Nathan R. Selden

Dr. Nathan Selden is the Campagna Chair of Pediatric Neurosurgery at Oregon Health & Science University (OHSU), neurosurgery residency program director, and Vice-Chairman of the Department of Neurological Surgery.

He was raised in Oregon and graduated 'With Distinction' from Stanford University, winning the Dinkelspiel Commencement Award. As a Marshall Scholar, he earned his doctorate from Cambridge University and rowed for Jesus College. At Harvard Medical School, he won the John Thayer Scholarship. He trained in neurosurgery at the University of Michigan and in pediatric neurosurgery at Northwestern University. His post-doctoral scientific work won the 1998 Academy of Neurological Surgery Award.

In 2006, Dr. Selden performed the world's first transplantation of neural stem cells in a human patient. The NIH, the Oregon Child Health Research Center, and the Cameron Foundation have all funded his scientific work. He has authored over 130 peer-reviewed articles, 80 other print and electronic publications, and has served as an invited lecturer or visiting professor over 140 times.

Dr. Selden is Chair of the national group that developed new educational outcomes measures for all US neurosurgery training programs, the ACGME Milestones. He also founded the Neurosurgery PGY1 Boot Camps, which are attended by all incoming US neurosurgery residents. In 2013, he received the ACGME Courage to Teach Award.

Dr. Selden has served on the CNS Executive Committee since 2005, including as Secretary, as Chair of the Scientific Program, Annual Meeting, Education, and Strategic Planning Committees, and as Editor of SANS Lifelong Learning. He is also Chair of the Committee on Resident Education of the Society of Neurological Surgeons.

Dr. Selden is married to his medical school classmate, Dr. Karen Selden, a plastic surgeon. They enjoy skiing, rafting, and hiking in the Oregon Cascades as well as travel at home and abroad with their three children, Ryan, Lauren, and Megan.

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In 1965, my father, Richard Selden, was a medical house officer at the Peter Bent Brigham Hospital. He and my mother relied on his tiny hospital stipend to support a growing family. To make ends meet, my father worked some of his call nights off as a moonlighter at the Brigham blood bank, and occasionally donated his own units of blood (which the blood bank paid for at the time). We lived in a one bedroom walk-up above a pizza parlor, across Huntington Avenue from the medical campus. I'll never forget my mother carefully pouring me a glass of orange juice at every breakfast, and wondering why she and my father only had a glass for themselves on weekends. Most lunches and dinners we ate for free with other resident families in the hospital cafeteria. Since that time, new federal funding for graduate medical education (GME) has steadily improved the lives, health, and prospects of generations of medical and surgical trainees and their families, including my own.

Federal GME funding largely originated with the founding of Medicare and Medicaid in 1965. It is well known that these programs provide federal health care funding for children, the aged, and disabled citizens. Less often remembered, however, is that Medicare also initiated systematic public funding of

U.S. graduate medical education (GME). Indeed, federal funding for GME outstrips public support for professional training in any other field to this day (including almost $10 billion from Medicare and nearly $4 billion from Medicaid annually).

Inherent in the social contract underlying federal GME funding was the understanding that house officers would provide health care to previously underserved and at-risk populations without compensation for their professional services. At the university hospital, faculty members with income from separate private practices generally provided only limited supervision for the most challenging and complex decisions and interventions. Taxpayers received value from both the delivery of care to needy patients and from training the next generation of practitioners.

Like every aspect of American medicine and surgery, federal GME funding is now under fire. The first major assault on the historical GME paradigm came from the 1999 Institute of Medicine (IOM) report, Crossing the Quality Chasm. The report raised concerns about medical errors, safety, and supervision in training (among others). External regulation of resident duty hours soon followed. Then, in 2012 the Josiah Macy Jr. Foundation asked the IOM to review U.S. GME governance and financing. The resulting 2014 IOM report, Graduate Medical Education That Meets the Nation’s Health Needs, calls for maintaining global federal GME funding at current levels (approximately $15 billion from Medicare, Medicaid, the Department of Defense, the VA system, and the Health Resources and Services Administration). Nevertheless, because of many years of capped funding, substantial U.S. population growth, and the addition of millions of insured patients through the Affordable Care Act, even stable funding poses serious challenges to the health of American GME. In addition, the 2014 IOM report also calls for drastic change in how GME is funded and carried out, without providing any new resources to drive innovation or support change.

