

September 2016

## Making Eye Health a Population Health Imperative: Vision for Tomorrow

Eyesight affects how human beings perceive and interpret the world and is used for everyday communication, social activities, educational and professional pursuits, the care of others, and the maintenance of personal health, independence, and mobility. Vision impairment in adults is associated with increased risk of falls and injuries, social isolation, depression, and other psychological problems and can amplify the adverse effects of other chronic illnesses. In children, uncorrected or undiagnosed vision impairment can lead to developmental, academic, and social challenges. As increased risk for poor eye health is associated with certain social, economic, cultural, health, and environmental conditions, these factors contribute to inequities that already affect populations with lower socioeconomic status and poor health. Moreover, the economic and social costs of vision impairment to patients, the healthcare system, and society are considerable. Yet, vision impairment remains notably absent from many population health agendas and community programs.

No reliable data exist on the number of people affected by all causes of vision impairment in the United States. One model estimates that more than 142 million adults over the age of 40 in the United States experienced vision problems attributable to vision impairment, blindness, refractive error, age-related macular degeneration (AMD), cataract, diabetic retinopathy, and glaucoma. Uncorrectable vision impairment affects an estimated 6.42 million people in the United States. Uncorrected vision impairment affects millions more people in the United States, with estimates for uncorrected refractive error alone ranging from 8.2 million to 15.9 million.

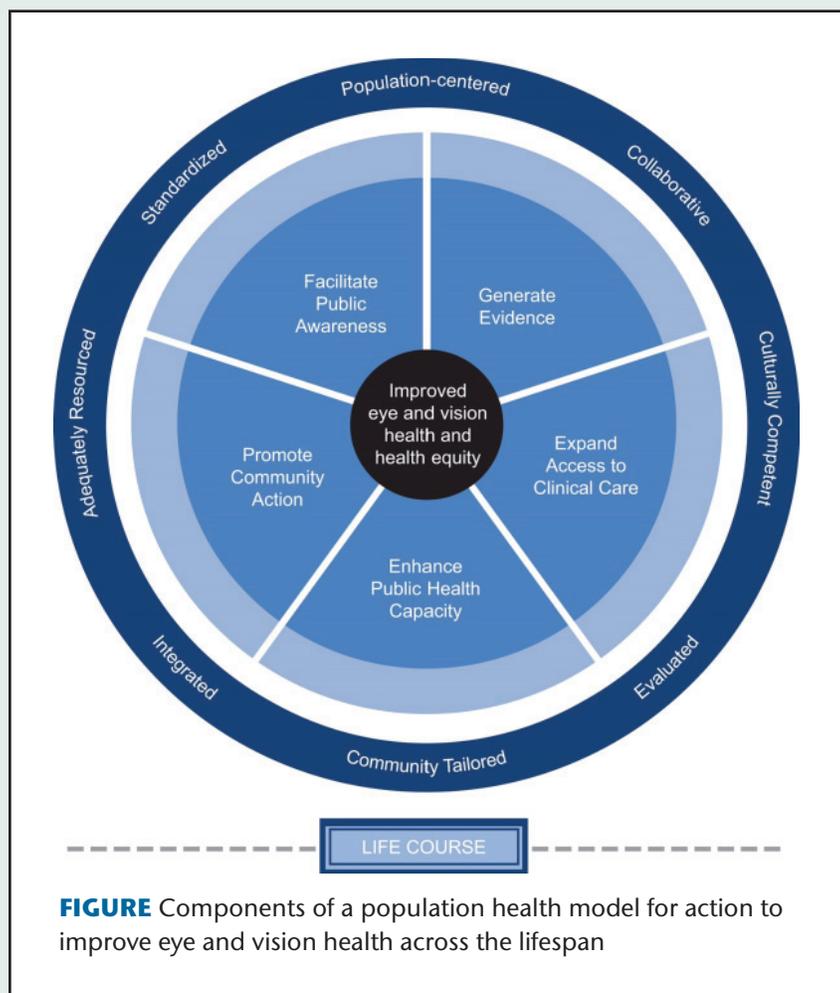
The National Academies of Sciences, Engineering and Medicine convened a multidisciplinary expert committee to examine the core principles and population health strategies to reduce vision impairment and promote eye health in the United States. The resulting report, *Making Eye Health a Population Health Imperative: Vision for Tomorrow* proposes a population health action framework to guide action and coordination among various—and sometimes competing—stakeholders in pursuit of improved eye and vision health and health equity in the United States.

