On March 7, AEVR joined the Alliance for Aging Research (AAR) and the glaucoma community in releasing *The Silver Book®: Vision Loss Volume II* during the 2012 World Glaucoma Week Congressional Briefing entitle Glaucoma: Blindness Incidence and Progress Towards Individualized Treatments.

Clinician-scientist Arthur Sit, S.M., M.D., an Associate Professor of Ophthalmology at the Mayo Clinic, spoke about the impact of glaucoma, the second leading cause of preventable vision loss in the United States, affecting 2.2 million individuals. He described glaucoma as a group of complex neurodegenerative diseases that affect the optic nerve, initially robbing patients of their peripheral vision and eventually leading to central vision loss and irreversible blindness. Patient advocate Jerry Duvall, a now blind eye specialist, described what it is like to live with glaucoma (see box).

To demonstrate the impact of the diagnostic and drug/device therapies which have emerged from research funded by the NEI over the past forty years, Dr. Sit presented data from the NIH-funded Rochester Epidemiology Project (REP). From 1965 to 2000, the REP tracked the medical records of virtually all residents of Olmstead County, Minnesota—the center of the tri-state area (Minnesota, Wisconsin and Iowa) and home to Mayo Clinic—which represents a relatively homogeneous population of primarily Caucasian Americans. Analyzing blindness data in this population, Dr. Sit observed that 25.8 percent of patients diagnosed with glaucoma between 1965 and 1980 developed blindness in one eye over a 20-year period, as opposed to only 13.5 percent for patients diagnosed between 1981 and 2000. Although he recognized that this is initial evidence that improving glaucoma management strategies may reduce glaucoma blindness on a population basis, he cautioned that a significant number of patients continue to go blind, and a more individualized approach to treatment may be required. He also noted that access to healthcare and ethnic differences in glaucoma risk and incidence are also factors, especially in the African American and Hispanic populations where glaucoma is the leading cause of blindness.

Regarding individualized treatments, he described research to measure and better understand variations in the physiologic factors that affect fluid flow within the eye and the resulting intraocular pressure (IOP)—the pressure inside the eye that can damage nerve tissue when elevated. He noted that researchers are also looking at other factors, including blood flow into the eye, the immune system, the body’s inflammatory response, and intracranial pressure. Finally, he acknowledged current NEI-funded research into the genetic basis of glaucoma that could lead to predictive parameters of treatment response that will enable therapy to be tailored to individual patients.

**A significant number of patients continue to go blind from glaucoma, and a more individualized approach to treatment may be required.** – Dr. Sit

Glaucoma patient Jerry Duvall described living with the disease since it was first diagnosed in his left eye in 1996. Although both of his parents had glaucoma that developed late in life and progressed slowly, his form developed early, at age 52, and progressed rapidly causing optic nerve damage. He had minimal success with pressure-lowering drops and laser trabecular surgery, but a trabeculectomy—a surgical procedure where a type of “drain pipe” is installed in the eye to improve fluid flow that in turn reduces eye pressure—was successful, and he has avoided further vision loss.

“My diagnosis prompted an emotional response that I had never experienced before in my life, namely a deep sense of foreboding and depression. Living with glaucoma is a life of adaptation, vigilance, and a strict adherence to the treatment regimen,” said Mr. Duvall, who offered an analogy to the telecommunications world. “I liken one’s ability to see as a type of human ‘Internet connection’ where, in a healthy eye, the optic nerve is a high-speed, broadband access line connecting the eye to the brain. Glaucoma has the effect of destroying a significant portion of the broadband connection, resulting in the failure of the optic nerve as a broadband channel to transport all, or even most, of the visual data received by the eye.”

He remains hopeful, however. “Glaucoma patients today, although their vision is dimmed, nevertheless can begin to see clearly the benefits of sustained research that promises a future where the disease will no longer rob people of their most precious sense—one that provides the magnificent panorama of everything that this wondrous world has to offer.”

**AEVR thanks the Wilmer Eye Institute Johns Hopkins School of Medicine for the introduction to Mr. Duvall.**

Alliance for Aging Research (AAR) President and CEO Daniel Perry released *The Silver Book®: Vision Loss Volume II*, which presents the latest data on the significant health and economic burden of age-related eye diseases and demonstrates the potential for innovative treatments emerging from research. He noted that this edition contains 150 “insights” from 80 different research sources, adding that “it is testimony to the progress of research that there are already enough new data to warrant an update since the initial vision loss edition was released in September 2007.” He emphasized that AAR’s series of *Silver Books®* on various age-related diseases facilitate policymakers’ discussions about healthcare delivery and research spending priorities, especially important as the nation faces the “Silver Tsunami” of 10,000 citizens a day turning age 65 between years 2011 and 2029.