



National Eye Institute
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Statement from Paul A. Sieving, M.D., Ph.D., Director of the National Eye Institute, National Institutes of Health, during World Glaucoma Week, March 7-13, 2010

Glaucoma is one of the world's leading causes of vision loss and blindness. Vision organizations around the globe highlight this disease as a research and public health priority during World Glaucoma Week. The National Eye Institute (NEI), part of the National Institutes of Health, takes this opportunity to reaffirm its commitment to supporting research that will identify risk factors for the condition and develop treatments to preserve the sense of sight.

Glaucoma affects nearly 70 million people, including an estimated 2.2 million Americans. People who have a family history of glaucoma, African-Americans over age 40, and everyone over age 60, especially Mexican-Americans, are at a higher risk for this condition.

Glaucoma is a group of diseases that damage the optic nerve, so the transmission of visual information to the brain slowly decreases. The most common form of glaucoma is called primary open-angle glaucoma (POAG). In this condition, fluid builds up in the front chamber of the eye, and the optic nerve is damaged by the resulting increase in eye pressure.

Glaucoma usually begins silently with gradual, painless vision loss during midlife. Early diagnosis is crucial because once vision is lost it cannot be regained. Only an eye care professional can detect the subtle early signs of glaucoma, through a comprehensive dilated eye examination. Researchers have also identified several risk factors for the condition, including age, African-American descent, high eye pressure, thickness of the cornea, and changes in the optic nerve.

Though 90 percent of people recently surveyed had heard of glaucoma, only 8 percent knew it has no early warning signs. Therefore, the National Eye Health Education Program (NEHEP) at NEI is working to raise awareness about this silent condition and the need for comprehensive dilated eye exams to detect glaucoma in its early stages, before vision loss occurs. NEHEP has developed a wide variety of glaucoma-related educational resources such as radio and print public service announcements, brochures, electronic cards, and a glaucoma education Web site to encourage people at a higher risk to have comprehensive dilated eye exams every one to two years.

NEI also recognizes the importance of supporting research that will increase the understanding of and treatments for glaucoma. The Institute currently contributes \$82.6 million to support 181 glaucoma research projects. This includes the African Descent and Glaucoma Evaluation Study, which is gathering clinical information from 1,200 black and white Americans to determine which clinical techniques can best detect damage to the optic nerve related to glaucoma.

Many genetic and environmental factors can contribute to complex conditions such as glaucoma. In 2008, the NEI Glaucoma Human Genetics Collaboration (NEIGHBOR) was formed to unite clinicians and genetic researchers in glaucoma research. The group currently consists of 26 investigators from 12 U.S. institutions. These scientists will collect genetic and clinical data from more than 5,000 individuals: 2,500 people with POAG and 2,500 people without the condition. NEIGHBOR is the NEI's Signature Project supported through the American Recovery and Reinvestment Act of 2009.

In conjunction with NEIGHBOR, the Gene-Environment Interactions in Glaucoma (GLAUGEN) research consortium will collect information from 2,400 individuals with and without glaucoma. GLAUGEN is part of the NIH Genes, Environment and Health Initiative, which was established to identify the relationships between environmental factors and genes for common, complex conditions. Ultimately, NEIGHBOR and GLAUGEN will serve as the platform for large-scale, genome-wide association studies to identify new genetic variations associated with glaucoma and discover how interactions between genes and the environment relate to the condition.

Previous NEI research has also had a significant impact on glaucoma treatment. Through the Ocular Hypertension Treatment Study, scientists found that eye drops used to treat high eye pressure reduced the development of glaucoma by more than 50 percent in people who are at a high risk for the condition. In the Advanced Glaucoma Intervention Study, researchers discovered that African-Americans with advanced glaucoma could see better after laser surgery, while whites with advanced glaucoma benefited more from surgical removal of eye tissue that allows fluid to drain properly.

During World Glaucoma Week 2010, NEI applauds the efforts of scientists and public health professionals who work to increase our knowledge and awareness of this blinding eye condition. The institute remains committed to advancing the scientific understanding of glaucoma through its research programs, and the societal understanding of the



importance of regular, comprehensive dilated eye exams through the National Eye Health Education Program.

Visit www.nei.nih.gov/glaucoma for more information about glaucoma and eye health. For more information about glaucoma research programs at NEI, visit www.nei.nih.gov. For educational materials about glaucoma, visit <http://www.nei.nih.gov/glaucomaeducation>.

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The National Eye Institute, part of the National Institutes of Health, leads the federal government's research on the visual system and eye diseases. NEI supports basic and clinical science programs that result in the development of sight-saving treatments. For more information, visit www.nei.nih.gov.

The National Institutes of Health (NIH) — The Nation's Medical Research Agency — includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. It is the primary federal agency for conducting and supporting basic, clinical, and translational medical research, and it investigates the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit www.nih.gov.

