

FACTS

Telestroke: Connecting Patients to Quality Treatment

OVERVIEW



Stroke is the nation's No. 5 killer¹ and a leading cause of serious long-term disability, with nearly 800,000 strokes and 130,000 deaths occurring per year.² About 66 percent of the total hospitalizations for stroke occur among adults age 65 and older,³ and approximately 94 percent of strokes occur in an

urban or suburban area.⁴ The costs of treating stroke in the U.S. for 2012 were \$71.5 billion and are expected to triple to \$184 billion by 2030.⁵

As these statistics demonstrate, the social and economic impact of stroke is devastating. Significant barriers prevent or slow treatment for a large number of patients with stroke, including: long travel times to stroke center hospitals, patients not arriving at the hospital within the treatment window, and the lack of availability of stroke specialists who can evaluate the patient and determine if he or she is a candidate for treatment.

The good news is that timely access to the latest therapies through expanded use of telestroke can greatly improve the quality of care and reduce disability from stroke.⁶ **Telestroke** provides an urgent and compelling alternative to having a stroke neurologist present at the bedside for treatment of acute strokes.

TELESTROKE DEFINED

Telestroke is the use of interactive videoconferencing in the delivery of acute stroke care.⁷ Specialists are provided with timely data to assist clinicians at the bedside in stroke-related decision making for patients presenting at distant facilities that do not have a stroke neurologist available around the clock.

TELESTROKE AND tPA

Tissue Plasminogen Activator (tPA) is a clot-busting drug that helps reverse disability from the most common type of stroke if given within the first 3 to 4-1/2 hours of symptom onset. The faster a patient receives treatment for stroke, the better the chances for recovery with minimal or no disability. 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.⁸

However, about one-third of Americans live more than an hour from a primary stroke center,⁹ and only about 27 percent of stroke patients arrive at the hospital within 3.5 hours of symptom onset.¹⁰ Additionally, there are currently only 4 neurologists per 100,000 persons in the US,¹¹ meaning that even emergency departments in urban and suburban areas are not able to have stroke neurologists readily available. As a result of these barriers, only 3 to 6 percent of patients receive tPA. Telestroke can help fill the void.

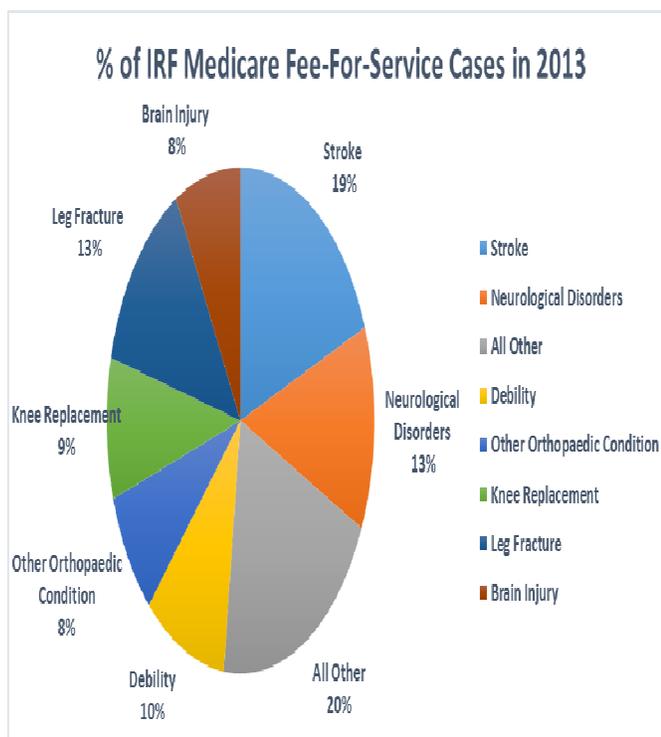
TELESTROKE: CONNECTING THE EVIDENCE

Telestroke programs are supported by evidence-based research. According to research, telestroke networks lead to the following benefits:

- 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.¹²
- Telestroke has also proven effective in increasing the use of tPA in urban areas. One recent study of 4 urban hospitals in Illinois found that their utilization of tPA increased by two to six times after telestroke was implemented.¹³
- Compared to no telestroke network, a telestroke system can result in more use of tPA and stroke therapies, more patients discharged home independently, and overall cost-savings for the network of hospitals.^{14,15}
- A collaborative network for acute stroke care using ongoing data collection and review can lead to significant improvements in care and increase compliance with performance metrics.^{16,17}
- Both neurologists and emergency physicians agree that telestroke can reduce the geographic disparity in stroke treatment.¹⁸
- Telestroke networks can contribute to advancing science by improving recruitment into stroke clinical trials.¹⁹

