

## Stroke in New Mexico

Stroke continues to be a significant cause of morbidity and mortality in the United States. Stroke is the third leading cause of death nationally and the fifth leading cause of death in New Mexico. It is also the leading cause of long-term disability, both nationally and in New Mexico. Nationally, 700,000 men and women in the United States have a stroke each year. Many stroke victims will die; however, many more will become disabled. The level of disability can range from minor to life changing. However, as devastating as a stroke can be, there is hope. The chance of having a stroke may be reduced by recognizing and eliminating certain risk factors. For those who do have a stroke, the development of acute stroke centers in New Mexico for treatment and referral of stroke patients will potentially provide the best possible care for stroke patients.

A stroke is a form of cardiovascular disease that affects the vessels of the brain. A stroke occurs when the brain is deprived of oxygen and nutrients due to rupture or blockage. Brain cells in the affected area begin to die within minutes, causing alterations or loss of function.

There are three main types of stroke: two caused by blood clots or other particles, and one by bleeding or hemorrhage.

1. Occlusive strokes — due to a blockage in the cerebral arteries (70 - 80% of all strokes).
2. Hemorrhagic strokes — due to a rupture in the blood vessels in or around the brain.
3. Transient Ischemic Attacks (TIAs) - due to a temporary blockage in the cerebral arteries.

Major advances have been made in the last two decades in the care of stroke, improving outcomes of many victims. Many of the advances in stroke care focus on acute management. The introduction of fibrinolytic therapy, first approved by the FDA in 1996, and the development of intra-arterial clot removal devices have extended the treatment window for stroke to

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up to 6 hours. Stroke outcome can also be improved through the systematic development and designation of hospitals as acute stroke centers.

There are several, well-documented risk factors for stroke. Non-modifiable risk factors are those that cannot be changed, such as age, gender, heredity, prior stroke, and race. Modifiable risk factors include hypertension, cardiovascular disease, cigarette smoking, diabetes, and hypercholesterolemia.

### Methods

The Behavioral Risk Factor Surveillance System (BRFSS) is a national surveillance system sponsored by the Center for Disease Control (CDC) that collects data by telephone on the common health conditions and behaviors that affect risk for disease. In this survey, households with landline telephones are randomly selected, and one adult eighteen years or older is eligible to participate in the survey. Participation is voluntary and no personal identifiers are collected. The New Mexico Department of Health has been participating in the survey since 1986. Data from the survey are presented on the prevalence of stroke and its risk factors.

Hospital Inpatient Discharge Data (HIDD) collected by the New Mexico Health Policy Commission was also reviewed. This report is based on data collected from hospitals in the State of New Mexico. All non federal facilities are required to report HIDD data. In 2006 thirty six hospitals participated in the data collection process. A stroke hospitalization was defined as a hospitalization with a primary ICD- 9 code of 430-436.

The New Mexico vital records death data is collected by the New Mexico Department of Health and is re-

ported nationally to the National Center for Health Statistics of the CDC. Included death certificates listed stroke as the underlying cause of death with ICD-10 codes 160-169. The data was then analyzed by age, sex, race/ethnicity, and region.

## Results

In 2006, the BRFSS survey was completed by 6,583 adults. Among the New Mexicans fifty years of age and older who were surveyed, 4.9 percent reported that they had been told they had had a stroke. The BFRSS survey found that adults fifty years of age and older who had been diagnosed with hypertension were approximately five times more likely to have also experienced a stroke. Those with a diagnosis of diabetes were three times more likely to experience a stroke. Males with high cholesterol were three times more likely to have also had a stroke, while females were only twice as likely. Those with a history of a heart attack were seven times more likely to have had a stroke. Due to the nature of the survey, it is unknown which diagnosis came first; the stroke diagnoses or the comorbidity. No significant differences in the prevalence of stroke among Whites, Hispanic, Native American, and all others were found. There were also no significant disparities in stroke prevalence between regions within New Mexico.

During 2000-2007, there was an annual average of 3,306 stroke hospitalizations in New Mexico in the Hospital Inpatient Discharge Database (HIDD). Patients diagnosed with a stroke were five time more likely to have experienced an occlusive stroke, including TIA, than a hemorrhagic stroke. In 2005, there was a sharp decline in the number of patients diagnosed with an acute, but ill-defined cerebrovascular accident. At the same time there was a sharp increase in the number of occlusive strokes. It is unclear if this change was due to changes in reporting or improved diagnostic capability.

