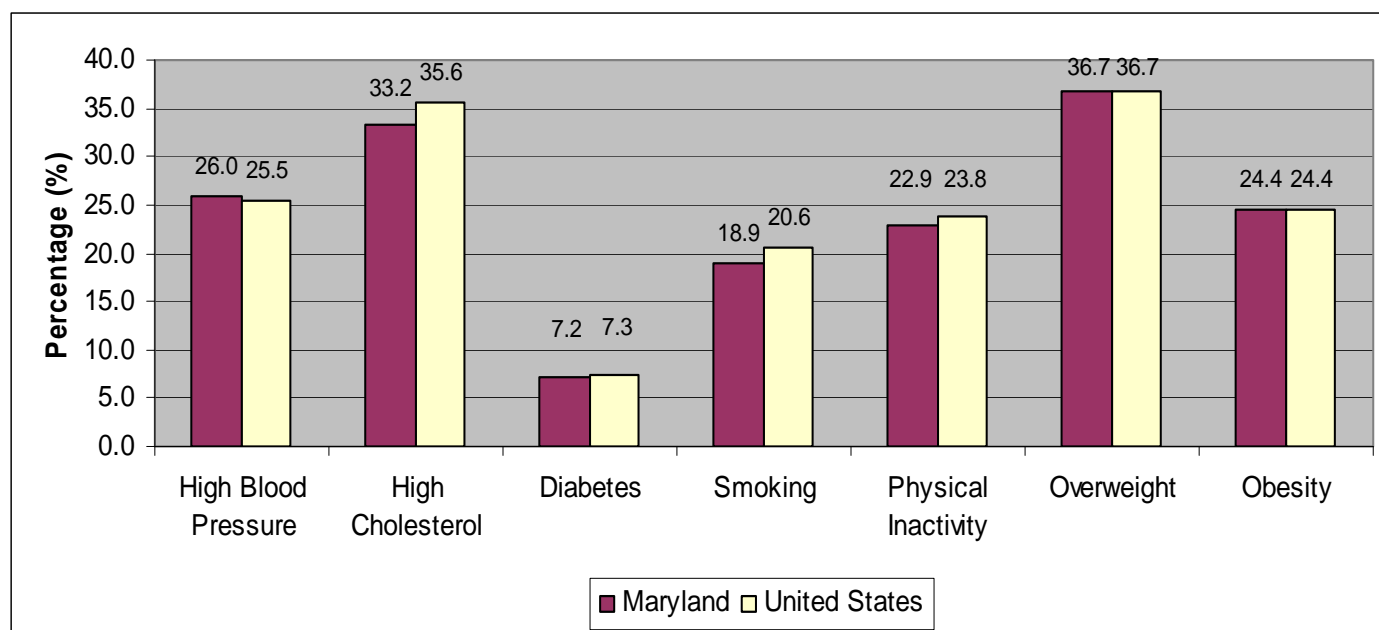
The percentage of Maryland residents reporting no leisure-time physical activity was 22.9% in 2005 (figure 2). Females were more likely than males to be inactive, and black residents were more likely than white residents to get no leisure-time physical activity.

### Overweight and Obesity:

Overweight and Obesity are defined as having excessive body weight, which is determined by using height and weight to calculate a number known as the Body Mass Index (BMI). Overweight is defined as a BMI between 24 and 29.9. Obesity is defined as a BMI greater than 30. Excessive body weight is a risk factor for high blood pressure, high cholesterol, and diabetes, all of which are the primary risk factors for stroke.

The prevalence of overweight in Maryland was 36.7% in 2005, and the prevalence of obesity was 24.4% in 2005 (figure 2). Males had a significantly higher rate of overweight than women, and black Marylanders had a significantly higher rate of obesity than white Marylanders.