TELESTROKE SAVES MONEY

Finally, telestroke can save Medicare and Medicaid money by reducing stroke-related disability and the need for costly inpatient rehabilitation and nursing home care. Stroke is currently the leading cause of Medicare admissions to inpatient rehabilitation facilities (IRFs), accounting for nearly 20 percent of all such admissions.²⁰ According to one study, patients receiving tPA were more likely to be discharged to home than to inpatient rehabilitation or nursing homes and the study projected savings in rehabilitation and nursing home costs of \$10.2 million (in 2013 dollars) per 1,000 additional patients treated with tPA.²¹ A more recent analysis evaluating the cost utility of telestroke networks determined that the use of telestroke would save \$2,227 per patient in nursing home costs alone, after accounting for the increased costs of setting up and maintaining the network and providing tPA.²²



Source: MedPAC analysis of Inpatient Rehabilitation Facility–Patient Assessment Instruments from CMS for 2004–2012, and January 1 through June 30, 2013.

THE AHA/ASA ADVOCATES

The American Stroke Association, a division of the American Heart Association, urges policymakers to support the following policy recommendations for telestroke:

- Eliminate reimbursement barriers to telestroke, particularly Medicare’s rural originating site requirement (included in Section 105 of the Telehealth Enhancement Act, H.R.3306 / S.2662.
- A mechanism for streamlining licensure for physicians providing telestroke consultations across state lines should be adopted by state medical boards.

¹ Centers for Disease Control and Prevention. NCHS Data Brief: Mortality in the US, 2013. NVSR. Volume 64, Number 178. Accessed January 15, 2015.

² Go, Alan S., et al. Heart disease and stroke statistics--2014 update: a report from the American Heart Association. *Circulation*.2014.129.3: e28.

³ Hall MJ, et al. National Center for Health Statistics Data Brief: Hospitalization for Stroke in U.S. Hospitals, 1989-2009. May 2012. Accessed online at: <http://www.cdc.gov/nchs/data/databriefs/db95.pdf>.

⁴ Based on 2013 CDC survey data which reported the prevalence of stroke was 2.4% for adults living within a MSA and 3.2% for adults living outside a MSA. Using US Census Bureau estimates of the population living in MSAs and non-MSAs, we estimated the total number of strokes occurring in MSAs and non-MSAs.

⁵ Ovbiagele, B, Goldstein, LB, et al. Forecasting the Future of Stroke in the United States: A Policy Statement from the American Heart Association and American Stroke Association. *Stroke*: Published online May 22, 2013.

⁶ Schwamm, LH., et al. A review of the evidence for the use of telemedicine within stroke systems of care A scientific statement from the American Heart Association/American Stroke Association. *Stroke*.2009.40.7: 2616-2634.

⁷ *Ibid.*

⁸ Lattimore SU, 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.

⁹ Adeoye O., et al. Geographic Access to Acute Stroke Care in the United States. *Stroke*. 2014; 45. Published online Aug. 26, 2014.

¹⁰ Tong D, et al. Times from symptom onset to hospital arrival in the Get With The Guidelines-Stroke Program 2002 to 2009: temporal trends and implications. *Stroke*. 2012;43:1912-1917.

¹¹ Freeman, WD., et al. The workforce task force report clinical implications for neurology. *Neurology*.2013.81.5: 479-486.

¹² Schwamm, LM, et al. 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.

¹³ Cutting S, et al.. Telestroke in an urban setting. *Telemed JE Health*. 2014;20(9):855-7.

¹⁴ Switzer JA et al. Cost-effectiveness of hub-and-spoke telestroke networks for the management of acute ischemic stroke from the hospitals’ perspectives. *Circulation*. 2013 ;6:18-26.

¹⁵ Meyer, BC., et al. Efficacy of site-independent telemedicine in the STROKE DOC trial: a randomised, blinded, prospective study. *The Lancet Neurology*.2008. 7.9 : 787-795.

¹⁶ Stoeckle-Roberts S. et al. Joint Commission J Quality Patient Safety. 2006 (32);9:517-527.

¹⁷ Chalouhi, N, et al. Intravenous tissue plasminogen activator administration in community hospitals facilitated by telestroke service. *Neurosurgery*.2013. 73.4: 667-672.

¹⁸ Moskowitz, A, et al. Emergency physician and stroke specialist beliefs and expectations regarding telestroke. *Stroke*.2010 41: 805-809.

¹⁹ Switzer, JA., et al. A telestroke network enhances recruitment into acute stroke clinical trials. *Stroke*.2010.41.3: 566-569.

²⁰ Medicare Payment Advisory Commission. Report to the Congress: Medicare Payment Policy. March 2014.

²¹ Fagan SC, et al. Cost-effectiveness of tissue plasminogen activator for acute ischemic stroke. *Neurology*. 1998;50:883-890. The original numbers in 1996 dollars have been updated for inflation.

²² Demaerschalk BM, et al. Cost utility of hub-and-spoke telestroke networks from societal perspective. *Am J Manag Care*. 2013;19:976-85.