

# FACTS

## Preventable. Treatable. Beatable.: Stroke in the U.S.

### OVERVIEW

Stroke is the nation's No. 4<sup>1</sup> killer and a leading cause of long-term disability. Each year, about 795,000 people suffer a stroke. Approximately 610,000 of these individuals have never experienced a stroke before, and almost 185,000 have a recurrent attack.<sup>1</sup> On average, someone in the U.S. has a stroke every 40 seconds, and every 4 minutes someone dies from one.<sup>1</sup> Stroke was the primary cause of about one in every 19 deaths in 2009.<sup>1</sup>

As these facts illustrate, stroke is already a very serious problem – and as the baby boomers age, it is projected to get worse. Deaths from ischemic stroke, the most common type, are predicted to nearly double between 2000 and 2032.<sup>2</sup> The number of people living with stroke is projected to increase by 4 million by 2030.<sup>3</sup> The direct and indirect costs of stroke in the U.S. for 2009 were \$38.6 billion<sup>1</sup> with an average per person expenditure in the U.S. of \$6,018. Conservative estimates forecast that ischemic stroke alone will cost the U.S. an astounding \$2.2 trillion from 2005 to 2050.<sup>1</sup>

Certain segments of the population have a disproportionately high risk of stroke. African-Americans have almost twice the risk of a first-ever stroke as whites, and African-Americans and Hispanics are more likely to die after a stroke, compared to whites. Gender is also a factor. Each year, nearly 55,000 more women than men have a stroke, and stroke remains the No. 3 killer of women.<sup>1</sup> Although stroke is often thought of as a disease of adulthood, it is among the top 10 causes of death in children, particularly in the first year of life.<sup>4</sup>

Despite these very sobering statistics, the good news is that stroke can be prevented by as much as one-third<sup>5</sup> and timely access to the latest therapies can greatly reduce disability from stroke.

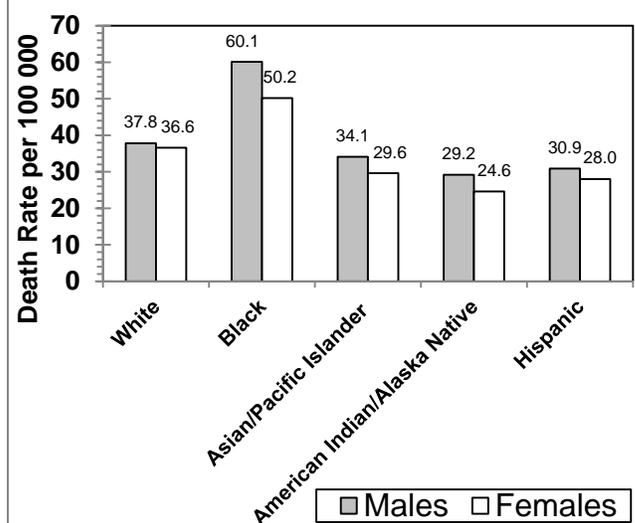
### PREVENTING STROKE

Known, changeable risk factors, such as smoking, high blood pressure, lack of physical activity, diabetes and atrial fibrillation (a condition where the upper chambers of the heart contract in an uncoordinated fashion and blood clots may form) are linked to an increased incidence of stroke.<sup>1</sup>

Reducing or eliminating these risk factors decrease the risk of stroke.

- Current smokers have a 2 to 4 times increased risk of stroke compared with nonsmokers or those who have quit for more than 10 years.<sup>1</sup>
- People with normal blood pressure (below 120/80 mm Hg) have about half the risk of stroke as those with high blood pressure.<sup>1</sup>
- Physical activity is associated with an overall 35% reduction in risk for the most common type of stroke.<sup>6</sup>
- Findings from a study of women age 45 and older suggest that maintaining a healthy lifestyle, which includes not smoking, moderate alcohol consumption, regular exercise, healthy diet, and maintenance of low body mass index (BMI), is associated with a significantly lower risk of ischemic stroke, the most common type of stroke.<sup>7</sup>

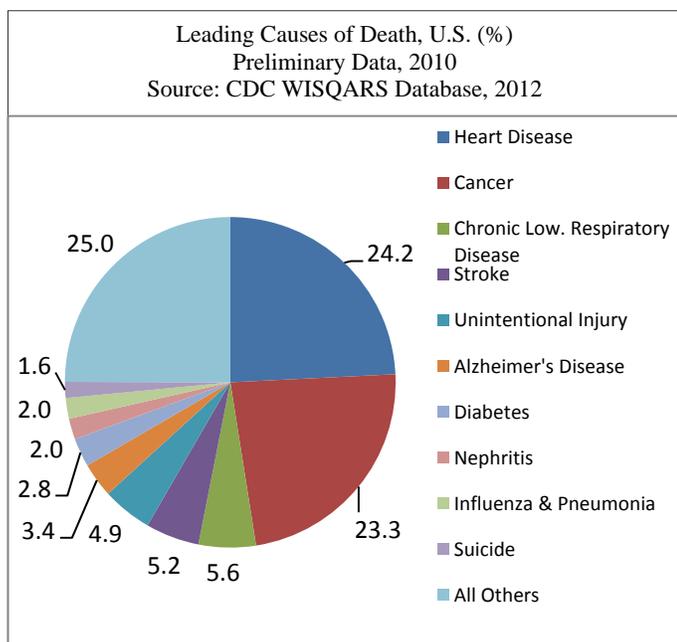
Age-adjusted death rates for stroke by sex and race/ethnicity, 2009.<sup>1</sup>



## TREATING & BEATING STROKE

A major advancement in the treatment of ischemic stroke was approved by the FDA in 1996—a clot-dissolving drug called tPA. tPA can significantly reduce the debilitating effects of stroke if administered as soon as possible within 4.5 hours of symptom onset. In a study of nearly 1 million admissions for stroke in hospitals participating in the Get With The Guidelines-Stroke program, fewer than 5% of patients overall were eligible for tPA.<sup>8</sup> There are many reasons why treatment rates are so low – many of which can be addressed through public policy – but a major barrier is that patients often do not recognize the symptoms of stroke and do not arrive at the hospital in a timely manner.