**Figure 2: Prevalence of Stroke Risk Factors in Maryland and U.S., 2005**



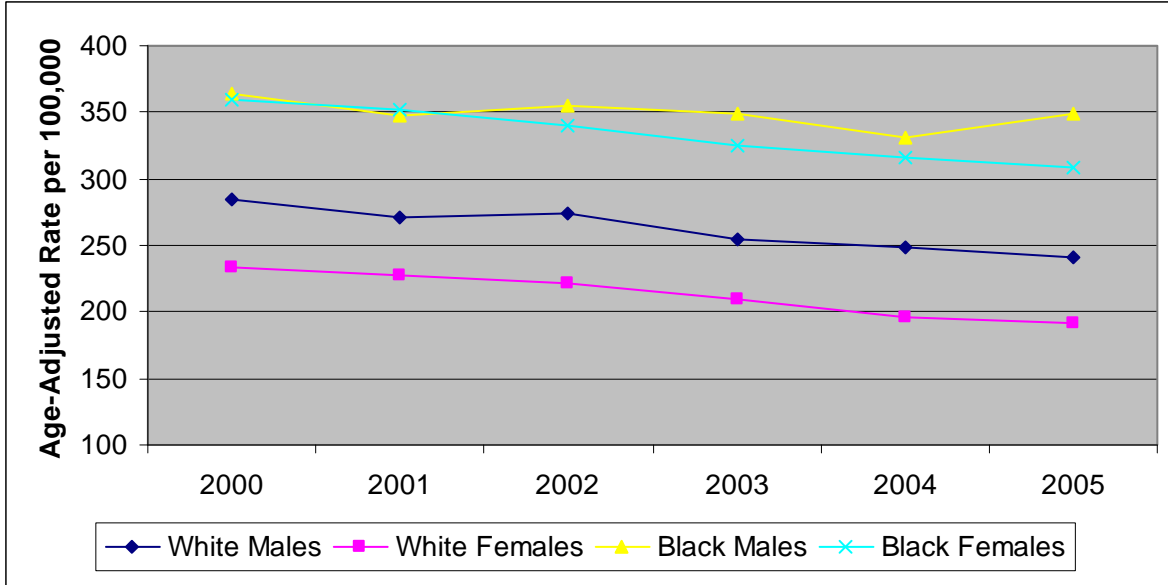
Source: Maryland Behavioral Risk Factor Surveillance System, and US Behavioral Risk Factor Surveillance System, 2005

## Stroke Hospitalizations in Maryland

Stroke accounted for 2.5% of all hospitalizations in Maryland in 2005, making it the ninth leading cause of hospitalization. For the 13,423 total hospital discharges for a primary diagnosis of stroke in Maryland in 2005, a total of 68,804 days were spent in the hospital, with a state average of just over 5 days per visit.

Though the hospitalization rate for stroke has decreased in Maryland, the hospitalization rate for black males has dropped the least, with only a 3.9% decline in five years, and black males continue to have the highest hospitalization rate in Maryland, with a 2005 rate of 349.2 per 100,000 (figure 3).

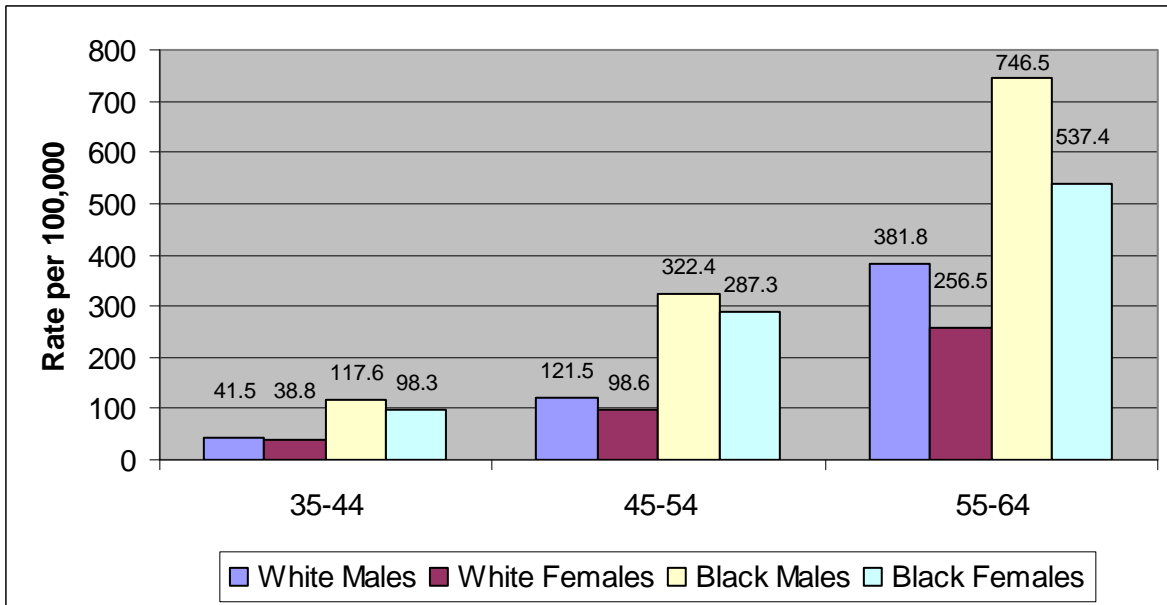
**Figure 3: Age-Adjusted\* Stroke Hospitalization Rate in Maryland, 2000-2005**



