



# The future of neurology

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Yogi Berra, the former New York Yankees baseball manager, known for his interesting phraseology, famously once said, “It’s tough to make predictions, especially about the future.” While this has become somewhat of a tired cliché, there is an inherent validity to the argument that makes us somewhat cautious and humble in any discussion regarding the future of Neurology. At the risk of fumbling our way toward the truth, we remind ourselves that in order to find the truth, we need to ask the right questions.

Other colleagues have written eloquently about the changing role of neurologists (Engstrom and Hauser, 1994; Bradley, 2000; Freeman and Vatz, 2010), and the fundamental changes facing Child Neurology (Ridel and Gilbert, 2010). A continuous stream of advances in basic neuroscience research, gene identification, neurogenomics, cutting-edge genetic techniques, neurodiagnostic tools including advanced neuroimaging technologies (Masdeu and Bakshi, 2005), and longitudinal biomarkers, coupled with new treatment modalities and paradigms for neurologic disease, suggests increased demands on available practitioners. In view of the growing aging population, associated with declines in infant mortality and treatment of infectious disease, more people will suffer from age related neurologic disorders such as stroke, dementia, Parkinson’s disease, epilepsy, and autoimmune disorders (Engstrom and Hauser, 1994; Bradley, 2000; Freeman and Vatz, 2010; Weiner, 2007).

In the past, a neurologist was recognized particularly for skilled diagnoses using clues derived from a thorough and elaborate history and physical examination, but treatment options were limited. Colloquially, the neurologist would “diagnose and adios.” With the advent of advanced neuroimaging and laboratory techniques, there has been much lament about the disappearance of the neurologists’ much vaunted skill in clinical diagnosis. And yet, the various tests, coupled with advanced treatment techniques, have certainly led to an explosion of opportunity, with both increased demand for neurologists and an increased number of people interested in the field.

In the near future, the role of diagnostic testing in clinical neurology (as in all of medicine) will only further accelerate. There will be some value to the diagnostic prowess of neurologists in determining the appropriateness and meaning of complex and potentially unnecessary tests and procedures. As noted by Gooch and Amato (2010), in a discussion of the utility of anti-ganglioside antibodies in the diagnosis of multifocal motor neuropathy: “In this era of limited resources, the judicious exercise of sound clinical judgment in crafting a logical and efficient diagnostic evaluation has never been more important. Careful selection of the best path to the final diagnosis will not only most benefit our patients but will also as health reform continues to advance, insure that our precious (and finite) medical resources are not necessarily wasted” (Gooch and Amato, 2010). Still, academicians simply become Luddites if they lament how testing has superseded the neurologic history and physical examination which were never as accurate as we cared to admit. We respectfully suggest that the future of neurology will be critically dependent on harmonizing the tensions between clinical skills and an overreliance on testing paradigms.

The future of Neurology will also be reflected in the greater opportunities to develop therapeutic interventions, delay, or ideally prevent progressive neurodegenerative diseases, and the roles to be played by the new breed of neurologists in providing these interventions. There will likely be explosive growth in potential medical therapies including novel drugs, human pluripotent stem cell technology and gene therapies, and new immunosuppressant modalities in the near future (Mallarkey, 2008). There will also be an increased role for neurologists in interventional fields such as stroke, pain, neurostimulation, and even neuroregeneration.

There will also be a continued separation between the practice of intensive and hospital-based neurology and office-based general and specialty neurology. The parallels with Cardiology/Internal Medicine combined with the growth of procedural non-surgical focused specialists in these

fields are both obvious and inevitable given the profound shift toward a treatment oriented focus for neurology in the near future. The challenge for neurology will be whether we can satisfy the need for neurologic expertise in providing these treatments or whether others will pick up the slack for this pent-up demand for aggressive treatment of neurologic disease.

The field of neurology remains one of the most dynamic areas of medicine, with advances on many fronts. *Frontiers in Neurology* offers an unprecedented opportunity for a more accessible, more manageable, and more useful dynamic interactive seminal exchange between the world community of neurologists and neuroscientists striving toward a common goal of excellence. Only by sharing your expertise and knowledge with the neurological community, can we achieve our ultimate goal of improving the quality of life and outcomes for patients with neurological disorders.

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Received: 03 January 2011; accepted: 06 January 2011; published online: 04 February 2011.

Citation: Biller J and Schneck MJ (2011) The future of neurology. *Front. Neur.* 2:1. doi: 10.3389/fneur.2011.00001

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