

Investment in research saves lives and money



facts about:

Vision & Blindness

Impaired vision is defined as 20/40 to 20/200 and blindness is defined by vision worse than 20/200 in the better eye even with corrective lenses.

"If you think research is expensive, try disease."

- Mary Lasker 1901-1994

Current Cost:

- In 2014, the total economic burden of vision loss and blindness in the U.S. was \$145 billion. Within the National Institutes of Health, the National Eye Institute's (NEI) 2014 funding of \$675 million is less than half-of-one percent of this annual cost.*
- The estimated cost of treating vision loss and blindness is \$6,680 per person per year. Patients and their families are responsible for paying 52% of the total cost.*
- Eye disorders are the fifth most expensive chronic condition to treat, costing \$68.8 billion in direct medical costs annually.*

Projected Cost:

- The population of people with vision loss and blindness is estimated to increase by approximately 150% and direct medical costs are expected to skyrocket with an increase of 250% by 2050.*
- The total economic burden is expected to reach \$717 billion by 2050 after adjusting for inflation, and the government is projected to pay more than 40% of that cost as baby-boomers age.*

Today's Burden:

- The four leading causes of vision loss in the U.S. are age-related macular degeneration (AMD), glaucoma, diabetic retinopathy and cataracts, all of which are associated with aging.**
- Women are at a higher risk for vision loss and blindness. They make up approximately 60% of the visually impaired and tend to live longer with chronic diseases. This trend is expected to continue through 2050.†
- African-Americans are nearly two times more likely to develop cataracts and five times more likely to develop glaucoma than non-Hispanic white Americans.‡

*PREVENT BLINDNESS. <WWW.PREVENTBLINDNESS.ORG>
 **NATIONAL EYE INSTITUTE <WWW.NEI.NIH.GOV>
 †GLAUCOMA RESEARCH FOUNDATION. <WWW.GLAUCOMA.ORG> 2013.
 ‡‡HEALTH CENTRAL. <WWW.HEALTHCENTRAL.COM> 2010.
 ‡ AMERICAN FOUNDATION FOR THE BLIND <WWW.AFB.ORG> 2014.
 ~ NATIONAL INSTITUTES OF HEALTH. <WWW.NIH.GOV>

IMPROVING LIVES SAVING MONEY

HOW RESEARCH IMPROVES LIVES:

- Older drivers who elect to have cataract surgery are half as likely to get into a car accident compared to those who do not have the surgery. Senior drivers are 17 times more likely to die in a car crash than people under 65.*
- The NEI-funded Age Related Eye Disease Study (AREDS) found that a daily high-dose formulation of antioxidants and zinc reduces the risk of developing advanced AMD by about 25% over a five-year period.**

HOW RESEARCH SAVES MONEY:.

Case study: Cost Benefit of Cornea Transplant

- In 2011, over 46,000 corneal transplants were performed, restoring sight for many people with vision loss or blindness.~
- Researchers have estimated that a person who has their sight restored through a corneal transplant saves \$214,000 in indirect costs (such as long-term care) over their lifetime. Nationwide savings from corneal transplants is nearly \$6 billion.~

* OWSLEY, CYNTHIA. ET. AL. VISION RES 2010. 50(23):2348-2361.
 † SENIOR DRIVING. <SENIORDRIVING.AAA.COM>
 **NATIONAL EYE INSTITUTE <WWW.NEI.NIH.GOV> 2011.
 ~ EYE BANK ASSOCIATION OF AMERICA. COST BENEFIT ANALYSIS OF CORNEAL TRANSPLANT FINAL REPORT. 2013.

patient :

NAME: Paul D'Addario
 AGE: 59
 CONDITION: Retinitis pigmentosa (RP)
 Diagnosed at age 27



When he was 27, Paul D'Addario was diagnosed with retinitis pigmentosa (RP), an eye disorder that causes steady decline in peripheral vision and eventually complete blindness. Now at age 59, Paul has been totally blind for 10 years. Although he continued to work as his eyesight deteriorated, the effects of his condition eventually forced him into early retirement from a career as a database manager.

In the 1980s, Paul recalls, he felt as though he was living a "double life." On one hand he was doing everything he could possibly do to compensate for his failing vision. But at the same time, he was looking into ways to be involved with research to restore vision.

In his search, he found one of the few institutions where research on RP was being conducted, the Wilmer Eye Institute at Johns Hopkins University, just a short ride from his home.

The only ongoing research then was in its early stages, but he managed to become involved and, finally in 2007, he participated in a clinical trial of an amazing experimental device called the Argus II Retinal Chip, a retinal implant developed with support by NEI*, that allowed him to see flashes of light that his brain translated into outlines of objects. This medical device has since been approved by the Food and Drug Administration and is now available commercially for RP patients. As Paul explains, the chip "does not magically restore sight" but he can now see contrast, which he calls "very exciting." This allows him to safely cross streets and even sort between black and white socks.

Paul is currently involved with the Foundation Fighting Blindness and has met with elected officials to talk about increasing funding for vision and blindness research. Paul explains that our scientific knowledge is "becoming clearer and there is a real possibility for treatments." Funding for research should not be done out of sympathy, he believes, but rather due to understanding the beneficial impact it has on the society. "The capabilities are enormous, a little bit of research can pay off quite a bit in the long run."