\*Adjusted to the 2000 standard U.S. population by the direct method. Rates are per 100,000 population.  
 Source: Maryland Health Services Cost Review Commission (HSCRC), Ambulatory and Hospital Discharge Data, 2005

Black Marylanders have much higher rates of stroke hospitalization at younger ages than whites (figure 4). In 2005, black males were almost three times as likely as white males to be hospitalized for a stroke between the ages 35-44. Black females were two and a half times as likely as white females in the same age group, and almost three times as likely between the ages 45-54.

**Figure 4: Stroke Hospitalization Rate by Age Under 65 in Maryland, 2005**



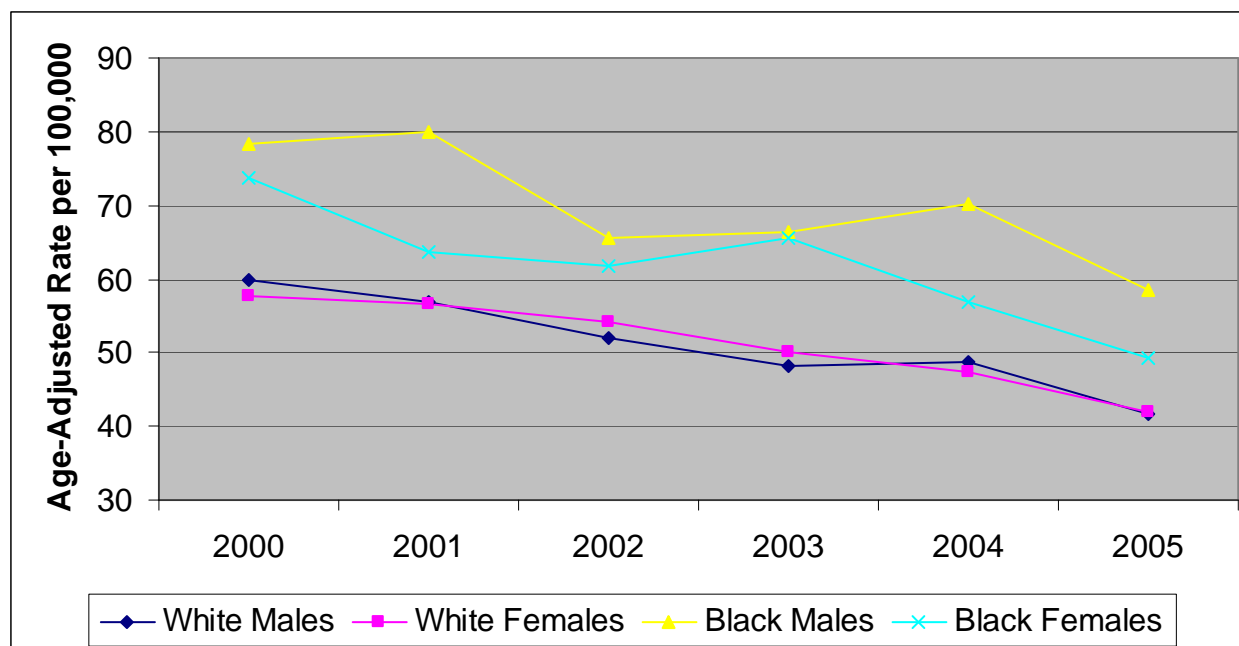
Rates are per 100,000 population.  
 Source: Maryland Health Services Cost Review Commission (HSCRC), Ambulatory and Hospital Discharge Data, 2005

## Stroke Mortality in Maryland

In 2005, 2,465 (5.6%) of all deaths in Maryland were due to stroke. The mortality rate in Maryland for all genders and races dropped 28.6% from 2000 to 2005, but stroke still remains the third leading cause of death in the state. While death rates have dropped for both black and white Marylanders and in both genders, black males have seen the smallest drop, and had the highest 2005 death rate of 58.4 per 100,000 (Figure 5).

