Medicare payments to the neurology workforce in 2012

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ABSTRACT

Objective: Little is known about how neurology payments vary by service type (i.e., evaluation and management [E/M] vs tests/treatments) and compare to other specialties, yet this information is necessary to help neurology define its position on proposed payment reform.

Methods: Medicare Provider Utilization and Payment Data from 2012 were used. These data included all direct payments to providers who care for fee-for-service Medicare recipients. Total payment was determined by medical specialty and for various services (e.g., E/M, EEG, electromyography/nerve conduction studies, polysomnography) within neurology. Payment and proportion of services were then calculated across neurologists' payment categories.

Results: Neurologists comprised 1.5% (12,317) of individual providers who received Medicare payments and were paid \$1.15 billion by Medicare in 2012. Sixty percent (\$686 million) of the Medicare payment to neurologists was for E/M, which was a lower proportion than primary providers (approximately 85%) and higher than surgical subspecialties (range 9%–51%). The median neurologist received nearly 75% of their payments from E/M. Two-thirds of neurologists received 60% or more of their payment from E/M services and over 20% received all of their payment from E/M services. Neurologists in the highest payment category performed more services, of which a lower proportion were E/M, and performed at a facility, compared to neurologists in lower payment categories.

Conclusion: E/M is the dominant source of payment to the majority of neurologists and should be prioritized by neurology in payment restructuring efforts. *Neurology*® 2015;84:1796–1802

GLOSSARY

CMS = Centers for Medicare and Medicaid Services; **CPT** = current procedural terminology; **E/M** = evaluation and management; **HCPCS** = Healthcare Common Procedure Coding System; **IQR** = interquartile range; **NCS** = nerve conduction studies; **POSPUF** = Physician and Other Supplier Public Use File.

In an effort to increase payment transparency in health care, the Centers for Medicare and Medicaid Services (CMS) recently released provider- and service-level payment data for fee-for-service Medicare beneficiaries.¹ While the initial media focus was on payments to individual physicians, these data also provide information on payment patterns at the specialty and provider levels regarding payment distribution by type of service (e.g., evaluation and management [E/M], EEG, EMG/nerve conduction studies [NCS], polysomnography). Understanding payment distributions by service type among providers is a key step to informed professional advocacy efforts. For example, should neurology build alliances with the more procedure-based surgical specialties or should it ally with the more E/M-dominant medical specialties?

Using the CMS payment data file, we summarize neurologists' Medicare payments by type of service at both the profession and individual neurologist level. In order to contextualize these findings, we also compare payment distributions to other specialties.

METHODS Providers. We performed a retrospective cross-sectional analysis of Medicare payments by specialty and procedure type. Medicare fee-for-service data were obtained from the CMS Physician and Other Supplier Public Use File (POSPUF). POSPUF reports Medicare Part B payments organized by providers who submitted claims (excluding durable medical equipment)

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Supplemental data
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Table 1 Total Medicare payments to provider types for CPT codes and percent of total payments from evaluation and management^a

Specialty type	Total payment, ^b \$ million	Evaluation/management, %	Median payment, \$, per provider ^b
Emergency medicine	2,175	95.7	51,778
Infectious disease	497	94.1	61,844
Geriatric medicine	164	92.8	60,908
Critical care	206	87.1	65,157
Internal medicine	8,099	85.2	59,095
Family practice	4,010	84.5	30,813
Pulmonary disease	1,342	83.1	115,535
Endocrinology	374	76.9	49,158
General practice	351	76.6	25,361
Obstetrics/gynecology	233	63.9	3,921
Physical medicine and rehabilitation	785	63.6	72,633
Neurology	1,151	59.6	60,961
Rheumatology	433	59.4	66,937
Hematology/oncology	1,168	57	94,074
Medical oncology	334	56.2	61,892
Otolaryngology	637	51.4	54,950
Psychiatry	732	50.9	15,603
General surgery	890	48.6	29,411
Urology	1,204	47.5	109,807
Gastroenterology	1,264	47.1	86,781
Cardiology	4,596	46.5	162,292
Nephrology	1,659	44.6	181,780
Cardiac electrophysiology	202	34.5	158,553
Orthopedic surgery	1,963	33.7	64,946
Interventional pain management	327	33.5	125,565
Neurosurgery	311	32.3	44,113
Dermatology	2,222	23	123,111
Vascular surgery	483	20.1	102,020
Cardiac surgery	176	18.9	85,454
Anesthesiology	884	14.6	15,474
Ophthalmology	4,085	9	172,994
Radiation oncology	1,463	3.8	145,462
Diagnostic radiology	2,949	0.4	71,782
Pathology	991	0.3	50,191

Abbreviation: CPT = current procedural terminology.

^aList is limited to physician specialties receiving >\$150 million in total payments.

