

## Why we need more physician-scientists in MS and what stands in the way

by Richard Rudick, MD

We call it “translational” research—turning basic laboratory findings into treatments that will help people. With an explosion of data coming from biomedical research labs, who are best able to apply new knowledge to MS? Physician-scientists. These MDs, and I count myself among them, have one foot in the lab and one in the clinic.

### The problem

At this critical juncture—at what many consider the most exciting time in the history of MS research—fewer and fewer neurologists are choosing a training path that will equip them to conduct translational research. Here are some aspects of this problem.

Many challenges await young investigators who want to become physician-scientists. The

training of a clinical neurologist includes four years of college, four years of medical school, one year of internship, and three years of residency training in neurology. The average debt of these students tops \$100,000. So there is a lot of pressure to begin practicing instead of continuing on for an additional five or more years of research training. And for those few who do pursue this pathway, the road to independent funding is perilous and uncertain because of the highly competitive nature of research funding. It’s no wonder that the National Institute of Neurological Disorders and Stroke reported a steady decrease in applications and funded awards for physician-scientists from 2005 to 2009.

The problem is not unique to neurology, but it is particularly

distressing given this exciting era in MS research. Progress in immunology, imaging, genetics and neurobiology is giving us a multitude of new leads to follow. As these leads turn into therapeutic possibilities, we need well-trained individuals who understand the complexity of the nervous system and can follow leads out of the lab and apply them to people with MS.

### What the Society is doing

The National MS Society has a terrific track record of investing in training both basic scientists and clinicians. The Society joined forces with the American Academy of Neurology (AAN) Foundation in 2005 to launch the NMSS-AAN MS Clinician Scientist Development Award. This two-year, post-residency training award supports promising young clinicians who have potential to make significant contributions to MS research.

The first recipient of this award, Dr. Ari Green, started his MS career under my and Dr.

## Applications to NIH for clinician-researcher training awards



Source: NIH IMPAC, Success Rate File

Donald Goodkin's supervision at the Cleveland Clinic. He then moved to the University of California at San Francisco, where—during the term of this fellowship and under the mentorship of another MS physician-scientist, Dr. Stephen Hauser—he revealed new information on the extent of retinal nerve fiber damage in people with MS, and created a neurovisual research diagnostic center. Dr. Green is now the Debbie and Andy Rachleff Chair in Neurology and the Assistant Director of the MS Center at UCSF. This success story speaks to the value of encouraging talented people toward careers as physician-scientists. The Society's Research Programs Advisory Committee has voted this a top priority for the Society's research programs, and we plan to identify new ways to nurture this endangered breed of MS investigator.

The Society also encourages the development of physician-scientists through the Sylvia Lawry Physician Fellowship program, which trains physicians in design and implementation of clinical research. Dr. Ruth Ann Marrie, who completed this fellowship under Dr. Jeff Cohen at the Cleveland Clinic, is now studying genetic and environmental factors that contribute to MS, while directing the MS clinic at the University of Manitoba. She has already published novel findings on many aspects of life with MS, including bone health, mental illness and bladder symptoms.

### Others are also responding

The Society is not alone in these efforts. The Consortium of MS Centers also joined forces with the AAN Foundation to create the John F. Kurtzke, MD, FAAN Clinician Scientist Development Three-Year Award. The American Neurological Association has created courses in neuroscience research for neurologists.

In 2002, the National Institutes of Health designed a plan for medical research for the 21st century. Invigorating the training of clinicians who do research was identified as a key need, and this resulted in a multi-million dollar effort called the Clinical and Translational Science Awards. I co-direct the Clinical & Translational Science Collaborative here in Cleveland, funded through this NIH Award. Our goal is to provide Northeast Ohio with full service translational research capabilities, and to help develop future clinical and translational research leaders.

### Spreading the word

Funding helps, to be sure, but those of us who are longstanding physician-scientists in the field of MS can do more. We need to speak out about the benefits of this career. They clearly outweigh the disadvantages. The



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**Physician-scientist Dr. Ari Green instructs students at the University of California at San Francisco.**

next generation of MS drugs—better ones, that will improve the quality of life for people with MS—are waiting around the bend. We need to encourage and train the young men and women who can take us there. The jobs are out there for qualified individuals. Drs. Hauser and S. Claiborne Johnson put it well in a recent editorial (*Annals of Neurology* 2009;66:6): “For the next generation of investigators, the ground is fertile for enduring and highly rewarding careers that combine—as do few other occupations—the application of intellect and creativity in pursuit of a profoundly important societal goal.” ■

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