



COMMONWEALTH of VIRGINIA

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Office of Integrated Health Health & Safety Alert/Information

Stroke Awareness Health and Safety Alert

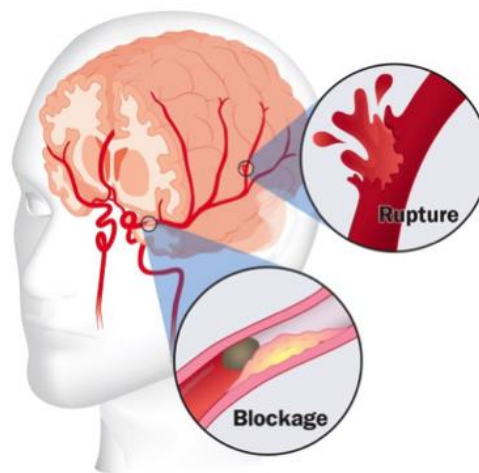
Introduction

Stroke awareness begins with understanding what a stroke is and what is happening when a stroke occurs. A cerebrovascular accident (CVA), known as a stroke, takes place when there is insufficient blood flow and/or a blockage to part of the brain, or when bleeding occurs in the brain, resulting in brain cell death (9).

In the United States, a person has a stroke every 40 seconds. Stroke is the 5th leading cause of death and/or long-term disability in the U.S. This equates to 795,000 individuals yearly who experience a stroke. Nearly 160,000 people die each year due to stroke-related causes. Experts estimate 80% of strokes are preventable (12) (1). When a stroke happens, focusing on the need for immediate medical care is critical to avoid long-term negative outcomes such as permanent disability or death (9).

Types of Strokes

- **Ischemic stroke** - occurs when the blood supply to the brain is blocked; about 87% of all strokes are ischemic (4).
- **Hemorrhagic stroke** - takes place when a blood vessel wall becomes weakened and ruptures, bleeding into the brain. The bleeding compresses the surrounding brain tissue (4).
- **Transient Ischemic Attack (T.I.A.)** - is referred to as a "mini-stroke". A T.I.A. is caused by a temporary blockage of blood flow to the brain. A T.I.A. is often an early warning sign of a future, more serious stroke. 15% of major strokes are preceded by TIAs (4).
- **Cryptogenic stroke** - "cryptogenic" means of unknown origin. This diagnosis is used when standard tests (like brain scans, heart monitors, and blood work) fail to find a clear cause of a clot (4).



Signs and Symptoms of Stroke

A stroke is a serious medical emergency requiring immediate emergency medical attention. Call 911 and get medical help immediately if an individual experiences one or more of these symptoms.

Stroke signs and symptoms include:

- Slurred speech, difficulty repeating a simple sentence.
- Sudden trouble seeing in one or both eyes.
- Sudden intense headache.
- Difficulty walking, dizziness, loss of balance and coordination.
- Sudden confusion or difficulty being understood.
- Facial drooping on one side of face or other, mouth droops, eye droops downward.
- Numbness, weakness, paralysis of the face, arm, or leg especially on one side of the body.

It is very important to note the time symptoms start and get the individual to the emergency room immediately (4).

Use the Acronym B.E.F.A.S.T. for Quick and Easy Stroke Recognition

The B.E.F.A.S.T. acronym was created to help quickly identify signs and symptoms when an individual is having a stroke and how to respond.

If you think someone might be having a stroke **B.E.F.A.S.T.** ...

B = Balance	Sudden loss of balance or inability to walk
E = Eyes	Sudden trouble seeing in one or both eyes
F = Face	Sudden numbness in the face or face drooping on one side
A = Arms	Sudden arm numbness or weakness
S = Speech	Sudden trouble speaking or understanding others
T = Time	If any of these signs are noticed, call 911 immediately and note the time

Knowing the time the stroke occurred can help health care providers determine the best treatment for each person. Do not attempt to drive someone to the hospital. **Call an ambulance so that medical personnel can begin life-saving treatment on the way to the emergency room (31).**

Know the Signs and Symptoms

B - E - F - A - S - T

					
Sudden trouble walking or loss of BALANCE	Sudden trouble seeing in one or both EYES	Sudden numbness or weakness of the FACE face drooping	Sudden ARM numbness or weakness	Sudden trouble SPEAKING or understanding others	TIME: If you observe any of these signs, CALL 9-1-1 immediately

CALL 9-1-1. Don't drive to the hospital.

