

Telemedicine 'robot' allows stroke specialists to remotely evaluate patients in oak park

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Acute stroke patients who arrive at Rush Oak Park Hospital's emergency room can now be seen immediately by a Rush University Medical Center stroke neurologist without the specialist actually being there.

New telemedicine technology helps address the major challenges confronting stroke care: the short time window available for treatment and the limited availability of stroke neurologists who are required to swiftly and accurately diagnose stroke.

The diagnosis of stroke is complicated, but now a specialty trained stroke [neurologist](#) can log into a computer from anywhere and not only speak, but also see the patient and the patient's medical information in real-time to provide an evaluation and direct treatment recommendations.

Patients have only an eight-hour window for potential interventional procedures and a much shorter four and half hour window from onset of symptoms to receive the clot busting drug, tPA. A stroke trained neurologist is needed to make these treatment decisions. Treatments to open up blocked blood vessels in stroke have been shown to improve outcomes and limit disability. However, too few patients receive these approved therapies due to delays in arrival or treatment in the hospital.

“Twenty-five to thirty percent of patients nationwide arrive at the hospital emergency room within the treatment window for tPA, but only two to three percent of all stroke patients actually receive tPA,” said Dr.

Shyam Prabhakaran, director of the Rush Stroke Program. “By accelerating access to stroke experts using the telemedicine system we are able to help provide care within minutes and reduce the risk of complications in many more stroke patients.”

The system is comprised of a remote presence robot placed in the emergency department and a control station using a laptop computer that has secure Internet connection. Through the computer, the neurologist can control the camera to pan and zoom to view and speak with the patient, family members, and medical staff. The patient can see the physician on a robot’s screen, which allows for a personal exchange and two-way communication.

The physician has access to the patient’s medical information, including CT scans, lab results and vital signs, through the electronic medical record. Since the system uses a laptop computer, the neurologist can log on from just about anywhere and provide a crucial time- sensitive evaluations and recommendations.

“A physical exam to determine if a patient should get tPA depends mostly on observation. We can monitor speech, level of consciousness, and determine how well the patient can move,” said Prabhakaran. “It is like we are at the bedside with the patient.”

The stroke neurologist can make an immediate decision on the course of treatment and then turn over the treatment back to the emergency physician for the continuation of care or initiate a transfer to Rush’s main campus if the patient requires interventional treatment such as an endovascular procedure.

“Having a trained [stroke](#) neurologist available right away through the telemedicine process allows us to offer the highest level of care to our [patients](#),” said Dr. Daniel Noonan, director of emergency medicine at

Rush Oak Park Hospital. “This gives us the capability to exceed the requirements for stroke certification, for which we will be submitting an application.”

A recent study, published in *JAMA*, found that patients who had ischemic stroke and were admitted to hospitals designated as primary stroke centers had a lower risk of death at 30 days, compared to patients admitted to non-designated hospitals. The study, by researchers at the Duke Clinical Research Institute, found the mortality rate for patients admitted to designated stroke centers was 2.4 percent lower than the mortality rate at non-designated hospitals.

Provided by Rush University

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