THINGS YOU SHOULD KNOW

Your Risk for Stroke and How to Be Prepared
Stroke Education

Stroke: The No. 5 Cause Of Death In The U.S.

Is Stroke Preventable?

Stroke Risk Factors That Cannot Be Changed

Know The Warning Signs Of Stroke

When A Stroke Occurs

The Two Types Of Strokes

Acute Ischemic Stroke Treatments

Post-stroke Rehabilitation
If you are reviewing this brochure, your medical professionals feel that you are at risk for stroke.

This brochure was developed to give you a better understanding of the causes of stroke, ways to prevent one and how to be prepared if one occurs.

- In most cases, managing your risk factors can help prevent a stroke.
- 80% of all strokes in adults may be preventable.
- There are certain risk factors and/or lifestyles that can make you more likely to have a stroke.
About 795,000 Americans will have a new or recurrent stroke.

More than 690,000 U.S. strokes are caused when a clot cuts off blood flow to a part of the brain—this is called an ischemic stroke.

Stroke kills more than 133,000 people a year. That’s 1 in every 20 deaths.

There are some things you can do to prevent a stroke.

These are called controllable factors. If lifestyle changes are made, like eating healthy or not smoking, a person’s risk of stroke can be reduced.

### Controllable Factors:

<table>
<thead>
<tr>
<th>Controllable Factor</th>
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</thead>
<tbody>
<tr>
<td>High blood pressure</td>
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<tr>
<td>Cigarette smoking</td>
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<tr>
<td>Diabetes</td>
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<tr>
<td>Carotid or other artery disease</td>
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<tr>
<td>Peripheral artery disease</td>
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<tr>
<td>Atrial fibrillation</td>
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<tr>
<td>Other heart disease</td>
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<tr>
<td>Sickle cell disease (also called sickle cell anemia)</td>
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<tr>
<td>High blood cholesterol</td>
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<tr>
<td>Poor diet</td>
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<tr>
<td>Physical inactivity and obesity</td>
</tr>
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</table>

Sources: 1) http://www.strokeassociation.org/STROKEORG/AboutStroke/UnderstandingRisk/Understanding-Risk_UCM_308539_SubHomePage.jsp  
2) http://stroke.ahajournals.org/content/28/7/1507.full#ref-13  
3) http://stroke.ahajournals.org/content/31/5/1013.full
Some risk factors for stroke are simply not controllable. But knowing what they are is still important in determining your overall risk for stroke.

Uncontrollable Factors:

- Age
- Gender
- Race
- Heredity
- Prior stroke, TIA or heart attack

To learn more about how to prevent a stroke, go to StrokeAssociation.org/Prevention

Sources:
1) http://www.strokeassociation.org/STROKEORG/AboutStroke/UnderstandingRisk/UnderstandingRisk_UCM_308539_SubHomePage.jsp
2) http://stroke.ahajournals.org/content/28/7/1507.full#ref-13
3) http://stroke.ahajournals.org/content/31/5/1013.full
BEING PREPARED

If you are at risk for a stroke, knowing the signs of a stroke can help you be prepared. Most often it’s family and bystanders who call 911 when a stroke occurs. Educating your family can save your life or someone else’s.
Learn and share the warning signs of stroke and be able to spot a stroke F.A.S.T.!

**F**

**FACE DROOPING**

Does one side of the face droop or is it numb?

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**A**

**ARM WEAKNESS**

Is one arm weak or numb?

---

**S**

**SPEECH DIFFICULTY**

Is speech slurred, are they unable to speak, or are they hard to understand?

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**T**

**TIME TO CALL 911**

If the person shows any of these symptoms, even if the symptoms go away, call 9-1-1 and get to the hospital immediately.
Quick decisions and timely treatment may improve recovery.

Quick Treatment = Less Brain Damage

CALL 9-1-1 AND GET TO THE HOSPITAL AT THE FIRST SIGN OF STROKE SO YOU CAN BE EVALUATED AND RECEIVE TREATMENT IN TIME.

Sources: 1) http://circ.ahajournals.org/content/early/2014/12/18/CIR.0000000000000152.full.pdf+html
2) http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_02.pdf 3) http://stroke.ahajournals.org/content/45/10/3019.short
Hemorrhagic

○ A hemorrhagic stroke occurs when a weakened blood vessel ruptures and spills blood into brain tissue.

○ The most common cause for the rupture is uncontrolled hypertension (high blood pressure).

○ Two types of weakened blood vessels usually cause hemorrhagic stroke: aneurysms and arteriovenous malformations (AVMs).

Ischemic

○ An ischemic stroke occurs as a result of an obstruction within a blood vessel supplying blood to the brain.

○ Ischemic stroke accounts for 87% of all stroke cases, and are largely treatable if you get to the hospital in time.
Tissue plasminogen activator (tPA, also known as alteplase (IV r-tPA), given through an IV in the arm) is an FDA-approved treatment for ischemic strokes. Alteplase (IV r-tPA) works by dissolving the clot and improving blood flow to the part of the brain being deprived of blood flow. If administered within 3 hours (and up to 4.5 hours in certain eligible patients), alteplase (IV r-tPA) may improve the chances of recovering from a stroke. A significant number of stroke victims don’t get to the hospital in time for alteplase (IV r-tPA) treatment; this is why it’s so important to identify a stroke immediately.
ACUTE ISCHEMIC STROKE TREATMENT

Dissolve clot with tissue plasminogen activator alteplase (IV r-tPA).

