

Hi, I'm Beau Bruce, a neuro-ophthalmologist and assistant professor at Emory University in Atlanta, Georgia. I'm going to discuss my career path as a neurology-trained neuro-ophthalmologist whose primary focus is on clinical research.

When I decided on residency in neurology, I had no idea that I was going to become a neuro-ophthalmologist. However, I was one of the rare medical interns and neurology residents in my program that always carried and used my direct ophthalmoscope. There is little doubt that my recognition of the importance of the eye in the general medical and neurological examinations was part of what led me down the path toward neuro-ophthalmology.

I tried on a few other subspecialties of neurology but became fascinated by neuro-ophthalmology because I found it to be a specialized form of general neurology. In neuro-ophthalmology, one continues to get to evaluate the full breadth of neurologic illness – cognitive diseases, movement disorders, multiple sclerosis, ischemia, seizures, headaches, neuromuscular disease, neoplasms, infections, etc. – through the visual system.

I greatly enjoyed the complexity of neuro-ophthalmology patients and that there was still an “art” to the clinical evaluation within the field. There were enormous mysteries waiting to be solved, and where a scientist meets uncertainty, research is sure to follow.

The relative rarity of most neuro-ophthalmologic diseases presents particular challenges to their rigorous study. The field has largely been characterized by case reports, case series, and case-control studies with only a handful of randomized controlled trials. However, many things have recently changed within the field that will make the next 50 years an exciting time for clinical and translational research in neuro-ophthalmology: (1) new diagnostics and treatments for neurologic and ophthalmologic diseases are appearing at a remarkable pace, (2) advances in computing and communication provide unprecedented access to data sources and facilitate collaboration, (3) a growing number of people in neuro-ophthalmology are seeking specific training in biostatistics and epidemiology, and (4) research infrastructures such as the NIH-funded Neuro-Ophthalmology Research Disease Investigator Consortium (NORDIC) provide a platform for the development and execution of research.

Clinical research seemed a natural fit as my primary “hat” within neuro-ophthalmology. Like anything worth doing, the road is an arduous one. You first need to spend some time in residency and fellowship doing research so that you can convince your mentors and your first chair that you not only are interested in research, but have some acumen for it. That way they will be willing to support you immediately in your goals. If you start off right away seeing patients four or five days a week, it will be considerably harder to pull back to seeing patients only one day a week if you ultimately get research funding to do so. Furthermore, writing grants (especially your first one!) is an extremely difficult and time-consuming

process. You need lots of dedicated time. Despite having 80% dedicated time for research from my first day on faculty, many nights and weekends have been spent reading, researching, and writing.

To seriously pursue clinical research, your first big goal is to get a K23, a career development grant from the NIH that funds up to 80% of your salary for 5 years and provides you the time you need for additional training and to develop into an independent researcher (with independent funding!). To accomplish that goal, you'll need several publications under your belt before you apply. While this is somewhat of a catch-22, it reemphasizes the importance of research in residency and fellowship. You will also need to find a supportive chair, mentor, university, family, and friends. You need it all to succeed. Oh, and you best expect to work for less than you'd like, especially since you'll be on the department's dime for the first year or two while you figure out how to get grants.

On that front, apply to every grant that seems at all related to your project. Look within your university for various types of pilot funds and institutional K grants. Put lots of lines in the water, and hope something will bite. Be tenacious; because you will be rejected more than you ever have been in your life. Yet, when you succeed at clinical research, you will feel like you have made a huge difference. Not just to the patient sitting in your office, but a difference that changes the practice of your colleagues and transforms the lives of patients everywhere.