Debra A. Schaumberg, ScD, OD, MPH

Debra A. Schaumberg, ScD, OD, MPH, is an associate professor at Harvard Medical School, and Director of Ophthalmic Epidemiology at Brigham and Women's Hospital.

1. What is the focus of your research?

I am most interested in determining factors that contribute to causing age-related eye diseases of public health importance. I think all my research projects can be traced back to some combination of genetic predisposition and lifestyle exposures. Once we have identified some common genetic variants that predispose someone to a disease like AMD, I am looking to untangle the complex aspects of the disease factors—since none of these diseases acts alone. My research is an attempt to shed light on the complex multifactorial equation of what ultimately influences a person's risk of disease.

2. How do you hope your work will impact practical medicine in the future?

The long-term goal is to reduce the burden of blindness and vision impairment through out the world. There are two ways my work can contribute to this goal. One is to increase the biological understanding of the disease, leading to prevention and treatments. The other is to enhance a doctor's ability to predict risk. When you put those two elements together, you have a good chance of eventually having a positive impact on the consequences of the disease.

I think it is crucial to integrate what we are learning with the rapid advancement of knowledge in genetic contributors, with what we already know about lifestyle risk factors. Developing a predicting equation—somewhat like the Framingham Risk Equation for cardiovascular disease—for eye disease, would be an important advance, provided that strategies for early intervention are also available.

3. How did you become interested in ophthalmic epidemiology?

I was trained as an optometrist first and obviously had an interested in the eye. I also did a fellowship in public health in ophthalmology, which was what really sparked my interest in a more global effort at prevention of blindness. I felt as though I could create a larger impact by conducting epidemiological research, than I could in a one-on-one clinical setting.

4. What do you see as an important ophthalmic issue for women?

If you look at the statistics across the world, it is striking to me that two-thirds of people with visual impairment are women. This is an issue I feel very strongly about, and I work on the executive team for Women's Eye Health Task Force (www.womenseyehealth.org) to educate others about the issues facing women. In the eye realm, things like cataract and AMD impact women more than men, mainly because women live longer.

Women are also two or three times more likely to suffer from dry eye syndrome then men. Dry eye does not usually cause a permanent loss of vision, but it is a prevalent disease that we are learning has an adverse impact on both vision and quality of life.

5. You have worked on many studies over the years. Which one most captured your interest?

There was a lecture given at Harvard on how heavy metals may have an impact on the biology of aging. When the lecturer talked about lead, he mentioned how it interferes with the oxidative balance in the body. That sparked the idea for research on low level lead exposure and age-related cataracts, which was published last year in the Journal of the *American Medical Association.*

It was really a novel hypothesis, but we found a 3-fold risk of age-related cataract in people with higher levels of exposure to lead. It was gratifying because it was one of those rare ideas, which produced fascinating results. It was also about making a connection that other people had not thought of before, based on cross talk between scientists in different fields. ■