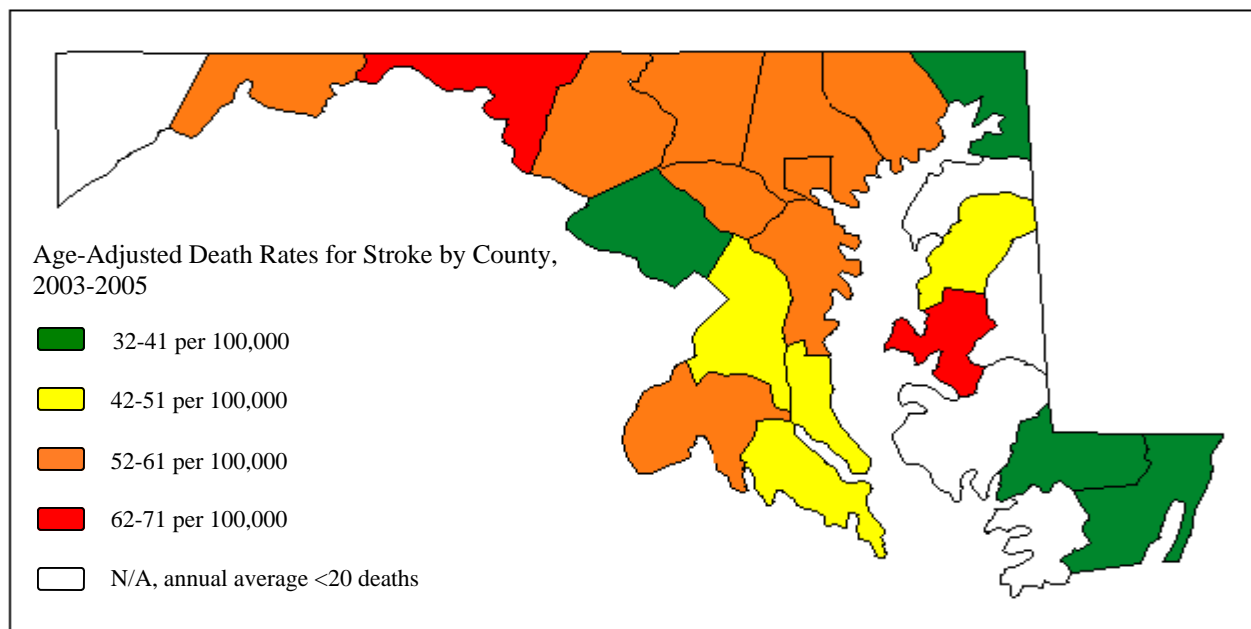
Washington and Talbot Counties had the highest 3-year average death rate from 2003-2005, with rates of 66.6 and 64.6 per 100,000, respectively (figure 6).

**Figure 5: Age-Adjusted\* Stroke Death Rate in Maryland, 2000-2005**



\*Adjusted to the 2000 standard U.S. population by the direct method. Rates are per 100,000 population.  
Source: Maryland Department of Health and Mental Hygiene, [Maryland Vital Statistics Report 2005](#)

**Figure 6: Age-Adjusted\* Death Rates for Stroke by County, 2003-2005**



\*Adjusted to the 2000 standard U.S. population by the direct method. Rates are per 100,000 population. Age-adjusted death rates not calculated for jurisdictions with an annual average of fewer than 20 deaths.  
Source: Maryland Department of Health and Mental Hygiene, [Maryland Vital Statistics Report 2005](#)

## **Warning Signs of Stroke**

It is important to know the warning signs of stroke and teach them to your friends and family:

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

## **What to Do if Someone is Having a Stroke**

If you think you or someone else may be having a stroke, *call 9-1-1 immediately!* Time is essential in the diagnosis and treatment of stroke. The best chances of survival and recovery are if a person gets treatment within 3 hours. Do not waste any time. Time lost is brain lost!

**If someone is having a stroke,  
call 911 immediately!**

**Time lost is brain lost!**





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