

CHEAT SHEET

for US health care providers

Tele-neurology

Improving and expanding care with telemedicine

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Key takeaways

- Tele-neurology allows providers to remotely perform both acute and non-acute triage and treatment services for a variety of neurology conditions and contexts through the entire care journey.
- The value proposition for tele-neurology includes better patient experiences and outcomes, cost savings, access, and geographic reach.
- Expansions in reimbursement are starting to better allow for flexible tele-neurology across all types of locations.

What is it?

Tele-neurology refers to the remote treatment and diagnosis of neurological conditions. Tele-neurology has its origins in tele-stroke care, which was developed to improve timeliness of care for hospitals with limited or no in-house neurology coverage. Tele-stroke care's initial success has led to widespread adoption of the technology, resulting in the development of regional "hub and spoke" tele-stroke networks across the nation.

Stroke is just one application of tele-neurology. Other relevant conditions for tele-neurology include epilepsy, migraine, spine problems, autonomic disorders, movement disorders, psychiatry, cerebrovascular disease, and cognitive disorders, among others.

More recently, telemedicine has been used to support evolving neurology care needs across the care continuum, for patient triage, remote monitoring in the neuro-ICU, chronic management, and rehabilitation.

Why does it matter?

There is a growing gap between the number of patients who require neurology care and the number of providers who can deliver it. By 2025, demand for neurologists is estimated to exceed supply by 19%. Provider shortages for general and specialty neurology are most severe in rural areas. At Cleveland Clinic, 23% of in-person neurology patients traveled more than 270 miles to access care. Tele-neurology networks can help close this gap, and may best benefit patients living in remote areas, living in nursing homes, with limited mobility, or deployed by the military.

Remote providers can assess and care for patients quickly, even if they are not close to a physical neurology-enabled facility. Promptness is necessary in emergency neurology contexts like stroke: patients who arrive receive care within three hours of a stroke have lower post-stroke disability levels compared to those who don't.

In addition to increased ease of access to neurology care, researchers have determined a strong business proposition for including tele-neurology into a delivery system, which can result in long-term cost reduction and improved care delivery.

Tele-neurology value propositions

Clinical outcomes: Improves timeliness of care (response times for stroke assessment, etc.), reducing average patient complexity.

Cost: Lowers rates of patient transfers to larger “hubs,” leading to lower cost per patient and higher patient retention.

Provider efficiency: Allows providers to more efficiently triage and diagnose patients.

Patient access: Reduces patient travel time and expenses, increases access.

Geographic reach: Expands geographic reach of program, creating partnerships and referrals.

Source: “Tele-neurology as a Solution for Outpatient Care During the COVID-19 Pandemic,” Liebert Pub, 2020; “Tele-neurology Visits: One Center’s Experience by the Numbers (Infographic),” Cleveland Clinic, 2019; Fang J, et al, “Awareness of stroke warning symptoms—13 states and the District of Columbia, 2005,” MMWR, 2008; 57:481-5; Al Kasab S, et al, “Beyond acute stroke: Rate of stroke transfers to a tertiary centre following the implementation of a dedicated inpatient tele-neurology network,” Journal of Telemedicine and Telecare, 2019.

How does it work?

Tele-neurology programs are often structured in a “hub and spoke” model, with a certified stroke center (usually in more populated areas) as the hub, with smaller hospitals (in more remote or underserved areas) as the spokes. The neurology specialists at the hub can communicate and guide the providers at the spokes.

The Furthering Access to Stroke Telemedicine (FAST) Act of 2018 relaxed many reimbursement regulations tied to telehealth, thereby allowing Medicare reimbursement of tele-stroke services regardless of location of care (including suburban and urban locations). Providers could deliver tele-stroke services without payment restrictions based on where the care took place. Payment restrictions have temporarily relaxed even more so after Covid-19.

The four major applications of tele-neurology are detailed below:

Non-acute triage and diagnosis	<ul style="list-style-type: none"> • Diagnoses conducted remotely, via webcam or phone, without need for travel • Remote specialists can have patients assessed in-person if needed
Acute and emergency care	<ul style="list-style-type: none"> • Most common application of tele-neurology (stroke) • Remote specialists can assess patients with local provider • No need for transfer of patients to a larger “hub” hospital • Often requires patient review, online documentation, and collaborative decision-making between in-person and remote providers
Inpatient care	<ul style="list-style-type: none"> • Admitted patients, often complex cases • Remote consultations for: neuropathy, myelopathy, seizure management, movement disorders, stroke follow-up, and others
Outpatient and follow-up care	<ul style="list-style-type: none"> • Chronic condition management, primary care, rehabilitation • Ideal for patients with limited mobility • Often requires coordination with PCP

Source: “[Overview of tele-neurology Services and Solutions](#)”, Soc Telemed; “[Tele-neurology Clinical Coverage](#)”, Massachusetts General; “[Tele-neurology Applications](#)”, NIH, 2013

Conversations you should be having

01

Define the scope of the tele-neurology program to fit into your existing strategy. All telehealth programs should help solve a problem and should target the patient population that would benefit most from the convenience of telehealth.

02

Plan how your organization could partner with vendor organizations and/or fit into an existing tele-neurology “hub and spoke” network, based on your current neurology capabilities.

03

Discuss how you will define success of your tele-neurology program and what metrics you need to track to measure your progress to successful outcomes.

A successful tele-neurology program will require high levels of provider collaboration between multiple service lines and specialties throughout the care journey. It is important to break down silos and enable cross-communication across all service lines. 

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