Stroke Care in Utah
Prevalence, Prevention and Policy
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Introduction

Stoke is the third leading cause of death in the U.S. and in Utah. In 2003, stroke accounted for about one in fifteen deaths in the United States, and the number of hospitalizations and the cost of treatment for stroke have increased by nearly one-third since 1979. The costs of stroke, including lost productivity, disability and treatment, are estimated to reach around $62.7 billion in 2007.

Stroke occurs when the blood supply to the brain is interrupted, and has two major forms – ischemic and hemorrhagic. An ischemic stroke is “any damage to the brain caused by lack of blood flow in brain blood vessels or in major arteries leading to the brain. This usually results in temporary or permanent loss of one or more normal functions of the body. A hemorrhagic stroke is due to bleeding into the brain causing damage.” Ischemic stroke accounts for about 83% of all cases, with hemorrhagic making up the remaining 17%. Despite new treatments to restore blood flow for victims of ischemic stroke, many people with acute stroke do not arrive at the hospital early enough to receive these treatments. The Utah Department of Health Heart Disease and Stroke Prevention Program is currently working on a variety of efforts to improve the outcomes for stroke patients.

<table>
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<th>Stroke in Utah: Key Facts</th>
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<td>• Almost 4,000 Utahns die each year from heart disease and stroke.</td>
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<td>• Heart disease and stroke account for 28 percent of all deaths.</td>
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<td>• Only about 1 in 3 Utahns who die from heart disease or stroke ever make it to the hospital.</td>
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<td>• In 2004, hospitalization costs in Utah for heart disease and stroke alone were $463 million, with an average cost of $25,000 per hospitalization.</td>
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Causes and Risk Factors for Stroke

The main risk factors for stroke are high blood pressure, diabetes, smoking and increasing age. Atrial fibrillation, a common heart arrhythmia, is also a risk factor. In general, men are more likely to have a stroke than women. The risk of hospitalization for stroke is more than 70 percent greater in blacks than whites. Transient ischemic attack, commonly known as TIA, is a very strong risk factor for an impending stroke. Individuals who have experienced a prior heart attack or stroke are also at greater risk for a future stroke.

While Utah is a relatively healthy state, the statistics show that Utahns should not be complacent. Figures from the Utah Department of Health’s Heart Disease and Stroke Prevention Program show that in Utah, 21.9% of adults have high blood pressure, 24.9% have high cholesterol, 11.2% of adults smoke, and 6.5% have diabetes. In addition, 46.2% of adults are not physically active and 58.2% of adults are overweight or obese. Only 1 in 5 Utahns eat at least 5 fruits and vegetables per day (www.hearthighway.org).
Hospitalization Rates

The Utah hospitalization rate for stroke is significantly lower than the national rate, most likely because of our younger population and good health rankings. In 2003, the age-adjusted U.S. hospitalization rate for stroke was 33.1 per 10,000, compared to the Utah rate of 16.5 per 10,000. The age-adjusted hospitalization rate for stroke in Utah declined slightly from 19.7 per 10,000 in 1996 to 15.4 per 10,000 in 2005. Age-adjusted hospitalization rates are higher for Utah males than females. In 2005, the age-adjusted hospitalization rate for Utah males was 16.4 per 10,000 compared to the female rate of 14.6 per 10,000. Between 2001 and 2005, 72.4% of stroke hospitalizations in Utah occurred among persons age 65 and older.[7]

Overall, Utah stroke hospitalization rates declined for all age groups between 1996 and 2005, with ages 65 to 74 having the largest decrease, from 80.9 per 10,000 to 54.2 per 10,000. Lower hospitalization rates are considered a measure of lower stroke prevalence, but it is also important that those who do have strokes get to the hospital in time.

Costs in Utah

Between 2001 and 2005, the average annual charge for all stroke hospitalizations and emergency department visits in Utah reached $47 million. Because the majority of people who suffer strokes are over 65, government funds paid for the majority of hospital charges through Medicare funds. The increase in average charge per hospitalization for stroke between 1996 and 2005 (93.3%) was slightly higher than the increase for all hospitalizations (84.3%).

What to do in the event of a Stroke

Stroke is a medical emergency and every second counts. Time lost before receiving treatment increases the risk of death or disability. By calling 9-1-1, potential stroke victims can be screened, time of onset of stroke symptoms ascertained, and the hospital emergency department notified to be ready to perform the necessary tests and initiate treatment quickly.

Lack of awareness of signs and symptoms of stroke and failure to call 911 put stroke victims at risk of missing the opportunity for treatment within the crucial three-hour window. The most common warning signs of a stroke are:

- 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.