No doubt some changes are needed. GME funding mechanisms remain largely unaltered almost 50 years after their introduction. For example, although GME funding focuses on the inpatient hospital environment, community and longitudinal settings are increasingly important in modern health care delivery, particularly for primary care. Further, the government, the public, and even training programs themselves have legitimate questions about how $15 billion of federal funds are currently used each year. For example, federal GME funding is provided through a complex and difficult to understand system of direct and indirect hospital payments, intended to reimburse resident salaries and also compensate for inefficiencies related to health care delivery in a GME learning environment.

Neither of these funding sources, however, reimburses the academic departments that bear many of the additional direct costs of training, such as faculty teaching, coursework, supplies, dissection laboratories, and resident educational travel. Neurosurgery could likely support reforms aimed at more transparent and efficient disbursement of federal funds to all training related cost centers.

Neurosurgeons also recognize that there is, appropriately, no longer a second-tier system of care for underserved patient populations. The government and the public expect the same level of quality and supervision for the care of all patients. In response, U.S. GME now has a detailed and effective system for tracking the graduated competence of resident trainees: the ACGME Milestones. The Milestones require Level 4 competence before graduation for those skills a trainee will later practice. Simpler skills are mastered early in residency, and others, not until the final clinical year.

There is no longer a sensible rationale for forbidding PGY7 residents from billing for any professional services they provide on June 30, but allowing them (and their hospitals) to bill for all services beginning on July 1. As true educational outcomes data from the Milestones become available, neurosurgery may be able to support graded independence based on proven Level 4 competence during residency, linked to professional billing for these independently provided services. For example, we now expect Level 4 competence in ICP monitor placement early in training, and perhaps

should capture the revenue from this service when performed by a resident with verified competence, even without an attending surgeon physically present. Such professional service fees could help underwrite the growing funding needs of U.S. GME.

The 2014 IOM report also calls for innovation in GME. As a profession, neurosurgery already has an excellent track record for educational innovation. Ours was one of only seven early adopter specialties that designed the first Milestones nationally. Neurosurgery was the first specialty to design and implement a uniform national safety and professionalism curriculum for all entering residents (the “Boot Camps”), which other specialties and even other countries are now adopting. Working in partnership, our national societies are about to launch an unprecedented online learning portal based on a standardized national curriculum. Using only our own resources, neurosurgery has much to be proud of, but we can and should support targeted and merit based national funding for such work.

I am very proud of the pivotal role the CNS has played in modernizing U.S. neurosurgical GME. For example, the national Boot Camp courses have been produced since 2011 through a partnership between the Society of Neurological Surgeons (representing residency directors), the CNS, and industry partners. The CNS has also pursued a major initiative to develop validated model-based simulators for use in CNS resident education courses at home and abroad, as well as in collaborative courses with other neurosurgical society partners. This important work promotes the strength of our profession and helps us to secure the health and safety of our patients.

The CNS is also firmly committed to the public advocacy necessary to secure governmental support for neurosurgical GME. The CNS provides more than $780,000 each year directly to the AANS-CNS Washington Committee, fully half of their budget. CNS leaders, in strong partnership with our colleagues, are responding to the IOM proposals as the public and regulatory debate over GME funding heats up.

As part of the overall neurosurgical response, it is critical that we find areas of common ground with public stakeholders, such as increased funding transparency. It is equally important that we defend our core principles. For example, direct responsibility for U.S. GME should not be abdicated to the CMS and other federal government agencies, as the IOM has proposed, but should remain the province of well-established professional educational organizations such as the ACGME, which already represent the major stakeholders in American health care education and are recognized defenders of the public trust.

The mission of the Congress of Neurological Surgeons is to enhance health and improve lives worldwide through the advancement of neurosurgical education and scientific exchange. Although U.S. GME is in need of some important reforms that meet the challenges of the modern era, it is still the envy of the world. The CNS will continue to proudly focus on our mission by supporting thoughtful change, advancing innovation, advocating for resources, and maintaining all that is good in the education and mentorship of the newest members of our profession.

As a child, I did not fully perceive the personal sacrifices my father made to meet his obligations as a young physician to his profession, and as a husband and father to his family. I am deeply proud of the strength he showed and the success he earned. It is now our responsibility to assure that future generations of physicians and surgeons continue to have the support they need and deserve to focus on their training, master their profession, and serve the health of our fellow citizens.