Each year, an estimated 600,000 Americans experience a stroke. A stroke occurs when an artery to the brain becomes blocked or ruptures causing the death of an area of brain tissue and sudden symptoms. More than two thirds of all strokes occur in people older than 65 and more than 50 percent of all strokes occur in men but more than 60 percent of deaths due to strokes occur in women. Blacks are more likely than whites to have a stroke and to die from it.

Blood is supplied to the brain through two pairs of large arteries:
- The internal carotid arteries carry blood from the heart along the front of the neck.
- The vertebral arteries carry blood from the heart along the back of the neck. They unite into the basilar artery.

The basilar artery and the internal carotids form several branches and carry blood to all parts of the brain. When these arteries are blocked, some people have no symptoms at all and others have a massive stroke. The explanation for this is the collateral arteries which run between other arteries providing extra connections. Some people are born with large collateral arteries which can protect them from strokes. When an artery gets blocked, the blood flows through the collateral artery preventing a stroke.

There are two types of strokes: ischemic and hemorrhagic. Transient ischemic attacks (TIAs), sometimes called mini strokes, are often an early warning sign of an impending ischemic stroke. The following chart shows the difference between ischemic strokes, hemorrhagic and transient ischemic attacks.

<table>
<thead>
<tr>
<th>Due to:</th>
<th>Transient Ischemic Attack</th>
<th>Ischemic Stroke 80% of Strokes</th>
<th>Hemorrhagic Stroke 20% of Strokes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occur</td>
<td>Sudden</td>
<td>Suddenly and rapidly</td>
<td>Suddenly and steadily worsen</td>
</tr>
</tbody>
</table>
### Transient Ischemic Attack
7. Dizziness
8. Loss of balance and coordination

### Ischemic Stroke
7. Dizziness
8. Loss of balance and coordination
80% of Strokes

### Hemorrhagic Stroke
20% of Strokes

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Transient Ischemic Attack</th>
<th>Ischemic Stroke 80% of Strokes</th>
<th>Hemorrhagic Stroke 20% of Strokes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Loss of Function</strong></td>
<td>Immediately</td>
<td>Usually immediately but some go up to two days</td>
<td>Progressively over minutes to hours</td>
</tr>
<tr>
<td><strong>Resolve</strong></td>
<td>Within minutes to one hour</td>
<td>Over days to months some function may be regained</td>
<td>Over days to months some function may be regained</td>
</tr>
<tr>
<td><strong>Diagnosis</strong></td>
<td>Symptoms and imaging and blood tests</td>
<td>Symptoms and imaging and blood tests</td>
<td>Symptoms and imaging and blood tests</td>
</tr>
<tr>
<td><strong>Prognosis</strong></td>
<td>Excellent. Problems should resolve within minutes to one hour. Follow-up MUST be done because TIAs often occur a few days before to within a year before an ischemic stroke.</td>
<td>Depends on how long brain cells are deprived of blood. Problems that remain after six months are usually permanent. One-third of patients recover all or most of function.</td>
<td>If not massive and pressure within the brain is not very high, outcome better. Blood does not damage brain tissue as much as lack of oxygen. Half of patients with subarachnoid hemorrhage die before reaching the hospital.</td>
</tr>
</tbody>
</table>

### Risk Factors and Prevention
The risk factors for stroke are high blood pressure, diabetes, high cholesterol levels, and smoking. Prevention concentrates on treatment of these factors.

### Treatments
During the first hours, antiplatelet drugs, anticoagulants, drugs to break up clots, and drugs to control high blood pressure are administered depending on the type of stroke. Surgery may be performed to remove the blood that has accumulated in the brain or the clots but this is not done routinely. Antiplatelet drugs can reduce the risk of another ischemic stroke.

### Rehabilitation
Intensive rehabilitation can help a person overcome the disabilities after a stroke. The goals of rehabilitation are:

- To regain as much normal function as possible.
- To maintain and improve physical condition.
- To help people relearn old skills and learn new ones as needed.

Next week’s *Clinical Capsule* will review the areas of the brain that can be affected by a stroke and the resulting physical and mental function.


Questions about this month’s *Clinical Capsule* can be addressed to Susan Gardiner at (773) 478-6613. Past issues of the *Clinical Capsule* can be referenced at the HCCI website [www.hccil.org](http://www.hccil.org). Copyright Illinois Health Care Association and Illinois Council on Long Term Care. Volume 17 Number 34, August 24, 2012.
1. _____ With an ischemic stroke, an artery to the brain is blocked causing tissue death.

2. _____ Whites have more strokes than blacks.

3. _____ Men die more often from strokes than women.

4. _____ Some people can have blocked arteries in the brain but have no symptoms.

5. _____ Collateral arteries are arteries that run between other arteries.

6. _____ An ischemic stroke is due to bleeding in the brain.

7. _____ An intracerebral bleed of the brain is around the brain.

8. _____ A subarachnoid bleed in the brain is within the brain.

9. _____ Most symptoms of strokes occur suddenly.

10. _____ A TIA is referred to as a mini stroke.

11. _____ The symptoms of a TIA are permanent.

12. _____ All loss of function from strokes that do not resolve in six months or less are usually permanent.

13. _____ Often the first symptom of a hemorrhagic stroke is a severe headache.

14. _____ High blood pressure is not a risk for stroke.

15. _____ High cholesterol is a risk for stroke.