*NATIONAL EYE INSTITUTE <WWW.NEI.NIH.GOV>

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Hope for the Future:

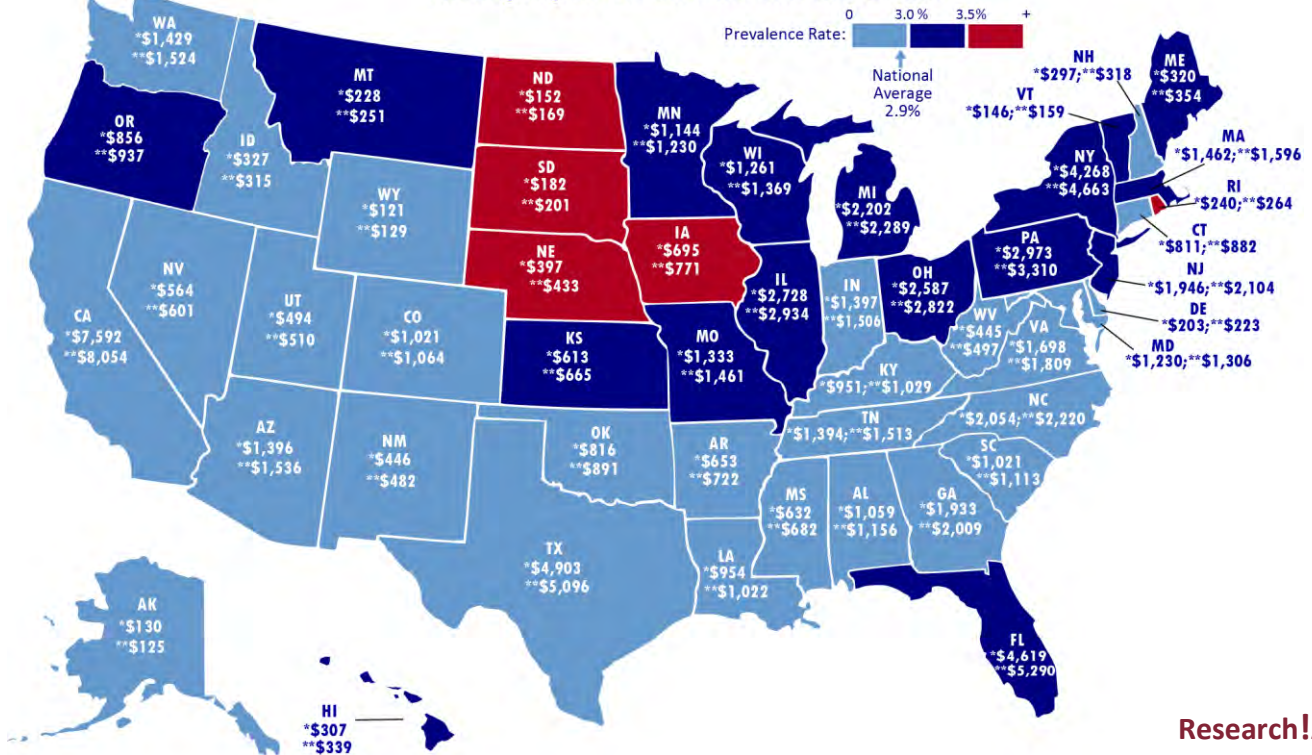
- For individuals aged 65+ with AMD, depression is a very common consequence of vision loss. An NEI-funded research study found that "Behavior Activation," which helps patients focus and re-engage in enjoyable activities after vision loss, reduced the incidence of depression by 50%.*
- NEI-funded research has identified more than 500 genes associated with eye diseases. These discoveries can aid in the development of better diagnostics and targeted therapies for vision loss. NEI's *Audacious Goals Initiative* will apply this knowledge, as well as advances in regenerative medicine, to treat retinal diseases. The primary goal is to be able to replace and reconnect damaged cells in the human retina within 15 years.*

*NATIONAL EYE INSTITUTE <WWW.NEI.NIH.GOV> 2014.

The Bottom Line:

Our nation's investment in vision health is an investment in the overall health of all Americans, and is worthy of robust funding. NEI's breakthrough research is a cost-effective investment, since it is leading to treatments and therapies that can ultimately delay, save and prevent health expenditures. It can also increase productivity, help individuals maintain their independence, and generally improve quality of life, especially since vision loss is associated with increased depression and accelerated mortality.

Prevalence and the Direct* and Indirect** Costs (\$M) of Vision Loss and Blindness



"Direct costs" include medical costs attributable to low vision, and for diagnosed disorders, vision aids, assistive devices, adaptations and direct services (including education and assistance).

"Indirect costs" capture the burden of consequences of low vision, productivity losses, long-term care, informal care and the costs of transfer and entitlement programs.

SOURCES:

PREVALENCE: VISION PROBLEMS IN THE U.S., PREVENT BLINDNESS. 2012.

COSTS: THE COST OF VISION PROBLEMS, PREVENT BLINDNESS. 2013.



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Educating about the Value of Vision Research

The Albert and Mary Lasker Foundation is a founding partner in this series of fact sheets. www.laskerfoundation.org