**Benefits**

- For patients who can be treated within 3 hours of stroke onset, alteplase (IV r-tPA) can lead to better recovery after stroke.

- For select patients who are eligible to be treated up to 4.5 hours after stroke onset, alteplase (IV r-tPA) can also improve outcomes.

- Treatment may improve survival rates.

**Risks**

- Bleeding of the brain, gums or other tissues are major risks.
Another strongly recommended treatment option is an endovascular procedure called mechanical thrombectomy, in which trained doctors try to remove a large blood clot by sending a wire-caged device called a stent retriever to the site of the blocked blood vessel in the brain.

To remove the clot, doctors thread a catheter through an artery in the groin up to the blocked artery in the brain. The stent opens and grabs the clot, allowing doctors to remove the stent with the trapped clot. Special suction tubes may also be used.

In select patients, the procedure must be done within six hours to 24 hours of stroke symptom onset and only after the patient has received alteplase (IV r-tPA).

*Note: Patients must meet certain criteria to be eligible for this procedure.
ACUTE ISCHEMIC STROKE TREATMENT

Remove larger clots with a stent retriever (eligible patients only).

Patients should receive alteplase (IV r-tPA) and a large clot should be present before being considered for mechanical thrombectomy treatment.

**Benefits**

- High success rates (improved recovery and outcomes) in removing large clots/severe strokes.

**Risks**

- Bleeding (the most common associated risk).
- Tearing of the inner lining of the blood vessel.
Your medical professional can tell you which treatment options you are eligible for, and address any concerns you may have.
An inpatient rehab facility can be a separate unit of a hospital or a free-standing building that provides hospital-level care to stroke survivors who need intensive rehabilitation. Best evidence for post-stroke rehabilitation has been found in inpatient rehab facilities.

<table>
<thead>
<tr>
<th>SETTING</th>
<th>ADMISSION</th>
<th>MEDIAN LENGTH OF STAY</th>
<th>SPECIALIST INVOLVEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOSPITAL</td>
<td>Near onset</td>
<td>4 days (ischemic stroke)</td>
<td>Major: MD, RN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 days (hemorrhagic stroke)</td>
<td>More limited: OT, PT, SLT, SW</td>
</tr>
<tr>
<td>INPATIENT REHABILITATION FACILITY (IRF)</td>
<td>5–7 days</td>
<td>15 days (range, 8–30 days)</td>
<td>Major: MD, RN, OT, PT, SLT</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>More limited: SW</td>
</tr>
<tr>
<td>SKILLED NURSING FACILITY</td>
<td>5–7 days</td>
<td>Highly variable (maximum, 100 days)</td>
<td>Major: LPN/LVN, NA, OT, PT, SLT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>More limited: MD, RN</td>
</tr>
<tr>
<td>LONG-TERM CARE (NURSING HOME)</td>
<td>Highly variable</td>
<td>Prolonged and highly variable</td>
<td>Major: LPN/LVN, NA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>More limited: RN, OT, PT, SLT, MD</td>
</tr>
<tr>
<td>LONG-TERM CARE HOSPITAL</td>
<td>Variable</td>
<td>25-days average (required)</td>
<td>Major: RN, MD</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>More limited: OT, PT, SLT</td>
</tr>
<tr>
<td>HOME HEALTHCARE AGENCY</td>
<td>Variable</td>
<td>Maximum 60-days</td>
<td>Major: NA, RN</td>
</tr>
<tr>
<td></td>
<td>(typically 5–30 days)</td>
<td></td>
<td>More limited: OT, PT, SLT, MD</td>
</tr>
<tr>
<td>OUTPATIENT OFFICE</td>
<td>Variable</td>
<td>Variable</td>
<td>Major: OT, PT, SLT, MD</td>
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<td></td>
<td>(typically 5–30 days)</td>
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</tbody>
</table>

*LPN/LVN*, licensed practical or vocational nurse; *MD*, medical doctor; *NA*, nurse assistant; *OT*, occupational therapist; *PT*, physical therapist; *RN*, registered nurse (preferably with training in rehabilitation); *SLT*, speech-language therapist; *SW*, social worker.

Source: 1) Association/American Stroke Association Guidelines for Adult Stroke Rehabilitation and Recovery
POST-STROKE REHABILITATION

What happens next can make all the difference.

Stroke rehab should include:

- Training to improve mobility and ability to do daily tasks
- Individually tailored post stroke exercise program
- Access to cognitive/engagement activities (books, games, computer)
- Speech therapy, if stroke caused difficulty speaking
- Eye exercises, if stroke causes a loss of vision
- Balance training for those with poor balance or fall risk
- Adaptive strategies to help you function within a “new normal”

BEFORE INPATIENT DISCHARGE, A STRUCTURED FALL PREVENTION PROGRAM IS A MUST!

Source: 1) Association/American Stroke Association Guidelines for Adult Stroke Rehabilitation and Recovery
2) http://www.strokeassociation.org/adc/groups/stroke-public/@wcm/@hcm/@sta/documents/downloadable/ucm_494286.pdf
For general resources on stroke, visit: StrokeAssociation.org or call 1.888.4.STROKE

For more information on Acute Ischemic Stroke treatment options, visit: StrokeAssociation.org/AISToolkit

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