**Coordinated efforts are needed to expand public health capacities and to encourage policies and programs that recognize improved eye and vision health as an important population health outcome and as a means by which to achieve better health equity.**

A number of factors contribute to the absence of focused and sustained programmatic investment that would translate into widespread action, including a lack of focus on prevention and underlying social and environmental determinants, inadequate information about the state of eye health, the segregation of eye care from the rest of medicine, minimal cross-discipline training, scant public health resources, and a lack of coordination within or across federal entities and among partner organizations.

The promotion of eye and vision health requires strategies and partnerships beyond just the clinical setting, with an emphasis on minimizing preventable vision loss and untreated vision impairments. The prevalence and impact of vision loss and the severity of vision impairment varies across populations. Although health care system–related factors affect eye and vision outcomes, societal-level factors also influence whether certain practices, policies, and conditions are available within communities to reduce the risk of vision loss. Promoting optimal conditions for eye and vision health can also positively influence many other social ills, including poverty, health literacy, other health inequities, increasing health care costs, and avoidable mortality and morbidity. Federal and state support, coupled with public–private partnerships, are required to enhance the abilities of local health departments, other local institutions and organizations, families, and individuals to respond to community needs and achieve their goals.

Early identification, diagnosis, and access to high-quality care could also improve the trajectory of vision impairment by slowing the progression of specific diseases or conditions, correcting the vision impairment itself, and improving the functionality, independence, and quality of life of populations with uncorrectable vision impairment. Many public and private health insurance coverage policies, including Medicare, exclude eye examinations for asymptomatic or low-risk patients, corrective lenses, and visual assistive devices. Thus, in many cases, people must purchase additional vision insurance or shoulder costs out of pocket, exacerbating overall health inequities among populations least able to afford care. Moreover, effective interventions exist to improve or maintain the functioning of people with vision impairment, but information about, and access to, these services is often limited.



## A POPULATION HEALTH APPROACH TO IMPROVE EYE AND VISION HEALTH

Some of the most notable successes in preventing vision loss have been anchored in population health strategies. Short- and long-term population health strategies should address broad determinants of health, including policies that influence individual behaviors, healthy environments and social conditions, and their potential impact on eye and vision health.

Strategies should also address efforts to support, educate, and promote healthy eye and vision behaviors and preventive policies and programs; facilitate pre-symptomatic identification of eye diseases and treatments; and preserve and enhance the health and functioning of individuals with vision impairment.

Achieving the twin goals of improving eye and vision health and increasing health equity will require efforts in five core action areas (see Figure), and these actions should be population-centered, collaborative, culturally competent, community-tailored, evidence-based, integrated, standardized, and adequately resourced.

**Particular attention needs to be paid to assuring that essential services and treatments are affordable, particularly for the most vulnerable populations.**

## **FACILITATE PUBLIC AWARENESS**

Despite the importance of good eyesight, millions of people continue to grapple with undiagnosed or untreated vision impairment. Individuals are often unaware of the most common threats to vision, early signs of vision loss, steps that can be taken to reduce the risk of vision impairment, and the impact of vision loss. Moreover, eye and vision health remain relatively absent from national health priority lists, including efforts to stem the impact of chronic diseases. Stimulating a nationwide discussion on eye and vision health and having reliable, consistent, evidence-based information will help increase overall knowledge and encourage policies, practices, and behaviors that promote good eye and vision health, support appropriate care to correct or slow progression of a vision-threatening disease or condition, or improve function when vision impairment is uncorrectable.

## **GENERATE EVIDENCE TO GUIDE ACTION**

Vision impairment and blindness are appropriate targets for surveillance because they adversely affect a large portion of the population, affect populations unequally, can be improved by treatment and preventive efforts, and will become an increasing burden as the population ages. A comprehensive, nationally representative surveillance system for eye and vision health is needed to better understand the epidemiological patterns, risk factors, comorbidities, and costs associated with vision loss. Such data will allow health professionals and other decision-makers to better characterize the nature and extent of the population health burden; risk factors and at-risk populations; disparities in access, care, and outcomes; needed health system improvements; and successful programs and policies.

Eye and vision health are insufficiently represented as a programmatic focus in federal government programs overall, and existing research programs lack coordination within and across federal agencies and institutes. Establishing a unified research agenda with larger financial and programmatic support to develop and advance knowledge about eye and vision health can maximize efficiencies and build on the strengths of established programs across a broad portfolio of topics and programs, which must include more than basic and clinical research.

