Telepresence in Neurology

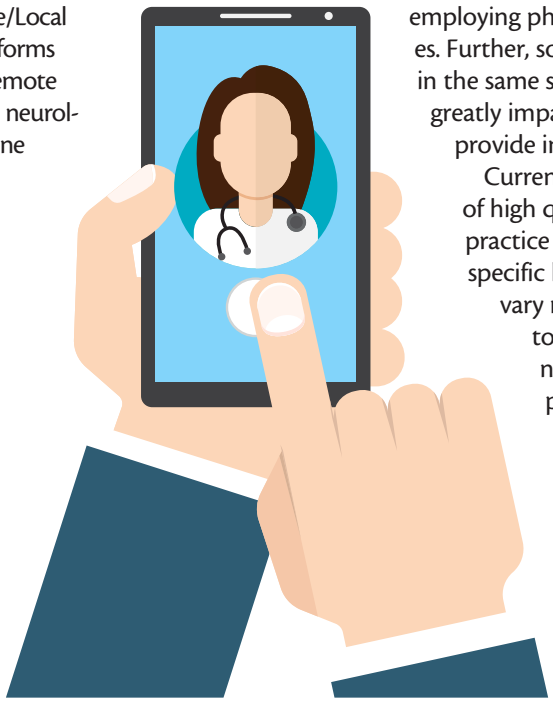
By Shawn Masia, MD

Innovations in therapeutic and consultative functions are among the many rapid changes in the evolving healthcare spectrum. However, many of these advances outpace the number of available of neurologists, causing potential gaps on a national scale. This is a growing problem for the specialty, as already neurologists and subspecialists are rare in rural areas, forcing many patients to travel long distances for appropriate care.[1] In order to meet this challenge, our specialty must harness recent advances in remote and digital technology and deploy telepresence to augment local resources and widen the reach of care.

Telepresence Applications in Neurology

Teleneurology programs have been implemented in various forms throughout the field of neurology. In the Hub and Spoke model commonly used in stroke, peripheral hospitals are served by experts via telepresence at a central hub within a transfer radius. These affiliations are often but not exclusively academic affiliations. In the Onsite/Local remote model, dedicated local staff performs services using a mixture of onsite and remote platforms. In a component model, local neurologists perform elements of the service line with augmentation from remote neurologists for select services (e.g., IONM, stroke). In more fully outsourced models, neurologists remotely deliver near total service lines with or without the assistance of onsite extenders such as nurse practitioners.

Robust data sets demonstrate highly effective telepresence programs for stroke centers with outcomes equivalent to onsite care. Teleneurology platforms have great potential to augment existing onsite services for epilepsy, such as adding 24-hour video EEG monitoring units, ongoing remote outpatient epileptologist consultation, and management of implanted devices. Neurologists increasingly help detect surgical complications in cases that would not otherwise receive professional oversight via remote real time interpretation of intraoperative data. Many of these trends may also be applied to subspecialty management in movement disorders, migraine, multiple sclerosis, neurocritical care, pediatric neurology, and fulfillment of call duties.



Novel Liabilities and Risks

Specific and novel risks face neurologists when practicing telemedicine despite its association with positive clinical and system outcomes. These encompass concerns related to interstate practice and corporate practice of medicine, malpractice coverage, state licensure, hospital credentials, reimbursement models, as well as technology costs and contingency.

Corporate practice of medicine statutes vary by state and limit a non-professional corporation from employing physicians to provide medical services. Further, some states require incorporation in the same state to practice medicine which greatly impacts the ability of a corporation to provide interstate services.

Currently there are a limited number of high quality providers of national malpractice policies for telemedicine. State-specific limits, rules, and liability climates vary making it difficult for physicians to follow unified guidelines. The neurological evaluation and the patient-physician relationship may be limited by technology and unforeseen circumstances further increasing the overall risk.

Credentialing presents additional hurdles and costs. For example, most states require full licensure with few exceptions. Ongoing CME requirements and regula

Guidelines and Standards

In addition to the risks, there is also a need for more defined guidelines and industry standards, particularly given the wide variety of programs available and soon to become available. The American Telemedicine Association (www.americantelemed.org) offers resources and guidance on accreditation avenues,[1,2] but more work will be needed to further clarify this fast-growing area in medicine.

1. http://www.americantelemed.org/resources/telemedicine-practiceguidelines/telemedicine-practice-guidelines
2. http://www.americantelemed.org/accreditation/online-patientconsultations/program-home

tory responsibilities also vary greatly. In fact, acquiring and maintaining licensure may require onsite visits and recurring maintenance costs. Further, many hospitals require the same extensive credentialing processes they would require for onsite staff including the costs of staff membership and annual renewal.

Reimbursement for telemedicine services offers additional challenges. While some services have billable codes, reimbursement varies by location and payor. A mixture of availability fees and fee for service billing also complicates the picture. Some payors including Medicare require corporate entities in each specific regional area to bill for services.

Finally, the technology itself varies greatly and is service-line specific. Data transmission must be HIPPA compliant and secure. Hospital networks and vendors are increasingly under attack with ransomware and data breaches are on the rise. A great need remains for failsafe backups despite internet or power failures to maintain JC and state compliance.

Future Opportunities

Despite the many challenges and regulatory issues ahead for telemedicine, incredible growth and improvements in technology makes this a compelling topic for the everyday neurologist. Telemedicine may offer many opportunities to enhance existing practices, hospital systems, and regional health care organizations as reform and models for reimbursement continue to be refined.

As we navigate toward this exciting and uncertain future, I look forward to more fully exploring many of these questions and topics in the pages of *Practical Neurology®*. ■

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1. Wiborg A, Widder B. Teleneurology to improve stroke care in rural areas: the Telemedicine in Stroke in Swabia (TESS) Project. Stroke 2003;34:2951–2956.