Stroke Treatment and Time of Arrival

Time is crucial in the diagnosis and treatment of acute stroke. Increased time from symptom onset to treatment for stroke is associated with increased morbidity and death. Thrombolytic therapy (also known as tPA) can reduce disability by restoring blood flow to the brain during ischemic stroke, if given within three hours of symptom onset.
Increasing numbers of stroke victims in Utah are receiving prompt treatment to preserve brain function due in part to an increase in coordination of care, hospitals receiving Primary Stroke Center accreditation, an increase in the number of rural hospitals with Tele-Health capabilities, and implementation of a recent quality improvement program called Get with the Guidelines. However, challenges remain in outlying rural and frontier communities where the access to care is not so readily available.[8] The Utah Stroke Task Force is currently putting together an action plan to tackle some of the issues and to create a statewide stroke system.

Primary Stroke Centers are certified hospitals that implement the recommendations for primary stroke care published by the Brain Attack Coalition. The program is implemented by the Joint Commission on the Accreditation of Hospital Organizations (JCAHO). Key elements of primary stroke centers include acute stroke teams, stroke units, written care protocols, and an integrated emergency response system. Important support services include the availability and interpretation of computerized scans. The first Primary Stroke Center in Utah was recognized in October 2004 (University of Utah Hospital). There are now four centers with this accreditation: University of Utah in Salt Lake City, LDS Hospital (Salt Lake City), Utah Valley Regional Medical Center (Provo), and McKay Dee Hospital (Ogden).

Get with the Guidelines is the premier hospital-based quality improvement program for the American Heart Association and the American Stroke Association. It empowers healthcare provider teams to consistently treat heart and stroke patients according to the most up-to-date guidelines. It focuses on care team protocols to ensure that patients are treated and discharged appropriately. Five hospitals in Utah are currently recognized as achieving the standard:

- **Utah Valley Regional Medical Center – IHC**, Provo
- **Dixie Regional Medical Center**, St. George
- **LDS Hospital**, Salt Lake City
- **McKay Dee Hospital Center**, Ogden
- **University of Utah Hospital**, Salt Lake City

The programs are having positive results. Overall in Utah, the percentage of ischemic stroke patients who were treated at a designated stroke center increased from 28.8% in 1999 to 31.6% in 2004.[9] The percentage of stroke victims treated in the eight Utah hospitals using the Get with the Guidelines program who arrived within three hours and met the medical criteria to receive tPA increased from 14.9% in 2001 to 39.1% in 2005.[10] Statewide, the percentage of all ischemic stroke patients who received tPA more than doubled from 0.7% in 2001 to 1.5% in 2005.[11]

There is much good work happening in the state of Utah. Public awareness and education, coordination, collaboration and quality improvement are working together to improve the outcome of stroke patients, but public policymakers can do much more. The Healthy States Initiative suggests several actions that can be taken to help prevent and treat stroke[12]:

- **Advocate for a coordinated stroke system of care.** This gives the most effective access to treatment for stroke victims in the community. The Utah Stroke Task Force is currently working on developing a statewide system in Utah.
- **Promote awareness.** Knowledge of symptoms and the need to call 911 can save lives and help to reduce disability.
- **Make healthy choices easier.** Giving employers incentives to encourage exercise and healthy eating at work can reduce stroke risk factors.
- **Extend insurance coverage** to include preventive screening such as blood pressure
control.

- **Focus programs on high risk groups.** African Americans, Hispanics and older Americans are all high risk groups.

Policymakers can also demonstrate leadership by becoming a role model, knowing the burden of stroke in the state, and becoming a stroke “champion.”

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[3] Ibid.

[4] Ibid.

[5] Ibid.

[6] Ibid. “Transient ischemic attacks are minor or warning strokes. In a TIA, conditions indicative of an ischemic stroke are present and the typical stroke warning signs develop. However, the obstruction (blood clot) occurs for a short time and tends to resolve itself through normal mechanisms. Even though the symptoms disappear after a short time, TIA’s are strong indicators of a possible major stroke. Steps should be taken immediately to prevent a stroke.”


[8] Utahns residing in urban areas had a higher age-adjusted stroke hospitalization rate compared to rural and frontier areas. This difference could be the result of access to care.

[9] Utah Department of Health Heart Disease and Stroke Prevention Program. 2007. *The Impact of Heart Disease and Stroke in Utah.* Note: Eligible patients include only those patients who arrive at the hospital within 3 hours of symptom onset and who meet specific medical criteria.

[10] Ibid.
