

# Stroke in Minnesota

## What is a Stroke?

- **Stroke**, also known as a cerebrovascular accident or brain attack, occurs when the blood supply to part of the brain is suddenly interrupted.
- This process is similar to that of a heart attack. Deprived of oxygen, the nerve cells in the affected area of the brain cannot function and often die. The parts of the body controlled by those cells are usually unable to function as a result.
- There are two main types of stroke. An *ischemic* stroke occurs when there is a blockage of a blood vessel supplying the brain. Approximately 80 percent of all strokes fall into this category. A *hemorrhagic* stroke occurs when a blood vessel in the brain ruptures.
- Transient Ischemic Attacks (TIA) are temporary interruptions in the blood supply to the brain. Sometimes these are called “mini-strokes,” but these need to be taken seriously because they are usually precursors to full-blown strokes.

## What are the signs and symptoms of a stroke?

Someone having a stroke may experience only one, or several of these warning signs:

- 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 do I do if I am having a stroke?

If you are possibly having a stroke, it is an emergency. Call 9-1-1 immediately!

## How is a stroke treated?

- An acute stroke may be treatable with a medication called recombinant tissue plasminogen activator (tPA). Only strokes that are due to blockages from blood clots can be treated with tPA. If a patient can be confirmed to have this type of stroke, giving tPA within three hours of the onset of symptoms can significantly reduce the amount of damage and disability.

## What are the risk factors for stroke that cannot be changed?<sup>1</sup>

**Age:** Unfortunately, the cumulative effects of aging substantially increase stroke risk. The risk of stroke doubles for each successive decade after age 55 years.

**Sex:** Because stroke is related to age, and women live longer than men, there are more women than men that have and die from stroke every year. However, men have higher incidence rates than women, except in 35-44 year olds and those over 85 years of age. This means that although there are more strokes occurring in women (and thus overall lifetime risk for stroke in women is greater), between 45 and 84 years of age, men are at higher risk than women for stroke.

**Race/Ethnicity:** In the United States, African Americans have a 38% higher incidence of stroke than whites, partially due to higher rates of diabetes, obesity, and hypertension.<sup>1</sup>

**Family History:** Several studies have shown that stroke risk is increased in families who have a member experience a stroke. This risk factor of “family history” includes not only the genetic inheritance of stroke risk factors, but also the sharing of cultural, environmental, and lifestyle factors within families that increase risk of stroke.

## What are the major modifiable risk factors for stroke?<sup>2</sup>

**High Blood Pressure:** The most important risk factor for stroke is likely to be high blood pressure, also known as hypertension. Controlling hypertension



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through lifestyle changes and medications is associated with a 35% to 44% reduction in stroke incidence. Approximately 21% of adults in Minnesota report that they have high blood pressure (2007 data).

**Cigarette Smoke:** Smoking doubles the risk of ischemic stroke, and may increase the risk for hemorrhagic stroke up to four-fold. Several studies also suggest that exposure to environmental tobacco smoke nearly doubles the risk of stroke. In 2008, 17.5% of Minnesota adults were current smokers.

**Diabetes:** The risk for stroke is two-to-four times higher among people with diabetes. People with diabetes can lower their risk of stroke by controlling their blood pressure and cholesterol levels. Approximately 5.9% of adults in Minnesota have diabetes; one-third are unaware that they have the disease (2008 data).

**Atrial Fibrillation:** Individuals with atrial fibrillation are at a three- to four-times increased risk for stroke. Nearly 2.3 million Americans have this cardiac rhythm condition.<sup>1</sup>

**High Blood Cholesterol:** Exact relationships of abnormal cholesterol levels are still being clarified, but in general, increasing levels of total cholesterol are associated with higher rates of ischemic stroke. Approximately 32% of adults in Minnesota report that they have high blood cholesterol (2007 data).

**Overweight and Obesity:** A growing body of evidence is showing that stroke risk increases with increased weight. It is hypothesized that the increase in stroke risk is due mostly to the increase in other risk factors associated with being overweight. In Minnesota, 62% of adults are overweight, including 26% who are obese (2008 data).<sup>3</sup>

**Physical Inactivity:** Several studies have shown that daily physical activity reduces the risk of stroke. Conversely, a sedentary lifestyle is associated with increased stroke risk. Fewer than half of all Minnesotan adults get the recommended amount of exercise or physical activity. 16% of adults in Minnesota are not physically active at all (2008 data).

### Are there disparities in stroke rates?

- In Minnesota, the stroke death rate is 51% higher in Native Americans, 16% higher in African

Americans, and 23% higher in Asians compared to whites.<sup>4</sup>

- Among women, the stroke death rate is 45% higher among Native Americans and 21% higher among African-Americans than whites.<sup>4</sup>
- Among men, the stroke death rate is 54% higher among Asians and 47% higher among Native Americans than whites.<sup>4</sup>

### How common is stroke?

- In 2008, approximately 2.2% of adults in Minnesota reported ever having had a stroke – over 86,000 people.<sup>2</sup>
- Approximately 6% of all deaths in Minnesota are due to stroke, making it the third-leading cause of death in the state behind cancer and heart disease.<sup>4</sup>
- In 2007, Minnesotans experienced approximately 11,500 hospitalizations for acute stroke events.<sup>6</sup>
- In 2007, Minnesota was ranked 16<sup>th</sup> lowest for overall stroke mortality among states.<sup>5</sup>

### What is the economic cost of stroke?

- In the United States, Americans incur over \$65.5 billion in stroke-related medical costs, including procedures, hospitalizations, and rehabilitation.<sup>5</sup>
- Minnesotans incurred almost \$318 million in charges for inpatient hospitalizations due to stroke in 2007.<sup>6</sup>

<sup>1</sup> Goldstein LB, et al. Primary Prevention of Ischemic Stroke. A guideline from the stroke council of the American Heart Association/American Stroke Association. *Stroke*. 2006 Jun; 37(6):1583-633.

<sup>2</sup> Minnesota Behavioral Risk Factor Surveillance System Survey.

<sup>3</sup> Based on Body Mass Index = weight (kilograms) / height in meters squared. BMI > 25 = overweight, BMI > 30 = obese.

<sup>4</sup> Vital Statistics 2005-2007, Minnesota Center for Health Statistics, MDH.

<sup>5</sup> Lloyd-Jones D, et al. Heart Disease and Stroke Statistics – 2009 Update. A report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. *Circulation*. 2009; 113:e21-e181.

<sup>6</sup> Minnesota inpatient hospitalization data, Minnesota Hospital Association, 2007.