Economics of neurology 101

The dismal science meets the dismal prognosis

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In the coming decades, we are faced with a massive demographic shift: the nation as a whole is getting older, by leaps and bounds. The number of persons in the oldest demographic, ages 85 and older, is expected to expand from 5.8 million in 2010 to 8.7 million in 2030, to 19 million in 2050.[1] Barring miracle cures, these persons will carry a disproportionate burden of chronic neurologic diseases, including dementia, parkinsonism, and stroke. By these measures, the demand for neurologists should increase dramatically.

In this issue of *Neurology*®, Dorsey et al.[2] suggest that reimbursement, and not demand, is the major driver of the supply of neurologists willing to meet the expanding needs of the elderly population. This argument is bolstered by a simple reckoning of supply and demand. Based on the overall density of neurologists relative to other nations, the United States should be able to accommodate the burden of neurodegenerative illness. In a free market, where increased demand results in proportionate increases in price, the supply of neurologists should meet demand at the equilibrium price point. Unfortunately, price in this case is fixed by Medicare and completely independent of demand, what economists refer to as being "perfectly inelastic."[3] As price is fixed at too low of a level to meet demand, the gap between supply and demand represents a "shortage," and some demand will go unmet, just as some neurologists will find other things to do with their time that compensate better than evaluation and management of parkinsonian patients and patients with dementia.

The argument of Dorsey et al. rests on several assumptions. First, are only neurologists capable of addressing neurodegenerative diseases? Demand may simply not be as great as demography suggests. Dementia care is an increasing part of primary care, and geriatrics-trained physicians (often fellowship-trained internists and family practitioners) are assuming a larger role in caring for this disease of the elderly. In a survey of more than 600 US primary care physicians, less than half saw benefit to neurologist involvement in diagnosis and treatment of TIA, parkinsonism, and dementia.[4] Neurologists need to define their added value based on evidence, identify the subset of patients best suited for specialty referral, and educate colleague physicians about the evidence and conclusions. Conversely, many patients will receive most or all of their care through their primary care medical home.

A second assumption is that neurologists have alternate revenue streams that pay better than evaluation and management (E/M) of neurologic patients. Neurologists have invested the fixed costs of years of medical school, residency, and often fellowship in the field of neurologic care. Unless we are willing to retrain, we are financially bound to the confines of our specialty. The authors point to Medicare compensation for the performance of neurophysiologic procedures, including sleep studies, intraoperative monitoring, EMG, and nerve conduction. Recent dramatic changes to reimbursement[5] make these procedures considerably less lucrative, presumably to drive increases in evaluation and management.

While the Centers for Medicare and Medicaid Services is busy reducing reimbursement for procedures, there is no accompanying carrot to improve reimbursement for neurologists' E/M services. As part of the Affordable Care Act of 2010,[6] a bonus of 10% was given to primary care specialties if 60% of their Medicare billing is outpatient or office-based. This "cognitive care bonus" excluded neurologists. Primary care physicians, with less training and experience in caring for neurologic disorders, are better compensated for a patient visit with stroke as the primary diagnosis than a neurologist performing the same work. The higher level E/M codes, those used more commonly by neurologists, are especially undervalued, so that running a neurology practice solely based on E/M becomes very difficult.

All of this bodes poorly for neurology as a specialty. While neurologists in current practice may not exit the field in droves, medical students considering a career in neurology are witnessing that neurologists' services are neither financially rewarded nor seen as valuable relative to their peers in primary care. Many of these potential future neurologists will turn to other fields, and the decoupling of supply

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and demand depicted by Dorsey et al. will become a very real shortage.

The call to action is to show that we provide important added value for patient care in a wide variety of neurologic disorders. In economic parlance, primary care physicians should see our involvement as "complements," in the medical home, and elsewhere. We need more evidence that we improve outcomes for persons with chronic neurologic disorders, including reduced utilization of acute care services, enhanced duration of independent living, and better health-related quality of life. When our value is demonstrated in well-designed studies, we will see a rise in primary care referrals and can better negotiate compensation for our services. Only then will neurologists be in a position to deal with the "coming crisis."

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