^bPayment reported in the Medicare Physician and Other Supplier Public Use File includes total payment for services performed at nonfacilities but is limited to the professional component for services performed at a facility.

in 2012. Each provider's specialty was also reported. Based on manual review of providers with a neurologist specialty classification, we discovered payments for services to some providers that indicated specialty misclassification. For these providers, we reassigned specialty as appropriate (65 nephrologists, 39 neurosurgeons). The POSPUF does not include payments for services that were performed on 10 or fewer beneficiaries.

Payments. Individual billable services were identified by Healthcare Common Procedure Coding System (HCPCS) Level I codes/current procedural terminology (CPT) codes (e-Methods on the *Neurology*[®] Web site at Neurology.org). Providers are paid by Medicare using CPT codes. The payment for each CPT code includes a physician's professional fee designated for the provider. The payment also includes a technical component designated for the costs incurred by the place of service, the

amount of which can differ for the same service based on whether it is performed at a facility (e.g., hospital outpatient department) or a nonfacility (e.g., freestanding physician office). The items that comprise the total payment per service are provided in table e-1. For example, EEG code 95816 has estimated facility-based technical component payments of \$450 per service, which is more than 800% of the pay for the professional fee of the service (\$54), and 60% higher than the technical component payments at nonfacilities (\$282). The POSPUF contains all Medicare payment components for services performed in a nonfacility (i.e., both the professional and technical components) but only the physician's professional fee when a service is performed at a facility. The payments reported in the POSPUF also do not include the cost-sharing payment per service made by the patient or coinsurance company, which is typically 20% of the Medicare allowed payments per service. We excluded all non-Level I HCPCS codes from the analysis because these represent nonphysician products (e.g., medications, supplies, services) or temporary codes. Of note, these 2012 Medicare payments are reflective of payment before the EMG/NCS billing codes were restructured, which resulted in 40%–70% lower payment for typical EMG/NCS scenarios.²

Statistical analysis. At the provider level, payments were calculated by multiplying the number of services provided by the average Medicare payment received. Payment amounts to all providers and each provider type were calculated for all payments. The proportion of total payment from E/M and the median Medicare payment per provider was calculated. The total payment and proportion of neurologists who received payment for each service was determined. The distribution of services and payments was calculated across neurologists' payment categories (see the e-Methods for payment category coding scheme). All analyses were performed using Stata v13.1 (StataCorp, College Station, TX).

Table 2 Payments to neurologists by service provided and the percentage of neurologists who received each of the services

Procedure	Total payment, ^a \$ million	Percentage of neurologists who received payment
Total	1,151	
E/M	685.8	97.3
EMG/NCS	222.7	47.1
EEG	97.8	48.8
PSG	30.1	8.8
Injection/infusion	30.2	14.5
Imaging and ultrasound	38.1	13.8
Intraoperative monitoring	12.1	4.3
Vestibular testing	4.0	2.9
Evoked potentials	5.2	5.4
Autonomic testing	1.3	1.4
Neurostimulator analysis and programing	4.2	3.3
Neuropsychiatric testing	4.0	4.9
Other	16.1	16.2

Abbreviations: E/M = evaluation and management; NCS = nerve conduction studies; PSG = polysomnography.

^aPayment reported in the Medicare Physician and Other Supplier Public Use File includes total payment for services performed at nonfacilities but is limited to the professional component for services performed at a facility.

RESULTS The POSPUF contained data on 857,693 providers (822,191 individual providers and 35,502 organizations), including 12,317 neurologists (1.5% of all individual providers), which is an estimated 90% of US adult neurologists.^{3,4} The total amount paid to health care providers for CPT codes in 2012 was \$64.26 billion, of which 1.8% (\$1.15 billion) was paid to neurologists. The median Medicare payment per neurologist was \$60,961 (interquartile range [IQR] \$26,170–\$123,654; range \$42–\$1,456,456). Nephrology had the highest median Medicare payment (\$181,780), while obstetrics/gynecology had the lowest (\$3,921) (table 1).

Overall, E/M services accounted for 42.2% (\$27.14 billion) of all CPT code payments to providers. Table 1 lists provider types in order of the proportion of Medicare payments from E/M. Of payments made to neurologists, 60% (\$686 million) were for E/M services. The specialty types with the highest proportion of payments from E/M were emergency medicine (96%), infectious disease (94%), geriatric medicine (93%), critical care (87%), and internal medicine (85%). Of surgical specialties, otolaryngology had the highest proportion of E/M payment (51%) and ophthalmology the lowest (9%).

