

# Addressing stroke treatment's state of emergency

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**R**esearch suggests that an alarming number of stroke patients are misdiagnosed in the emergency department (ED). Fortunately, new innovations in care delivery are helping physicians to recognize stroke faster so that life-saving treatment can begin.

Stroke is one of the most common conditions seen in the ED. Yet about one in five patients presenting with **ischemic stroke**<sup>1</sup> (the most common type) is initially misdiagnosed.

A missed or misdiagnosed stroke almost always leads to poorer outcomes for the patient and higher costs for the hospital. Each **diagnostic error**<sup>2</sup> extends the patient's hospital stay by an average of two days and doubles the risk of readmission.

Additionally, **prevalence of stroke**<sup>3</sup> is increasing as our population ages. At the same time, hospitals are facing a severe shortage of stroke-trained **neurologists**<sup>4</sup> who can respond to these emergencies.

As a result, EDs may not have the appropriate staff and bandwidth to treat stroke patients. Research

also suggests that this pattern holds true across both academic and community **hospitals**<sup>1</sup>.

Fortunately, **new delivery models**<sup>5</sup> are helping even the smallest community hospitals to quickly access expert care that improves diagnostic accuracy and promotes timely treatment. In honor of Stroke Awareness Month, here are two innovations that are improving outcomes for patients: teleneurology services and neurohospitalist support.

## The importance of specialist care

Stroke outcomes improve dramatically when patients are quickly assessed and treated by a board-certified neurologist.

Patients seen by a neurologist are significantly more

likely to receive advanced treatments like thrombolytic therapy and neurointerventional procedures within the therapeutic window. In fact, studies show that specialized **neurological**<sup>6</sup> care improves stroke patients' one-year survival rate by 29 percent.

Hospitals also benefit. A strong neurology program helps them care for patients who might otherwise be diverted to distant EDs. Neurology oversight also helps to reduce costs associated with extended hospital stays, readmissions, and overutilization of costly **imaging tests**<sup>7</sup>.

These days, relatively few hospitals can afford to maintain in-house neurology departments or even on-call coverage. However, **two delivery models**<sup>5</sup> are drastically expanding access.

### *Leveraging technology*

Thanks to the expansion of teleneurology and telestroke services, hospital-based providers can now consult with neurologists on demand via secure videoconferencing.

Today's sophisticated telehealth platforms allow neurologists to interview patients and assess them visually. ED providers can even transmit imaging studies and lab values to the neurologist for expert interpretation.

The faster an acute stroke is diagnosed, the better the prognosis. An emergency physician with teleneurology support can usually begin a specialist consult in under five minutes. This increases the likelihood that the patient will be cleared for the necessary procedures within the optimal treatment window.

In addition to the ED, teleneurology services provide consulting support to inpatient units, the ICU, and other departments across the hospital.

### *Bringing in the right specialists*

Neurohospitalists are hospital-based providers dedicated to the care of stroke and other neurologic disorders. Depending on the program, they may be neurologists or advanced practitioners supported by a teleneurology service.

Most neurohospitalists work with a multidisciplinary team that includes social work, palliative care, rehabilitation and other stroke-related services. The team rounds daily on both admitted patients and

those in the ED to consult with providers and assist with care coordination.

At many hospitals, neurohospitalists also help cover neurological emergencies in the ED. In this role, they quickly assess patients and initiate early intervention. They also aid in the development and dissemination of evidence-based order sets to expedite emergency stroke care.

As in-house experts, neurohospitalists often lead the creation of stroke policies and protocols across the hospital. They can also help hospitals pursue and maintain valuable **Joint Commission**<sup>8</sup> stroke certifications.

### **The expanding care continuum**

Despite concerted efforts to improve stroke care across the nation, hospitals and EDs are still struggling to provide a timely response to this life-threatening condition. Too often, missed diagnoses lead to care delays and poor outcomes for patients.

Patients are doing their part by recognizing stroke symptoms and seeking care. Interventional neurologists are also rising to the occasion by delivering incredible outcomes with advanced procedures.

Now it's time to close the gap by ensuring that all stroke patients have access to expert neurologic care in the ED. By leveraging teleneurology and neurohospitalist services, the care continuum can be strengthened and outcomes can be improved for the most time sensitive condition treated.

Visit **Vituity's**<sup>5</sup> website to read more about acute neurology solutions for hospitals.

### **Resources**

1. <http://stroke.ahajournals.org/content/strokeaha/early/2016/02/04/STROKEAHA.115.010613.full.pdf>
2. <http://circ.ahajournals.org/content/early/2017/01/25/CIR.0000000000000485>
3. <http://www.strokecenter.org/patients/about-stroke/stroke-statistics>
4. <https://www.vituity.com/blog/vituity-launches-comprehensive-acute-neurology-services>
5. <https://www.vituity.com/services/acute-neurology>
6. <https://www.ncbi.nlm.nih.gov/pubmed/10599600>
7. <https://www.ncbi.nlm.nih.gov/pubmed/16475482>
8. <https://www.jointcommission.org>

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