Stroke deaths have declined both nationally and in New Mexico since 1980. However, stroke remains the third leading cause of death in the United States and the fifth leading cause in New Mexico. There were 609 stroke deaths in NM in 2004, 625 in 2005, and 629 in 2006. Of the 1,863 deaths in NM from 2004 – 2006, 1,155 of the decedents were female and 708 were male. 15.1% of the stroke deaths in males were categorized as premature, meaning that the death occurred

before the age of 65. This is higher than the 10.6% female stroke deaths that were premature. In New Mexico, 8.6% of stroke deaths among Whites were premature compared to 16.7% among Hispanics. For African Americans the percentage of premature stroke deaths was 29.7%.

## Discussion

Trauma centers provide a successful model for improving stroke care. Like trauma, a stroke requires rapid and specialized care. The trauma center concept has been successful in New Mexico in organizing effective acute trauma care. In the last year New Mexico has doubled the number of trauma centers from three to six, yet there currently are no designated primary stroke centers in New Mexico. In 2005, the American Stroke Association created recommendations for the establishment of stroke systems of care, including the development of primary stroke centers. A primary stroke center (PSC) stabilizes and treats acute stroke patients, providing initial acute care and neuroimaging procedures. PSC's are certified by The Joint Commission (TJC) in the United States. This designation incorporates many similar components of trauma centers, including an acute stroke team, stroke protocols, public awareness, access to specialized diagnostic testing, strong collaboration with specialists, time sensitive treatment, and stroke care quality improvement initiatives.

Stroke treatment guidelines recommend a door to physician time of only 10 minutes with the CT scan completed within 25 minutes. These recommendations are designed to maximize the efficacy of the clot busting drug Tissue Plasminogen Activator (tPA). Stroke center models have been shown to improve the quality of acute stroke care improve outcomes, be cost-effective, and reduce disparities.

There are challenges that New Mexico hospitals face in treating stroke patients and becoming stroke centers. The availability of neurologists throughout the state is limited, and neurosurgical support is even more scarce. This represents a potential barrier for not only facilities in large population centers, but especially for hospitals in rural New Mexico. The costs associated with establishing stroke centers could also represent obstacles for implementation. Potential costs would include training, staffing, and accreditation costs. Initial and annual training is necessary for medical and nursing staff.

Staffing would include personnel to collect data on incoming stroke patients, a dedicated physician to serve as a medical director and a full time nurse to serve as program coordinator.

### **Recommendations**

- Develop a public messaging campaign to educate the public on the signs and symptoms of stroke.
- Develop multiple primary stroke centers in key locations in New Mexico.
- Expand the stroke data collection system in state of New Mexico using the American Heart Association's *Get with the Guidelines* data collection and quality improvement tool.
- Provide incentive funding for primary stroke centers.
- Explore the possibility of state stroke center designation to complement joint commission designation.
- Explore the use of telemedicine/teleradiology to expand the availability of stroke specialists to rural areas of New Mexico.
- Have the New Mexico Stroke Advisory Committee continue to advise on developing a system of care for stroke.

## **State Offers Affordable Electronic Medical Record System to Healthcare Providers**

Medical providers from around the state can now get electronic medical records in their offices for an affordable price with help from the New Mexico Department of Health.

The Strategic Health Partners Agreement allows providers to pay the same discounted rate as the Department of Health for an electronic medical records system. The Department of Health is using electronic medical records in 50 of our public health offices. The cost associated with the system under the agreement will be \$12,000 annually for physicians, \$10,000 annually for other practitioners who must bill under their own NPI, and free for all other users.

Electronic medical records are a great advancement in patient care in New Mexico. Having an electronic medical records system allows providers to spend more time seeing patients, decreases waiting room times and gives patients better overall services by improving con-

tinuity of care.

The Department of Health will make it easy for providers to get the system. We will assist in scheduling installation. We will also provide consultation on implementation and train staff.

To take advantage of this program, practices must accept clients covered by either the Medicaid fee for service program or the Medicaid managed care program. We will also ask providers to participate in a local health information exchange or the New Mexico Health Information Collaborative. Providers and the Department of Health will also sign a HIPAA Business Associate agreement.

The Department will require periodic reporting of the numbers of mammogram screenings conducted or ordered, pap tests, clients with asthma who have an asthma progress note completed at each visit, well-baby visits, EPSDT examinations, pre-diabetes patients, diabetes patients and colorectal cancer screenings conducted or ordered. This information will be valuable in the common pursuit of improving the health of New Mexicans through the use of health information technology.

For more information on taking advantage of this partnership, please contact Bob Mayer at the Department of Health at 505-827-0536 or by email at [Robert.Mayer@state.nm.us](mailto:Robert.Mayer@state.nm.us).

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**Percentage of Stroke Deaths that occurred at < 65 years of age by Race/Ethnicity,  
New Mexico, 2004-2006**