## **EXPAND ACCESS TO CLINICAL CARE**

Professional guidelines are often used to educate the public and public health and health care professionals. They serve as foundational elements of value-driven payment policies and as baselines from which to measure quality improvement and enhanced accountability for care processes and patient health outcomes. No single set of clinical practice guidelines or measures in eye and vision care exists. Although eye and vision guidelines are consistent for the most part, there are some important differences that may reflect the absence of robust data and political tensions within the field of eye and vision health. Available guidelines may provide inconsistent recommendations concerning essential measures, such as the frequency with which different age groups and at-risk populations should receive comprehensive eye exams, challenging the ability to deliver consistent, evidence-based messages and monitor delivery of the those services. Health insurance coverage for basic examinations, preventive services and treatments (including corrective lenses), and rehabilitation (including assistive devices) should reflect these guidelines. Particular attention needs to be paid to assuring that essential services and treatments are affordable, particularly for the most vulnerable populations.

## **ENHANCE PUBLIC HEALTH CAPACITY**

A well-functioning medical care system can expand access to appropriate eye and vision care services, allowing public health agencies to focus on implementation of effective policies and delivery of essential services and preventive programs. Such preventive actions include linking people to needed care, assessing care quality, and promoting community support and policy and environmental conditions that maximize health. Population health strategies to promote eye and vision health are rarely supported in state and local health departments due to limitations in resources and other priorities. In the absence of federal leadership and programs to advance eye and vision health, state and local public health departments are hard pressed to incorporate reduction of vision impairment as a categorical programmatic focus. The committee calls for public health departments and health care systems to partner to coordinate existing and emerging programs, policies, and quality improvement activities that directly and indirectly affect eye and vision health.

## Committee on Public Health Approaches to Reduce Vision Impairment and Promote Eye Health

---

**Steven M. Teutsch (Chair)**

UCLA, University of Southern California, Public Health Institute

**Sandra S. Block**

Illinois College of Optometry

**Anne L. Coleman**

University of California, Los Angeles

**Kevin Frick**

Johns Hopkins University

**Karen Glanz**

University of Pennsylvania

**Lori Grover**

Salus University

**Eve Higginbotham**

University of Pennsylvania

**Peter D. Jacobson**

University of Michigan

**Edwin Marshall**

Indiana University

**Christopher Maylahn**

New York State Department of Health

**Joyal Mulheron**

Sagacity Group, LLC

**Sharon Terry**

Genetic Alliance

**Cheryl Ulmer**

Institute of Medicine (Retired)

**Rohit Varma**

University of Southern California

**Heather E. Whitson**

Duke University Medical Center

### Study Staff

---

**Margaret A. McCoy**

Study Director

**R. Brian Woodbury**

Research Associate

**Annalyn Welp**

Research Assistant

**Bettina Ritter**

Research Assistant

(through November 2015)

**Marjorie Pichon**

Senior Program Assistant

**Rose Marie Martinez**

Director, Board on Population Health and Public Health Practice

### Study Sponsors

---

American Academy of Ophthalmology

American Academy of Optometry

American Optometric Association

The Association for Research in Vision and Ophthalmology

Centers for Disease Control and Prevention

The National Alliance for Eye and Vision Research

National Center for Children's Vision and Eye Health

National Institutes of Health

Prevent Blindness

Research to Prevent Blindness

## PROMOTE COMMUNITY ACTION

Eye and vision health is a community issue—the needs, adequacy of resources, and priorities will vary based on population characteristics, cultures, and values. The impact that vision loss has on function and quality of life varies according to numerous factors, including the built environment, social support, access to health care and rehabilitation services, attitude, preferences, and socioeconomic factors. How these factors affect the occurrence, severity, and impact of vision loss differs for individuals and communities. It is important that community stakeholders be actively consulted and engaged in options to translate and implement national goals into workable community action plans to reduce the burden of vision loss and the functioning of populations with vision impairment across different community settings.

## CONCLUSION

Vision impairment is a significant public health problem which affects the health, economic well-being, and productivity of individuals, families, and society as a whole. The focus of population health approaches to eye and vision health should be on creating the conditions in which people can have the fullest capacity to see and that enable individuals to achieve their full potential. Despite evidence that vision impairment increases the risk of mortality and morbidity from other chronic conditions and related injuries and is associated with a reduced quality of life, eye and vision health are not adequately recognized as a population health priority or as a means by which to achieve better health equity. This report attempts to answer “Why not?” By anchoring population health in terms of prevention more broadly, this report highlights opportunities for the nation to reevaluate how it values eye and vision health and how this can be translated into daily activities, community discussions, and public policy. The report also serves as a call to action to transform vision impairment from an exceedingly common to a rare condition, reducing related health inequities.

### Health and Medicine Division

*The National Academies of*  
SCIENCES • ENGINEERING • MEDICINE

The nation turns to the National Academies of Sciences, Engineering, and Medicine for independent, objective advice on issues that affect people's lives worldwide.

[www.national-academies.org](http://www.national-academies.org)