Non-Modifiable Stroke Risk Factors

Risk factors that we cannot change are deemed non-modifiable risk factors. They include:

- **Age**

Stroke can happen at any age but is frequently related to aging. The risk of experiencing a stroke doubles every 10 years after the age of 55 in the general population (8)(24).

- **Family History**

Studies have shown several genetic connections that may contribute to the hereditary risk of stroke, such as rare single-gene disorders like sickle cell anemia or thromboembolism, a blood-clotting disorder. And/or family members who have heart disease, diabetes mellitus, and hypertension, which are the leading risk factors for stroke (8)(24).

- **Ethnicity**

Black, Hispanic/Latino, and American Indian individuals have a higher risk of experiencing a stroke than other ethnic groups. Black individuals have a two times higher rate of death as a result of stroke compared to white individuals (8)(24).

- **Gender**

A woman who experiences a stroke is more likely to have had a parent who also experienced stroke compared with men (8). Women are more likely to die from stroke than men, but men have a higher risk of experiencing a stroke than women. The Mayo Clinic reports that stroke kills more women each year than breast cancer (24).

Modifiable Stroke Risk Factors

Factors we can change are called modifiable risk factors. Modifiable risk factors can involve a person's medical conditions and/or lifestyle changes. Early recognition and intervention are key to improving outcomes and reducing the risk of stroke.

Modifiable medical conditions include:

- **High Blood Pressure (Hypertension)**

Hypertension is the most important modifiable risk factor with a direct connection between blood pressure and stroke (8). Hypertension affects the arteries, which are the blood vessels that carry oxygen-rich blood from the heart to the body. Hypertension forces blood against your artery walls with extra force, which can damage the inner lining of the blood vessels and lead to serious cardiovascular complications (7).

Hypertension causes arteries to stiffen and become hardened. Hardening of the arteries is known as arteriosclerosis. The arteries naturally become less elastic as a person ages, which increases stroke risk when accompanied by high blood pressure (7).

Individuals who experience high blood pressure are at a much greater risk for having a stroke (4)(10). In June 2026, the CDC reported that approximately half of the adult population in the U.S. has hypertension, and many of them are unaware of their high blood pressure and stroke risk (10).

Most people do not feel any different or realize their blood pressure is elevated. However, hypertension experienced over many years does physical damage to the body. This is why hypertension is known as the "silent killer" (17).

Regular monitoring of blood pressure can identify hypertension, which can be treated with lifestyle changes and medication prescribed by a primary care provider (PCP). The [American Heart Association \(AHA\)](#) officially defines **hypertension** in adults as a systolic (top) number of 130 mm Hg or higher, or a diastolic (bottom) number of 80 mm Hg or higher for adults over the age of 20 years (22).

- **High Cholesterol (Dyslipidemia)**

Cholesterol is a waxy, fat-like substance found throughout the body. There are two sources of cholesterol. In the body, the liver produces cholesterol, and cholesterol is consumed by eating foods such as red meat, poultry, and dairy products, along with processed baked goods that contain palm oil, palm kernel oil, and coconut oil (5).

There are three types of cholesterol.

- LDL (“bad”) cholesterol, which contributes to the waxy fatty buildups in arteries.
- HDL (“good”) cholesterol helps to remove LDLs from the bloodstream.
- Triglycerides, which is fat in the bloodstream the body uses for energy.

A healthy total cholesterol level for adults is below 200, with an HDL between 40 - 80, and LDL below 100 (14).

The combination of high levels of triglycerides along with either low HDL cholesterol or high LDL cholesterol levels can increase the risk of heart attack and stroke (12). Plaque buildup from too much LDL can block the arteries carrying blood to the brain, causing an ischemic stroke (5).

Cholesterol levels can be managed with medications called statins, a well-balanced diet to include fruits, vegetables, and whole grains, and regular exercise (24).

There are genetic risk factors associated with the occurrence of excessive cholesterol in the body that does not respond to medications or lifestyle adjustments (hyperlipidemia), which should be considered, reviewed with labs, and diagnosed by an individual’s PCP (22).

