



The Association for Research in Vision and Ophthalmology
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Testimony in Support of Increased Investment
in the National Institutes of Health (NIH)
and the National Eye Institute (NEI)

Subcommittee on Labor, Health and Human Services, Education and Related Agencies of the
House Committee on Appropriations
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On behalf of the Association for Research in Vision and Ophthalmology
and the National Alliance for Eye and Vision Research

Good morning, Chairman Cole, Ranking Member DeLauro and distinguished Members of the Subcommittee. My name is Dan Carr, PhD, and I am a professor of Ophthalmology, Microbiology and Immunology at the University of Oklahoma Health Sciences Center, the largest research and health care center in Oklahoma. It is an honor to appear before you today on behalf of two organizations, the Association for Research in Vision and Ophthalmology (ARVO) and the National Alliance for Eye and Vision Research (NAEVR). My goal in the next few minutes is to describe how taxpayer investment in vision researchers – like me – has yielded remarkable returns in people and products, patient outcomes and private industries.

First, though, I have to answer the question: “What is vision research?” Simply, it is efforts into understanding, preserving and restoring sight. Americans value vision research because Americans value their sight. A recent public opinion poll asked “Which of the following diseases or ailments is the worst that could happen to you?” The results were a three way tie – between cancer, Alzheimer’s and blindness.



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I am a vision researcher whose work has been supported by the National Eye Institute (NEI) for 17 years. During that time, my students and I have focused on discovering how the body responds when viruses, like herpes, infect the eye. Once the eye is infected, it is almost impossible to eliminate the virus; current treatments simply try to push it into remission. Every time the infection recurs, the eye is damaged further as the body's immune response causes potentially blinding inflammation and scarring. We recently created an experimental vaccine against herpes in the eye that showed much better results than a previous vaccine used in clinical trials. With more work – and a little luck – we could halt the spread of eye infections from herpes.

Beyond people in the lab, a taxpayer's investment in vision research is clearly evident when he or she visits an eye care provider. A powerful technology initially discovered over 20 years ago — with NIH support — has matured to become the standard of care used by ophthalmologists and optometrists today. Known as optical coherence tomography (OCT), it provides doctors a three-dimensional image of the back of the eye. This technology has proven especially valuable in diagnosing diseases, such as glaucoma and diabetic retinopathy, early in their development. As a result of such early detection, eye care providers can minimize vision loss in populations where these conditions are disproportionately prevalent, such as Native Americans and African Americans.

Taxpayer-supported advancement in vision and health care technology supports companies and jobs. For example, the private OCT manufacturing industry (responsible for



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making the instruments used by eye care providers) hit \$350 million in 2012. OCT has spread to other medical disciplines as well, with an estimated market value of over \$60 million in 2012.

These people and products, patient outcomes and private industries represent success in the longstanding model of American-led innovation: public-supported efforts into research leading to discoveries that grow into new products which benefit the same public that made it all possible.

Since 2004, appropriations for NIH have essentially flat lined, which is equivalent to the U.S. hitting the “pause” button on taxpayer investment in research. Yet during that time, other countries have hit “fast forward.” China, for example, has tripled its support for researchers in the past 10 years. I learned that fact this February when I had the chance to visit the Oklahoma Congressional delegation here in Washington, D.C. Accompanying me on my visits was another vision researcher, Dr. Qingjiong Zhang, a professor in Guangzhou, China. He said:

“It is important to discuss how different the research climate is in China compared to the U.S. In the past 10 years, our [research] grants have tripled in value, and my institution has recruited several scientists directly from the National Eye Institute.”

I was shocked to hear this, but in hindsight I shouldn’t have been. When investment dries up in one country, smart and ambitious people move to another, taking their future ideas, companies and the accompanying jobs and profits with them.

Yet, today is among the greatest eras for scientific discovery. You are familiar with the NIH-led BRAIN and Precision Medicine Initiatives. The National Eye Institute is also pursuing its own high-level project, called the Audacious Goals Initiative. This project is focused on one objective: restoring vision by regenerating the retina, the tissue at the back of the eye that



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allows us to see, and the same tissue that begins to fail in patients with diabetic retinopathy.

The Audacious Goals Initiative is well-named because it will take the entire vision research community working together – with adequate funding – to reach this goal.

We all know that these past successes and future opportunities in vision research are not enough to overcome the intense budget restraints facing the federal government today. But just as scientists are at their best when they think creatively, I urge you, Members of the Subcommittee, to be creative in your search for a policy that enables growth for the NIH. If it is not possible to fund NIH and NEI at \$32 billion and \$730 million, respectively, then perhaps you can find a way to waive NIH from the sequester cuts and Budget Control Act caps in Fiscal Year 2016. Because there are few agencies that deliver a greater return on taxpayer dollars – in companies and jobs, industries and profits, therapies and healthy citizens – than The National Institutes of Health.

Thank you very much. I am happy to answer any questions.