Nearly all neurologists (97%) received a payment for E/M (table 2). The median neurologist received 75% (IQR 50.8%–97.9%) of their total payment from E/M services. The percentage of neurologists who received payment from tests was substantially less than the proportion who received payment for E/M (figure). Of neurologists, 8,173 (66%) received 60% or more of their payment from E/M services, while 2,841 (23%) received all of their payment from E/M services. Almost half of all neurologists received payment for EMG/NCS (47%) or EEG (49%). Nearly one-third (32%) of neurologists received a payment for both EMG/NCS and EEG. Non-E/M payments to neurologists were highest for EMG/NCS (\$223 million), which accounted for 19% of total payments to neurologists, and to a lesser extent EEG (\$98 million). The average payment for the 20 most commonly paid services to neurologists is included in table e-2. As an example, Medicare payment for a Level IV office visit for an established patient, the most commonly billed service, was \$75 at a nonfacility compared to \$236 for an awake and drowsy EEG.

As Medicare payments to neurologists increased, the median number of services (including E/M services) increased and a higher percentage of services were performed at nonfacilities (table 3). Additionally, the distribution of services changed as Medicare payments increased, most notably a decrease in the proportion of E/M and an increase in the proportion of EMG/NCS performed.

Figure Distribution of the percent of Medicare payments for services provided by neurologists

(A) Evaluation and management (E/M), (B) EMG/nerve conduction studies (NCS), (C) EEG, (D) polysomnography (PSG). CPT = current procedural terminology.

DISCUSSION In 2012, 60% of Medicare payments reported in the POSPUF to neurologists were for E/M services. E/M payments accounted for over 60% of total Medicare payments for 2 in 3 neurologists, and for 100% in more than 1 in 5. For procedure-based work, EMG/NCS and EEG were the largest sources of payment to neurologists, but only a minority of individual neurologists had tests or procedures as the dominant source of their total payment.

Our finding that neurology payment is substantially E/M-based—and even more E/M-based for individual neurologists—is important and timely because neurologists are currently excluded from 2 CMS policies that increased E/M payment. Payment for E/M services was increased through 2 mechanisms—the primary care “bonus” and the Medicaid “bump”—as part of the Affordable Care Act.^{5–7} Eligibility to receive the extra payments was determined based on specialty and the percentage of E/M performed. For the primary care bonus, certain providers

(e.g., family practitioners, pediatricians, internists, and geriatricians) are paid 10% more by Medicare for outpatient E/M services. For the Medicaid bump, family practitioners, pediatricians, and internal medicine providers (including internal medicine subspecialties) are paid Medicare amounts when billing Medicaid, which typically has lower reimbursement rates, for E/M services.⁸ For example, a neurologist who met the required percentage of E/M performed would not be eligible for the extra payments, whereas a cardiologist in the same circumstances would be eligible for the Medicaid bump.

E/M is likely an even more important source of neurologist payment given recent payment reductions for EMG/NCS. In 2013, EMG/NCS billing codes were restructured and revalued, resulting in 40%–70% lower payment for typical EMG/NCS scenarios.² Given the predominance of E/M payments to neurologists and recent successful efforts by other specialties to increase E/M payments, neurologists, who comprise fewer than 2% of Medicare providers, may

Table 3 Distribution of services and payments across categories of total payment to individual neurologists

	Total payment category (per neurologist)			
	<\$150K, n = 10,025	\$150-<\$250K, n = 1,453	\$250-<\$500K, n = 709	>\$500K, n = 130
Total number of services	7,741,766	3,827,676	3,158,967	1,271,314
Total payment	\$548,191,565	\$276,177,807	\$235,729,673	\$91,396,300
Distribution of services within payment category				
Type of service, %				
E/M	60.8	51.8	46.4	32.2
EMG/NCS	25.4	31.7	34.2	43.0
EEG	4.9	4.4	4.5	3.5
Injection/infusion	1.9	2.3	3.0	6.1
Imaging and ultrasound	1.3	2.4	2.6	3.3
PSG	1.0	0.7	0.6	0.8
Intraoperative monitoring	0.8	1.0	0.7	1.0
Vestibular testing	0.3	0.7	1.2	3.0
Evoked potentials	0.4	0.5	0.5	0.9
Autonomic tests	0.1	0.1	0.1	2.4
Neurostimulator analysis and programing	0.3	1.4	0.1	0.1
Neuropsychiatric testing	0.2	0.5	0.6	0.4
Other	2.4	3.7	5.4	5.6
Place of service, %				
Facility	41.8	29.3	25.2	18.5
Other information				
Number of services per neurologist, median	613	2,525	4,213	8,610
Number of E/M services per neurologist, median	381	1,347	1,925	2,499

Abbreviations: E/M = evaluation and management; NCS = nerve conduction studies; PSG = polysomnography.

be best served by combining efforts with the larger community of E/M-dominant specialties. Partnering with other providers with the shared mission of advocating for E/M payment would combine resources and may result in more successful advocacy.

