

Valuation of Neurology Services: Technological Environment

The preceding installments of this series on the valuation of neurology services examined the competitive and reimbursement environments for neurology services, as well as the federal regulatory framework governing service arrangements involving physician referrals. This final installment examines the technological environment, encompassing health information technology, telehealth as a clinical delivery platform, artificial intelligence (AI) in neurodiagnostic interpretation, and the diagnostic and therapeutic technologies reshaping the management of chronic neurological disease.

Health Information Technology

Research indicates that implementation of health information technology (HIT) may lead to improved efficiency and quality management, and HIT encompasses a range of software applications, such as billing software, staffing models, and electronic health records (EHR).¹ Adoption among office-based physicians is now near universal. As of 2024, 95% of U.S. office-based physicians had adopted some form of EHR.² In the same year, 91% had adopted a certified EHR, i.e., technology meeting the capability, functionality, and security requirements adopted by the U.S. Department of Health and Human Services (HHS).³ EHRs have been shown to increase efficiencies and reduce costs across practice settings.⁴ However, HIT also poses administrative and cost burdens to physician practices, which may prevent smaller practices from adopting these technologies.⁵ For neurology, a specialty in which diagnosis and management turn on longitudinal documentation of disease progression, imaging, and neurodiagnostic study results, the completeness and interoperability of the record bear directly on clinical workflow.

Telehealth and Teleneurology

Telehealth is defined as “the use of electronic information and telecommunication technologies to support long-distance clinical health care, patient and professional health-related education, health administration, and public health.”⁶ It may describe the monitoring of medical devices, health status data collection and analysis via smart devices, or teleconsultation in which a patient receives care at one site from a specialist working at another.⁷ In neurology, the growing disparity between demand for neurological services and the supply of neurologists has made

telehealth a means of delivering neurological expertise to remote locations, supplementing or replacing in-person care.⁸

As discussed in the previous installment, the major Medicare telehealth flexibilities have been extended through December 31, 2027.⁹ Certain flexibilities are now permanent, including the ability of Medicare beneficiaries to receive behavioral and mental telehealth services in the home and to receive those services by audio-only technology. The flexibilities most consequential for general neurology, among them the removal of geographic and originating site restrictions for non-behavioral services, remain time-limited.¹⁰

Neurology has emerged as among the most telehealth-intensive specialties in U.S. medicine. In a 2024 American Medical Association (AMA) survey, 32.2% of neurologists reported delivering over 20% of their weekly visits by video or audio-only telehealth, a larger share than any specialty other than psychiatry.¹¹ Medicare claims data describe a more modest footprint, with 7.3% of telehealth-eligible spending on services furnished by neurologists billed as telehealth in 2024,¹² against 3.7% for physicians overall.¹³ Teleneurology now spans acute telestroke consultation and the longitudinal management of epilepsy, multiple sclerosis, movement disorders, headache, and cognitive disorders, conditions for which much of the neurological examination is observational and translates comparatively well to a video encounter. Meaningful barriers to broader adoption remain, including limited reimbursement by certain payors, the burden of multi-state licensure, credentialing complexities, and liability concerns.¹⁴

Artificial Intelligence in Neurodiagnostics

AI-enabled diagnostic software has advanced considerably in the past few years, with implications for the speed and precision of neurological care. In acute cerebrovascular care, RapidAI announced U.S. Food and Drug Administration (FDA) 510(k) clearance of Rapid NCCT Stroke in April 2023, a device that analyzes non-contrast computed tomography (CT) images to determine suspicion of intracranial hemorrhage and large vessel occlusion, then delivers triage and prioritization notifications through picture archiving and communication systems, email, and a mobile application.¹⁵ Viz.ai announced clearance of Viz ICH Plus in February 2024, software indicated for analyzing intracranial hyperdensities, lateral ventricles, and midline

shift, and for providing volume measurements of brain bleeds.¹⁶

Comparable automation has reached electroencephalography (EEG), the neurodiagnostic modality most central to epilepsy practice. On October 31, 2025, FDA cleared Persyst 15 EEG Review and Analysis Software, whose electrographic status epilepticus component is indicated for the diagnosis of that condition in patients 18 years of age and older who are at risk for seizure, and is intended as an aid for determining patient treatment in acute care environments.¹⁷ Natus Medical Incorporated announced 510(k) clearance of an electrographic status epilepticus diagnostic indication in its BrainWatch point-of-care EEG solution on December 3, 2025.¹⁸ These tools do not displace the interpreting neurologist, as the Persyst indications state expressly that the software does not substitute for review of the underlying EEG by a qualified clinician.¹⁹ They do, however, shift a portion of professional effort from primary interpretation toward oversight, a shift with consequences for productivity benchmarking and for the allocation of value between the professional and technical components of neurodiagnostic services.

Diagnostic and Therapeutic Technology in Chronic Neurological Disease

Technology is also reshaping the diagnostic pathway for neurodegenerative disease. In May 2025, FDA cleared the first blood test for use in diagnosing Alzheimer's disease, an option intended to reduce reliance on positron emission tomography (PET) imaging for patients being evaluated for cognitive decline.²⁰ Coverage policy has moved in the same direction, as CMS ended coverage with evidence development for PET beta amyloid imaging in October 2023 and left those coverage decisions to the Medicare Administrative Contractors.²¹ The combined effect is to move a diagnostic workup that once required specialized imaging toward testing available in a broader range of settings, a shift that bears

on referral patterns and on where the associated revenue is captured.

Therapeutic technology has followed. On April 15, 2025, FDA granted De Novo classification to CT-132, the first prescription digital therapeutic authorized for the preventive treatment of episodic migraine, indicated for adjunctive use in patients 18 years of age and older.²² Alongside remote physiologic and remote therapeutic monitoring and wearable seizure-detection and movement-disorder devices, such products introduce a category of neurological service that generates revenue without a corresponding physician encounter.

Conclusion

The technological environment for neurology services is characterized by rapid innovation and expanding capability across the full breadth of the specialty, from acute stroke triage to the ambulatory management of chronic neurological disease. AI-enabled diagnostic software, remote monitoring devices, digital therapeutics, and telehealth delivery platforms are reshaping how neurological services are furnished, with direct implications for the volume, scope, and efficiency of those services. Taken together with the competitive, reimbursement, and regulatory dynamics examined in prior installments, these developments underscore the complexity of valuing neurology service arrangements. What these tools share is a capacity to change where neurological expertise can be delivered and how efficiently it can be applied, which matters because access to neurological care remains uneven. Published wait times to see a neurologist run to a median of approximately 35 days, and one study found nearly 20% of patients waiting over 90 days for an appointment.²³ Teleneurology extends a neurologist's reach beyond the geographic footprint of the practice, and automated interpretation of imaging and EEG compresses the time each study requires. The technological environment is therefore reshaping not only how neurological services are performed, but where they can be delivered and how quickly patients can reach them.

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