- Nearly one-third (32%) of adults cannot recall at least one warning sign for stroke.<sup>1</sup>
- African Americans are nearly twice as likely as whites to have a first stroke, but fewer than half (49%) know at least one stroke warning sign.<sup>9</sup>
- On average, patients do not arrive at an Emergency Department until 3-6 hours after having a stroke.<sup>10</sup>



- Patients who receive tPA within 90 minutes of symptom onset are almost three times as likely to have favorable outcomes three months after a stroke than those who do not receive tPA.<sup>11</sup>
- The development of “stroke systems of care”, including the establishment of a primary stroke center, can significantly increase the proportion of patients who receive improved stroke care. Patients admitted to primary stroke centers were more likely to receive thrombolytic therapy and had lower 30-day mortality rates when compared with patients admitted to non-designated hospitals.<sup>12</sup>
- tPA saves the health care system money by improving patients’ outcomes and reducing the

need for extensive medical care. A recent analysis estimated that tPA can provide considerable cost savings if used in just 20 percent of all ischemic stroke patients in the US — nearly \$74 million for the first post-stroke year alone.<sup>13</sup>

- According to a recent study, nearly half of Americans live more than an hour away from a primary stroke center.<sup>14</sup> Telemedicine has proven to be very effective in the evaluation and treatment of acute stroke, including significantly increasing the use of tPA, in rural and neurologically-underserved areas.<sup>15</sup>
- Only about 30% of stroke survivors received outpatient rehabilitation, which is lower than would be expected, if clinical practice guidelines for all stroke patients had been followed.<sup>1</sup>

## THE AHA/ASA ADVOCATES

The American Stroke Association, a division of the American Heart Association, urges policymakers to support the following policy recommendations for preventing stroke and improving the quality of care that stroke patients receive:

- Protect investments in prevention;
- Support the development and implementation of stroke systems of care, including via the use of telemedicine;
- Increase the National Institutes of Health investment in stroke research, which currently constitutes only 1% of NIH’s budget; and
- Improve access to needed stroke care, including rehabilitation.

<sup>1</sup> Go, AS, et al. Heart Disease and Stroke Statistics -- 2013 Update: A Report From the American Heart Association. Circulation. Published online ahead of print. Accessed December 12, 2012.

<sup>2</sup> Elkins JS, Johnston CC. Thirty-year projections for deaths from ischemic stroke in the United States. Stroke. 2003; 34:2109-2113.

<sup>3</sup> Heidenreich, P., Trogon, J. et al. Forecasting the Future of Cardiovascular Disease. A Policy Statement from the American Heart Association. Circulation:123:000-000. Published online: January 24, 2011.

<sup>4</sup> Centers for Disease Control, WISQARS Database, Ten Leading Causes of Death by Age Group, United States – 2008. Available online at:

<http://www.cdc.gov/injury/wisqars/pdf/10LCD-Age-Grp-US-2008-a.pdf>

<sup>5</sup> Kahn R, Robertson RM, Smith R, Eddy D. The impact of prevention on reducing the burden of cardiovascular disease. Circulation. 2008;118:576–585.

<sup>6</sup> Willey JZ, Moon YP, Paik MC, Boden-Albala B, Sacco RL, Elkind MS. Physical activity and risk of ischemic stroke in the Northern Manhattan Study. Neurology. 2009; 73:1774-1779.

<sup>7</sup> Kurth, Tobias, Moore, S, et al. Healthy Lifestyle and the Risk of Stroke in Women. Arch Intern Med. 2006; 166: 1403-1409.

<sup>8</sup> Allen NB, Kaltenbach L, Goldstein LB. Regional Variation in Recommended Treatments for Ischemic Stroke and TIA: Get With the Guidelines-Stroke 2003–2010. Stroke. Published online May 15, 2012.

<sup>9</sup> American Stroke Assn. African-American Stroke Awareness Survey, 2005.

<sup>10</sup> Centers for Disease Control and Prevention. First-ever county level report on stroke hospitalizations. CDC Press Release. March 28, 2008.

<sup>11</sup> Lattimore SU, Chalela J, Davis L, et al. Impact of establishing a primary stroke center at a community hospital on the use of thrombolytic therapy: the NINDS Suburban Hospital Stroke Center experience. Stroke. 2003; 34: 55-57.

<sup>12</sup> Xian Y, Holloway RG, et al. Association Between Stroke Center Hospitalization for Acute Ischemic Stroke and Mortality. JAMA. 2011;305(4):373-380.

<sup>13</sup> National Institutes of Health. “Fact Sheet: Stroke.”

<http://report.nih.gov/NIHfactsheets/ViewFactSheet.aspx?csid=117&key=S#S>  
Accessed December 21, 2011.

<sup>14</sup> Albright, K, Branas C, Meyer, BC, Matherne-Meyer DE, Zivin JA, Lyden, PD, Carr, B. Acute Cerebrovascular Care in Emergency Stroke Systems. Archives of Neurology, 2010; 67(10): 1210-1218.

<sup>15</sup> A Review of the Evidence for the Use of Telemedicine within Stroke Systems of Care: A Scientific Statement from the American Heart Association. Stroke. Published online May 7, 2009.