



An interview with

# Dr. Charlotte Joslin

**L**ast year, Charlotte E. Joslin, OD, of the University of Illinois at Chicago (UIC), received the 2006 Prevent Blindness America Investigator Award for her research into a then little-known eye condition, Acanthamoeba keratitis. The infection is caused when a microscopic organism called Acanthamoeba invades the cornea, the transparent outer covering of the eye. Without treatment, the infection can lead to scarring of the cornea and eventually blindness.

Prevent Blindness America chose Dr. Joslin's project in hopes of helping to solve the mystery into the recent increase in reports of the infection in the Chicago area. The study focused on determining the source of the organisms through patient study and water analysis. Entering into its fourth year, the Prevent Blindness America Investigator Award program provides funding for clinically-based research investigating public health issues related to vision health and safety topics.

Dr. Joslin's study eventually led her to working with the Centers for Disease Control and Prevention (CDC), an agency of the U.S. Department of Health and Human Services. Although her project is still ongoing, the results of her work underline the importance of the crucial need for continued funding for vision-related research initiatives.

**Prevent Blindness America:** What were you hoping to accomplish with the study?

**Dr. Joslin:** The UIC Cornea Service, Department of Ophthalmology noticed an increase in the number of diagnosed cases of Acanthamoeba keratitis in the greater Chicago area. Acanthamoeba keratitis is an extremely rare eye disease, affecting between 1.5 - 2 people

per million contact lens users, so within the entire Chicago area, we should expect to see around 2 - 3 cases per year. In comparison, we were seeing approximately 6 - 7 times more cases per year than expected, which retrospectively began around 2003. The goal of our project was to identify risk factors associated with Acanthamoeba keratitis such that preventative measures could be undertaken to avoid further cases of this very serious eye disease.

**PBA:** What were your findings?

**Dr. Joslin:** Our initial analysis identified a specific contact lens solution that is statistically associated with Acanthamoeba keratitis. Results from our published study in Chicago were just released over the past month or two, and were released nearly simultaneously with preliminary results from the CDC's independent multi-state study that similarly identified the same solution as associated with Acanthamoeba keratitis.

**PBA:** How did your results lead to an involvement with the CDC?

**Dr. Joslin:** In an article published in the *American Journal of Ophthalmology* in August 2006, we demonstrated a statistically significant increase in the number of Acanthamoeba keratitis cases diagnosed at the UIC Cornea Service, Department of Ophthalmology, and also demonstrated that Acanthamoeba keratitis cases were non-randomly distributed throughout the Chicago area. Subsequently, we alerted the Illinois Department of Public Health who alerted the CDC to this increase in Chicago

area cases. We became involved in conference calls with the CDC around the time of publication of our initial 2006 study, and I continue to be involved with the CDC multi-state outbreak investigation as a consultant.

**PBA:** What is the next phase of your study?

**Dr. Joslin:** While the Advanced Medical Optics Complete MoisturePlus Multi-Purpose Solution was strongly associated with Acanthamoeba keratitis in both our study and the CDC study, approximately 40 percent of Acanthamoeba keratitis cases did not use this solution, and in fact, Acanthamoeba keratitis cases have been presented to UIC using nearly all different types of solutions, suggesting that additional risk factors beyond the AMO solution are contributory. We are attempting to identify these additional risk factors.

**PBA:** How important is research in relation to eye health?

**Dr. Joslin:** Research to support eye health is critical, as it leads to identification of critical risk factors that can prevent against vision loss. We are extremely grateful for the funding from Prevent Blindness America, and strongly believe this pilot funding was instrumental in helping to identify a major risk factor for Acanthamoeba keratitis, which is a very serious eye disease. As someone interested in ocular epidemiology, grant funding from non-profit agencies to support pilot research projects is critical, especially when federal funding is very limited and extremely competitive.