



## Healthcare

# ▶ Massachusetts General Saves Lives and Improves Outcomes with Polycom Video

Massachusetts General Hospital (MGH) is a nonprofit teaching hospital affiliated with the Harvard Medical School and is a recognized leader in stroke telemedicine. Founded in 1811, MGH has built a self-sustaining regional telemedicine network of community hospitals focused on providing the right stroke care to the right patients at the right time.

### ▶ Daily Use

- Telestroke
- Continuing Medical Education

### ▶ Solution

- Polycom® HDX™ group and Polycom VSX® group video conferencing systems
- Polycom Conferencing Platforms
- Polycom Personal Video Conferencing systems

### ▶ Results and Benefits

- 400 telestroke consultations resulting in improved accuracy of diagnosis for patients
- Ten-fold increase in the administration of stroke medication, resulting in lives saved and significantly improved long-term recovery

The third leading cause of death in the United States, stroke's public health and financial impact is staggering. Every 40 seconds, someone in the United States suffers a new or recurrent stroke, and every three to four minutes, a stroke kills someone. In the U.S. alone, stroke-related medical and disability costs are estimated at more than \$68 billion for 2009.

However, the toll on public health and the long-term costs associated with ischemic strokes, which account for 83 percent of all strokes, can be significantly reduced with rapid assessment and successful treatment using clot-busting drugs like tissue plasminogen activator (tPA). This drug must be administered within a three-hour window from the onset of symptoms to work most effectively, making rapid recognition and accurate diagnosis critical for optimizing patient outcomes.

Reaction time is key to preventing stroke death and limiting long term damage, making the condition even more devastating in remote populations that lack immediate access to a neurologist. Although numerous bedside tools have been developed to improve the accuracy of rapid diagnosis, it can still be challenging for physicians without neurological expertise. The misdiagnosis rate among primary care and emergency medicine physicians is estimated to be thirty percent. The lack of stroke specialists in community hospital emergency departments causes these delays in diagnosis, misdiagnosis or complete failure to diagnose acute stroke. As a result, only three-to-five percent of those who suffer an ischemic stroke are treated with tPA.

### **The Right Care at the Right Time**

"When it comes to the assessment and treatment of stroke patients," explains Dr. Lee Schwamm, Director of Acute Stroke Services and TeleStroke at Massachusetts General Hospital. "Time is brain. By collapsing the barriers of time and distance through Polycom video conferencing technology, we are able to share the acute stroke expertise of the MGH with a broader community of patients across the state and around the world."

*"By collapsing the barriers of time and distance through video conferencing technology, we are able to share ... acute stroke expertise ... with a broader community."*

Dr. Lee Schwamm, Director of Acute Stroke Services and TeleStroke at Massachusetts General Hospital

Dr. Schwamm created the MGH Acute Stroke Telemedicine Program in 1996 to meet the need for more rapid and accurate diagnosis of ischemic strokes in remote locations. First piloted in 1998, the program now supports 24 hospitals across three states. It is the largest single “hub and spoke” telestroke network in the world, with the stroke expertise residing at MGH and the “spoke” community hospitals accessing the knowledge via video conferencing. Since the program’s inception, MGH physicians have performed hundreds of telemedicine consults, saved many lives, and improved outcomes for countless stroke patients.

### **An Effective Telemedicine Network**

According to Schwamm, effective telestroke programs merge three key components—video conferencing, teleradiology, and relational database software applications. The core steps of an acute stroke clinical intervention include a rapid neurological assessment, a review of brain imaging scans, and the assessment of patient eligibility for tPA therapy or advanced surgical interventions. Telemedicine technology helps overcome geographic and resource barriers, facilitating each of these steps, regardless of the patient’s physical location. It provides specialists with the data they need to urgently assist physicians in distant or under-resourced facilities to make difficult clinical decisions.

MGH video conferencing infrastructure is based on Polycom video conference platform, which enables video connections to occur between multiple sites both inside and outside of the organization’s network. The Polycom conference platform also supports ISDN connectivity, significantly expanding the number of sites MGH can reach over video. MGH has deployed approximately 180 Polycom video conferencing endpoints located in conference rooms, offices, auditoriums and clinical areas throughout the hospital. In a typical month, the MGH will hold an average of 1,500 video conferences.

Stroke physician consultants from the “hub” connect to a community hospital over a Polycom video conferencing endpoints, or connect from home using a laptop or PC equipped with Polycom desktop video applications. The “spoke” hospital transmits a digital image of the radiology scan to a dedicated server, making it available for viewing by the MGH-based stroke consultant.

Completing the telestroke solution is an internally-developed, secure SQL server database that serves as an intranet site and medical record system which accurately documents critical information regarding each clinical interaction. Together, these technologies facilitate the timely clinical evaluation of stroke patients. Without the expertise of a stroke physician enabled

by these technologies, emergency department physicians in distant or under-resourced facilities are often unable, or unwilling, to treat patients with tPA due to the grave risks associated with it.

### **Raising the Level of Care**

The goal of the MGH Acute Stroke Telemedicine Program is to improve the standard of stroke care in small community hospitals. In its more than ten years of existence, the program has been extremely successful in helping hospitals and the patients in their communities. Not only does MGH equip hospitals with video communications technology and enable remote access to world-renowned stroke experts, it also undertakes a comprehensive review and update of the community hospitals’ stroke treatment protocols to incorporate the most recent advances, truly raising the overall level of stroke care in the community.

From 2004 to 2008, MGH neurologists performed nearly 400 stroke telemedicine consultations, and provided tPA therapy to more than 130 patients for a treatment rate of 33 percent, well above the three-to-five percent national average.

### **A Model Program**

MGH is currently in discussions with several additional community hospitals interested in joining the telestroke network. In addition, the success of the MGH Acute Stroke Telemedicine Program has captured the attention of other MGH clinical services, including trauma, obstetrics, and pediatrics. Notes Dr. Schwamm, “Continued global adoption of stroke telemedicine models will have a profound positive impact on the treatment and recovery of stroke patients. Ultimately, we’ll see it significantly reduce both the public health impact and financial burden of the disease.”

### **Learn more.**

To find out how Polycom solutions can help your organization, visit us at [www.polycom.com](http://www.polycom.com) or speak with a Polycom Account Representative.

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