- **Atrial fibrillation (A-fib)**

Atrial fibrillation, or A-fib, increases the risk of stroke by 5 times. A-fib is an irregular heart rhythm that begins in the upper chambers of the heart, the atrium, becoming out of sync with the other chambers of the heart, causing blood to collect and form clots. The clots then travel to major organs such as the brain, causing a stroke (2)(15).

Signs and symptoms of A-fib include a racing or pounding pulse, extreme fatigue, dizziness, fainting, shortness of breath, and chest pain. A-fib is a medical emergency requiring immediate attention. An electrocardiogram (ECG/EKG) is

required to diagnose atrial fibrillation, along with a physical assessment, labs, and an echocardiogram (echo). A-fib is treatable with prescription medications and regular monitoring by a healthcare professional (15).

Studies are also showing a connection between a very fast heartbeat (tachycardia) and stroke occurrence, which may be a direct result of the irregular heart rhythms produced by A-fib (8).

- **Diabetes Mellitus**

Individuals with diabetes have been shown to be twice as likely to experience a stroke as those without diabetes. The use of medications to manage blood glucose levels, along with lifestyle changes, has been shown to reduce the risk of stroke for diabetics (8).

Modifiable lifestyle risk factors include:

- **Physical Activity**

People who don't get regular exercise, 30-minutes per day or 150 hours a week, and live a sedentary lifestyle, sitting for long hours, are at greater risk of stroke and death from stroke than those people who are regularly active. Physical inactivity is directly connected to poorer health outcomes, including stroke. Increased physical activity has been shown to lower blood pressure, reduce body weight and improve the body's use of glucose (8).

- **Diet & Obesity**

A well-balanced diet of fruits, vegetables, and whole grains directly improves modifiable medical conditions such as diabetes mellitus, hypertension, and dyslipidemia (27).

Obesity contributes to cardiovascular disease and stroke risk. Consuming a diet high in saturated fats, high salt, and sugar content increases the risk of stroke (27).

Having a BMI of between 25.5-30 is considered overweight, and a BMI greater than 30 is considered obese. It is estimated that as much as 49% of the world's population is classified as obese (27).

Evidence suggests health-promoting interventions that incorporate physical activity, balanced nutrition, and healthy behavior education can have a positive influence on health (27).

- **Smoking**

Smoking is a risk factor for both cardiovascular disease and stroke. Smokers have a risk for acute ischemic stroke that is almost 2 times higher when compared to non-smokers (8).

Smoking decreases the levels of HDL cholesterol in the body and increases the LDL cholesterol. It also increases clot formation in the bloodstream and increases the narrowing of the arteries due to plaque buildup (atherosclerosis), leading to a higher risk for stroke (32).

Quitting smoking will reduce an individual's risk of stroke immediately. The blood oxygen levels will improve within 8 hours of stopping smoking. An individual's circulatory system will continue to improve the longer they are able to abstain from smoking (32).

Stroke and Individuals with Intellectual and Developmental Disabilities (IDD)

Barriers to quality healthcare services and diagnostic overshadowing are well known along with being a regular occurrence for individuals with IDD. As with the general population, cardiovascular disease is the leading cause of death (29). Individuals with IDD experience higher rates of cardiovascular disease than those in the general population, leading to higher rates of stroke, and at a much earlier age (13).

To learn more about cardiovascular disease in the IDD population, see the OIHSN [Health & Safety Alert on Heart Disease, dated February 2026](#).

Best practice in lowering the risk of stroke is to have regular medical check-ups, which will give healthcare professionals a chance to review, discuss, and monitor issues that impact an individual's health, such as:

- Diet
- Weight
- Physical activity
- Smoking
- Blood pressure
- Cholesterol levels (18)(4).

- **Diet**

Individuals with IDD are at higher risk for obesity and obesity-related diseases than the general population, partly because of their nutritional intake. However, obesity among individuals with IDD often directly relates to where the individual resides, the cause and/or severity of the intellectual and/or developmental disability, mental illness, and the administration of multiple medications (polypharmacy) or psychotropic medication side effects (19).

In community settings, individuals with IDD are dependent on their caregivers and direct support staff for assistance with their food/drink choices, menu planning, grocery shopping, and food preparation, who may lack training in meal planning and nutrition. A current review of individuals in community settings revealed many individuals with IDD consume high amounts of processed foods, due to the convenience factor, and overall nutritional intake was poor (28).