In 2012, there was a projected 11% shortfall of neurologists in the United States, which is expected to increase to 19% by 2025.³ An example of how such a shortfall could result in suboptimal neurologic care delivery is a recent estimate that only 58% of Medicare beneficiaries with Parkinson disease received care from a neurologist.⁹ Acknowledging that there are multiple factors that determine the specialty of choice among medical students, one of which is anticipated income, ensuring that payments for neurologists' work are appropriate relative to other specialties will be important to the future of the neurology workforce. Because the dominant type of service by neurologists is E/M, it is likely that neurologists consider E/M to be the most important aspect of their work. If trends in E/M payments continue to result in lower pay for neurologists relative to primary care or other specialty physicians, then the

projected shortfall of neurologists may worsen and practicing neurologists may reduce the amount of time they spend per E/M patient encounter. This would likely mean suboptimal care for the patients with disorders that rely on a neurologist's diagnosis and management. It seems unlikely, however, that neurology will shift to being a procedure-based specialty, since there has been a long-standing payment per service advantage for procedures and yet neurologists' work remains dominated by E/M. Accurate and appropriate valuation of E/M work will remain important even in alternate reimbursement mechanisms, such as accountable care organizations, because many of these mechanisms still render payments using a fee-for-service.¹⁰

These data additionally provide insights into service and payment distributions among neurologists who received different amounts of Medicare payment. Not surprisingly, neurologists who received the most Medicare payments performed more services, including E/M services, than those who received lower payments. The distribution of types of services performed also changed from lower to higher

payment categories, with lower categories performing services dominated by E/M vs higher categories dominated by non-E/M work, particularly EMG/NCS. Therefore payment reform directed at E/M would, proportional to the amount of services performed, have more impact on the neurologists in the lower payment categories. However, reforms that are favorable to neurologists' E/M work would also have a positive impact on those in higher payment categories because of the large volume of E/M work performed by providers in those categories. Another finding was that neurologists who received higher Medicare payments performed a lower percentage of their services at facilities. The reasons and implications of this change in practice setting are unknown, but may relate to providers directly retaining technical fees for nonfacility work, which otherwise would be routed to hospitals or outpatient departments for facility-based work.

Medicare payments for the same service differ depending on location. Facility technical components are, in general, higher than nonfacility because of the cost to maintain emergency access and greater regulatory requirements of facilities.¹¹ An important limitation of the POSPUF is that it does not include the technical component payments when services were performed at a facility. These additional payments were likely not included because they are designated for the facility rather than the provider or a provider-owned practice. However, the technical component to facilities can be substantial (table e-1) and may contribute to the increase in the number of providers employed by hospitals.¹¹ If these additional payments exceed actual costs per service, then the additional revenue could indirectly contribute to provider earnings and influence practice patterns.

Other limitations also exist. The available data are not representative of a provider's entire practice as they only include payment information regarding Medicare beneficiaries with Part B fee-for-service coverage. Medicare payments to specialties and individual providers would not have been included if the provider billed services under an organizational National Provider Identifier (NPI). The comparison of median Medicare payments across specialties is limited by the absence of full-time employee clinical providers and distribution of Medicare-insured patients, which likely vary by specialty. Given the absence of patient wait times and duration of appointments, we are unable to comment on these important patient-centered outcomes.

Even prior to the reduction in Medicare reimbursement for EMG/NCS, E/M services were the dominant proportion of Medicare payments to neurologists. Defining the value of medical care provided by neurologists and properly aligning financial incentives will be increasingly important as the health system undergoes

payment restructuring and the relative payment for specific services is likely to continue to evolve.

AUTHOR CONTRIBUTIONS

Dr. Skolarus: wrote initial draft of the manuscript, study concept/design, analysis/interpretation of data. Dr. Burke: study concept/design, analysis/interpretation of data, revision of manuscript for important content. Dr. Callaghan: study concept/design, analysis/interpretation of data, revision of manuscript for important content. A. Becker: revision of manuscript for important content. Dr. Kerber: study concept/design, analysis/interpretation of data, revision of manuscript for important content, study supervision. All authors gave final approval of the submitted version.

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This Week's *Neurology*[®] Podcast

Medicare payments to the neurology workforce in 2012 (see p. 1796)

This podcast begins and closes with Dr. Robert Gross, Editor-in-Chief, briefly discussing highlighted articles from the April 28, 2015, issue of *Neurology*. In the second segment, Dr. Andy Southerland talks with Drs. Lesli Skolarus and Kevin Kerber about their paper on Medicare payments to the neurology workforce in 2012. Dr. Sarah Wesley reads the e-Pearl of the week about dural arteriovenous fistulas. In the next part of the podcast, Dr. Ted Burns focuses his interview with Dr. Daniel MacArthur on other issues related to genetic testing.

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