

SUCCESS AND CHALLENGES FOR ACADEMIC NEUROLOGY

Academic neurology centers such as ours at The Mount Sinai Medical Center are adept at marshaling the expertise needed to unravel diagnostic dilemmas and to manage complex and acute neurological care. Our clinical successes result from our ability to bridge disciplines and focus skills and perspectives from many subspecialties in neurology, radiology, neurosurgery, and more. We have also been successful educators. A recent study in *Archives of Neurology* found that three neurology residencies—Mount Sinai, Columbia University Medical Center, and Mayo Clinic—were the national leaders in training academic neurologists.¹

The challenge now is to replicate these successes in the improved treatment of neurological disease. So far, the results in innovative patient care have not been on par with those seen in the arenas of tertiary clinical care and academic training.

Neurology is not alone in this. Biomedical research as a whole is lagging in delivering on the promise of improved health. The growth of neuroscience knowledge is accelerating, but the pace of translation to the benefit of our patients proceeds fitfully. Consider as one measure the declining rate of drug approval in the United States. Since 1996, the rate of new molecular entities (NMEs) and biologics approved by the US Food and Drug Administration for all diseases decreased from 50 annually to only 21 in 2010. Moreover, in 2010, there were only 23 applications for NMEs and biologics, representing a significant decrease from the 1990s.

The success rate for drug trials is similarly trending downward. Phase II success rates for new development projects have fallen from 28% in 2006–2007 to 18% in 2008–2009.² Rate of success in Phase III is less than half.³

Despite this grim backdrop, research is changing neurological treatment: Six of the 2010 approvals were for psychiatric and neurological disease.* However, the rarity of success indicates that we need to reexamine the process of translating neuroscience research into clinical therapeutics.

First, we must save the clinician–scientist from becoming an endangered species.⁴

The neurologist–researcher bridges clinical and research domains, and improves their integration and mutual efficiency. The recent development of research residency programs⁵—such as Mount Sinai’s—is one way to grow the nation’s ranks of neurologist–scientists. Clinical breakthroughs are so rare that the surrogate goal of research has become high–profile publications rather than discoveries that change the course of neurological disease. We need to reevaluate our goals and fuse the research and clinical missions of the academic neurology department to achieve greater clinical impact.

Indeed, neurology research, clinical care, and education have become increasingly specialized, leading to a fragmentation of complementary insight. At Mount Sinai, we are working to bring them together, with the goal of harnessing the power of neuroscience to change the course of treatment for neurological disease. Our patients depend on it.

* *Dalfampridine and fingolimod for multiple sclerosis, dabigatran etexilate for stroke reduction in atrial fibrillation, lurasidone for schizophrenia, alglucosidase alpha2 for Pompe disease, and incobotulinumtoxinA for cervical dystonia.*

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