

Brief Communications

Changes to CMS Reimbursement Rules for Intraoperative Neurophysiological Monitoring: Implications for Telemedicine

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Abstract

Intraoperative neurophysiological monitoring (IONM) is used as an adjunct for surgeries that pose risk to nervous system structures. IONM is performed by a technologist in the operating room and is overseen by a highly trained fellowship-trained physician clinical neurophysiologist. Telemedicine has allowed the professional oversight component to be done remotely, with reimbursement for multiple simultaneous cases. Recent changes to Current Procedure Terminology coding and Medicare reimbursement policies provide options only for exclusive 1:1 technologist:oversight physician billing. This policy change may create profound repercussions in the practice of telemedicine by actively discouraging the leveraging of highly specialized and scarce expertise through on-site physician extenders.

Key words: telemedicine, policy, telesurgery

Effective January 1, 2013, the Centers for Medicare and Medicaid Services (CMS) altered payment strategies for the billing of intraoperative neurophysiological monitoring (IONM), a service performed alongside surgeries that pose potential risks to the nervous system. These changes may drastically alter the use of these technologies and have greater repercussions for telemedicine that works through the use of physician extenders.

IONM involves the interpretation of electrical impulses in the nervous system, which create measurable potentials in the nervous system. The technology has evolved over the last four decades; initially using brainstem auditory-evoked potentials to evaluate the acoustic nerve during cerebellopontine angle surgeries, IONM is now used commonly for spine, intracranial structures, vascular, thyroid, and facial surgeries where nerve or nervous system compromise is an acknowledged and potentially avoidable complication. The repertoire of modalities monitored has expanded to include somatosensory-evoked potentials, stimulated peripherally and measured on the scalp; motor-evoked potentials, stimulated on the scalp above the motor cortex and measured in limb muscles, and electromyographic spontaneous and evoked responses from limb muscles.¹ The tests are administered by a trained technologist in the operating room, under the guidance of an oversight physician.²

These tests involve highly specialized equipment and expertise and are not inexpensive to perform. A technologist eligible to take the American Board of Registration of Electrodiagnostic Technologies must have a bachelor's degree or prior electrodiagnostic credentials with documented participation in a minimum of 150 surgeries using IONM.³ The physician component, as recommended by the American Academy of Neurology, should be an experienced MD clinical neurophysiologist,⁴ which requires 4 years of postgraduate neurology training plus a 1–2-year fellowship. In 2009, the global payment for multimodal IONM with electromyography, motor-evoked potentials, and somatosensory-evoked potentials in a spinal surgery lasting 4.5 h was \$1,535 using Medicare national payment rates.⁵

Utilization of IONM is associated with improved surgical outcomes. Multimodal IONM as a diagnostic modality is 94% sensitive and 96% specific for potential neurological injury from meta-analysis of pooled published cases.⁶ In a survey of 173 spinal surgeons in the United States, 86% indicated that they used IONM for over 51,000 cases, and experienced operative teams (>300 cases monitored) had less than half of the rate of neurological deficits from surgery than those with the least experience (<100 cases monitored).⁷ An analysis of over 100,000 routine (non-trauma, non-tumor) spinal surgeries found that cases where IONM was used were significantly less likely to have neurological complications (odds ratio 0.7, $p=0.01$) and in-hospital mortality (odds ratio 0.36, $p=0.016$).⁸

The demands for expertise in IONM are far exceeded by the number of surgeries that could potentially benefit from it. The number of experienced clinical neurophysiologists is quite limited, whereas spinal surgeries are among the most commonly performed surgical procedures in the United States.⁹ Telemedicine, with technologists in the operating room and oversight physicians viewing remotely, helps to leverage vital expertise via simultaneous viewing of waveforms from multiple procedures. In this fashion, telemedicine has helped to bridge the gap between the demand for IONM and the limited supply of qualified professional oversight.

Reimbursement prior to this calendar year was favorable for telemedicine-aided IONM. With the exception of a few regional Medicare carriers, CMS made no distinction between oversight physicians standing in the operating room looking over the technologist's shoulder and those viewing multiple cases remotely. Because of perceived abuses in the number of simultaneous cases monitored, professional societies recommended monitoring not to exceed three to six viewings at the same time.¹⁰

CMS had prospectively undertaken an analysis to revalue reimbursement codes that were being overutilized or bundled. In the past 2 years, CMS solicited advice from the Resource Utilization

Table 1. Center for Medicare and Medicaid Services Coding and Reimbursement Changes for Intraoperative Neurophysiological Monitoring, Including Work Relative Value Unit Rate, Allowed Telemonitoring, and Simultaneous Billing

	MEANING OF CPT CODE				
	2012 CPT5	2013 AMA-RUC RECOMMENDATIONS ¹¹		2013 CMS FINAL RULE ¹²	
	95920	95940	95941	95940	95941
Short descriptor	Intraoperative neurophysiology testing	IONM in operating room	IONM remote/> 1 patient or per hour	IONM in operating room	IONM remote/> 1 patient or per hour
Unit of service	1 h	15 min	1 h	15 min	1 h
Work RVU rate	2.11	0.5	2.0	0.6	^a
Remote telemonitoring	Yes	No	Yes	No	Yes
Simultaneous billing	Yes	No	Yes	No	^b

^aRelative value units (RVUs) only granted for co-billed HCPCS code G0453, RVU rate 0.5 per 15-min increments.

^bCurrent Procedure Terminology (CPT) 95941 language allows for more than 1 patient, but co-billing code G0453 requires "attention directed exclusively to one patient." AMA-RUC, American Medical Association Relative Value Scale Update Committee; CMS, Center for Medicare and Medicaid Services; IONM, intraoperative neurophysiological monitoring.

Committee of the American Medical Association, which recommended that IONM be billed under one of two separate Current Procedure Terminology codes, one to denote 1:1 technologist:professional oversight coding in the operating room in 15-min increments and another for hour-length units of service and allowing for greater than 1:1 monitoring.¹¹ In an unusual move, CMS agreed to these changes starting January 2013 but indicated that they would not pay for the second code (assigned no relative value units) except when coupled with a G-code, which denotes that monitoring would be exclusively 1:1.¹² Furthermore, these are global reimbursement codes, not split into technical and professional components, with no mechanism to pay technologists independent of professional oversight. Details of these changes are depicted in *Table 1*.

The consequences of these actions by CMS are already being felt. Intra-Op Monitoring Services, a company of over 200 employees using remote professional monitoring with operations in 13 states, announced that it would shutter in December 2012¹³ after 12 years in business. Other companies reliant on Medicare reimbursement will face considerable challenges in the upcoming year. In addition to a reduction in the number of surgeries monitored, other possible anticipated changes include a shift toward in-hospital monitoring and a reduced level of expertise for professional oversight (any MD can be reimbursed) in remote and in operating room scenarios.

The precedent set for telemedicine in general is grave. Any model that involves two or more midlevel or technical support personnel on-site coupled with a remote physician is potentially at risk. This would include virtual intensive care, sleep, and epilepsy monitoring units. In each of these situations, there is a net shortage of experienced and qualified physicians, who tend to concentrate in urban areas and around academic medical centers. Rural centers will be affected disproportionately, and some services would have to be eliminated. Ultimately patient access to care, one of the primary reasons for telemedicine, would be threatened.

Telemedicine is only an option if it is economically viable. The CMS reimbursement changes for IONM are an indication that the policy of the federal government is to discourage one of the primary uses of telemedicine-using technology to leverage scarce resources to improve patient care.

Disclosure Statement

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