As a result, many individuals with IDD are not getting enough essential nutrients in their daily diets. Very few individuals with IDD are consuming the recommended 5 servings of fruits and vegetables per day, increasing their risk for chronic medical conditions (28).

- **Physical Activity**

Regular physical activity is an essential part of good health for everyone. But until recently, the IDD population has been left out of national guidelines and public health recommendations on physical activity. For the first time, in 2020, the World Health Organization (WHO) included individuals with IDD in their national physical activity guidelines due in part to the Convention on the Rights of People with Disabilities (20).

Individuals in the IDD population have been shown to live more sedentary lifestyles, getting less than the recommended 150 minutes a week of physical activity than their peers in the general population, despite the evidence regarding the benefits (20).

Research on the physical activity levels in the IDD population has shown the importance of supporting staff's influence on activity levels. The more physically active support staff members are, and their attitudes towards physical activity directly impact the level of physical activity individuals with IDD do regularly (20).

- **Smoking & Vaping**

The Centers for Disease Control and Prevention (CDC) report that cigarette smoking and e-cigarette or vaping is significantly higher in individuals with a disability than those without a disability (11).

Individuals in the IDD population started by using cigarette smoking or vaping as a way of social inclusion. Occasional experimental use gradually develops into habitual use (30).

The concept of “Dignity of Risk” allows adults with IDD to have the right to make their own choices and to take risks, including the choice to use tobacco products. Informed-decision making should be prioritized over strict policies or behavioral controls. Information about smoking cessation, to include pharmaceutical interventions like nicotine patches or gum, should be made available to the individual with IDD, along with smoking cessation information appropriate to the individual’s cognitive level (30).

- **Blood Pressure**

The combination of obesity and a sedentary lifestyle, known to affect individuals with IDD, impacts heart disease and can increase blood pressure. Hypertension rates have been shown to be similar, or slightly elevated, compared to those of the general population (29).

Individuals with a diagnosis of hypertension might have an order from the PCP to have their blood pressure checked daily. Keeping a journal or record of readings is helpful when attending physician appointments. Home monitoring helps to obtain long-range data for the physician to evaluate, improves the assessment of hypertension drug effects, and improves compliance (3).

Care Considerations

Close observation is important when providing support to individuals with intellectual and developmental disabilities because they may not be able to complete the standard Face, Arms, Speech, Time test to detect stroke.

Careful monitoring is especially important for those who are non-verbal or have reduced communication skills and wouldn’t be able to perform the speech test; those who cannot raise both arms to test weakness in order to compare one side of the body to the other; and those who cannot follow a command in order to test for changes in comprehension.

The following is a list of various symptoms that may indicate the individual has had a stroke:

- Noted changes in facial presentation, drooping eyelid, turned-down mouth, sudden onset of drooling. New onset of tongue, jaw, or lip movement weakness. These changes might be indicated by food spilling over their lips.
- New weakness on one side of the body. Decreased strength in their hand that might lead to them dropping items, and/or a sudden inability to control their spoon

or fork when eating. They may be unable to hold the trunk of their body up and slump to one side when sitting up or standing.

- Balance and coordination changes. Changes in their normal gait, dragging one foot, using the wall or furniture to steady themselves when they were able to walk independently. You may see a sudden increase in falls.
- Vision changes. The individual may not be able to report vision changes. Watch for squinting, blank staring, or bumping into things, signs that might indicate they are having difficulty seeing.
- New or sudden confusion. An individual might not be responsive to familiar voices or sounds in their surroundings, a blank look on a person's face that used to be expressive, and/or new disorientation.
- Changes in swallowing. This could be holding food in the mouth, inability to use their tongue, or delayed swallowing. They may suddenly be unable to control food in their mouth or may suddenly lack the ability to keep food in their mouth. Coughing during meals or a sudden onset of aspiration pneumonia.
- New onset of distress. Note new sudden holding of the head, crying, grimacing or behavior problems which might be due to their inability to communicate what they are experiencing (9).

Recognizing Risk Factors and Early Warning Signs

The key to successfully lowering the risk of death or disability from stroke is controlling the risk factors and recognizing the early warning signs of a stroke. The American Stroke Association (6) recommends the following strategies to prevent a stroke:

- **Monitor Blood Pressure**

Knowing what an individual's normal blood pressure numbers are is the first step. Regularly checking an individual's blood pressure and/or helping the individual to use an electronic home blood pressure monitor, or per their physician's orders is best practice. Many pharmacies have blood pressure monitoring stations available at no charge to check blood pressure.

It is recommended individuals with a diagnosis of hypertension have their blood pressure taken daily and especially daily for two weeks after treatment begins or changes.

If an elevated reading occurs, wait five-minutes and retake. Blood pressure should only be taken in the same arm twice without taking a five-minute break before using that arm again. If the reading is elevated above 180/120mm Hg and the

individual is experiencing symptoms such as difficulty breathing, chest pain, weakness, back pain, difficulty speaking, or vision changes **call 911 immediately (6)**.

In order to increase the accuracy of all blood pressure measurements, caregivers should encourage and assist the individual to remain as still and quiet as possible, while their blood pressure is being measured.

Instruct individuals to sit in an upright, well-supported position with legs uncrossed. Caregivers should not take a blood pressure reading over clothing. Discourage physical activity and drinking caffeinated beverages for 30 minutes prior.

It is important to take the measurement at the same time every day and at regular intervals (per physician recommendations) (6).

For more information on blood pressure monitoring and other vital signs see the [OIHSN Vital Signs Health & Safety Alert, February 2024](#).

- **Manage Diabetes**

Help and encourage individuals to keep their daily blood sugars down via diet modifications and make sure they have A1C checks on a regular basis and/or per their physician's orders. Consider a consultation with a nutritionist for meal planning (6). For more information on Diabetes basics <https://dbhds.virginia.gov/wp-content/uploads/2024/01/Part-1-Diabetes-Overview-HS-alert-10.2023.pdf>

And Diabetes management <https://dbhds.virginia.gov/wp-content/uploads/2024/01/Part-2-Diabetes-Management-HS-alert-10.2023.pdf>

- **Physical Activity**

Help individuals increase their physical activity, if cleared with their physician. The recommendation for exercise for the general public is 30 minutes daily, 150 minutes weekly. Check with the individual's primary care physician prior to initiating **any** exercise program for **any** individual to ensure their health and safety (6).

- **Healthy Diet**

Encourage a healthy diet to reduce cholesterol and lower BMI. Help the individual to understand the benefits of a heart-healthy diet, which will lower high-fat consumption. Consider a consultation with a nutritionist for meal planning. Check with the individual's primary care physician for clearance and approval prior to assisting the individual to begin any kind of weight loss or dieting program (6). To learn more about Basic Nutrition you can access the Health & Safety Alert at <https://dbhds.virginia.gov/wp-content/uploads/2023/10/Basic-Nutrition-Health-Safety-Aler-2.pdf>

- **Time**

Every second that passes when there is a blockage or a ruptured blood vessel in the brain it is killing cells and causing irreversible damage. Neurologists refer to this as “Time is Brain”. This is why it is very important to call for immediate emergency medical help if any signs of stroke are observed in an individual (16).

Knowing the time a stroke happened is significant because there are clot-dissolving medications, tissue plasminogen activator (tPA), which can only be administered via IV within the first three hours of the stroke occurring. Once that time frame has passed, and/or if it is unclear when the stroke occurred, then these medications cannot be used (16).

Many individuals who experience stroke end up requiring Physical Therapy, Occupational Therapy, and Speech Therapy to regain the same level of functioning they had previously (21).

Resources

- **American Heart Association** - <https://www.heart.org/>. Click on Health Topics to find information geared to the individual or caregiver learning experience such as healthy living, healthy eating, mental health and well-being, sleep, stress management, smoking cessation, fitness, and AMA recommendations for activity. Click on Professional to get up-to-date information on new therapies, quality improvement, workplace health, guidelines and statements.
- **Smoking Cessation Programs for Adults with Disabilities**
The CDC (11) has approved funding for all-inclusive smoking cessation programs in 19 states. You can find out more about these programs here: <https://www.cdc.gov/ncbddd/disabilityandhealth/smoking-in-adults.html>
- **National Stroke Association** - <https://www.stroke.org/understand-stroke/what-is-stroke>. This site offers detailed imagery to help explain the different types of stroke, understanding of what a stroke is, recognition of symptoms of a stroke, prevention of a stroke, the impact of a stroke, etc.

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