



# VISION LOSS IN AMERICA: AGING AND LOW VISION

2015 LOW VISION REPORT



THE **VISION**COUNCIL

# Low Vision at a Glance

**Low vision** is defined as visual impairments that are not correctable through surgery, pharmaceuticals, glasses or contact lenses.

- 1 in 28 Americans age 40 and above have low vision. This trend will continue to increase over the next 20 years as 10,000 baby boomers turn 65 each day.

## Low vision is often caused by eye diseases like:

- **Cataracts:** 20 million Americans
- **Age-Related Macular Degeneration:** 2.07 million Americans
- **Diabetic Retinopathy:** 7.6 million Americans
- **Glaucoma:** 3 million Americans

COST	CAREGIVER SUPPORT	IMPACT
<b>\$68 billion</b> annually	<b>\$47,000</b> annually per caregiver	<ul style="list-style-type: none"> <li>• <b>Disability:</b> Vision loss is the leading cause of age-related disability</li> <li>• <b>Falls:</b> 24,000 Americans over 65 succumbed to injuries sustained in falls</li> <li>• <b>Isolation:</b> 40 to 50 percent of older adults with chronic eye disorders limited their activities</li> <li>• <b>Mental health:</b> 10 percent of elderly individuals with severe vision impairment have major depressive disorder and one-third of those with vision loss suffer from clinical depression – twice the rate of the general population of older adults</li> </ul>

## Diagnosing Low Vision

Up to 80 percent of cases dealing with visual impairment are considered preventable. Through annual comprehensive eye exams, an eye care provider can diagnose and treat many eye conditions early in the disease progression. In many cases, timely care can delay or prevent vision loss.

Step 1. Go to an eye care provider for annual comprehensive eye exam	Step 2. Referral to a low vision specialist	Step 3. After diagnosis
<ul style="list-style-type: none"> <li>• Visual acuity using a low vision test chart</li> <li>• Contrast sensitivity</li> <li>• Visual field (peripheral vision)</li> <li>• Depth perception</li> <li>• Ocular response to glare</li> <li>• Glaucoma test and dilation of the pupils to view of the back of each eye</li> </ul>	<ul style="list-style-type: none"> <li>• Measure functional acuity</li> <li>• Offer strategies and therapies to accomplish goals and activities of daily living</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a care plan</li> <li>• Assemble a coordinated care team</li> </ul>

## Introduction

Our vision can deteriorate with age, but vision loss is not a normal part of aging.

Approximately 1 in 28 Americans age 40 and older<sup>i</sup> are robbed of their sight by low vision, defined as visual impairments that are not correctable through surgery, pharmaceuticals, glasses, or contact lenses.

**With 10,000 baby boomers turning 65 each day, the incidence of visual impairment and eye disorders will continue to increase over the next 20 years.<sup>ii</sup>**

Low vision disorders can significantly impact a person's independence, well-being and quality of life, and can make everyday activities seem impossible, including driving, reading the newspaper, pouring coffee, getting dressed or watching television. While the tangible effects of lost sight are daunting, low vision disorders are often accompanied by other health dangers such as increased risk of falling and mental health issues.

**Low vision disorders also take a financial toll on our nation, totaling \$68 billion annually in direct health care costs, lost productivity and diminished quality of life according to the National Eye Institute (NEI).<sup>iii</sup>**

### Risk factors for low vision

- Age
- Gender
- Ethnicity
- Family history
- Smoking
- Exposure to UVA /UVB wavelengths
- Dietary habits

This amount is expected to climb as the population ages. According to Prevent Blindness America, the total economic burden of eye disorders is already estimated at \$139 billion every year.<sup>iv</sup> Because many people with low vision depend on the support of caregivers to help provide assistance in activities of daily living, there is also the often unacknowledged source of services provided by family caregivers or other unpaid caregivers. It is estimated that the annual indirect costs for the time, support and services provided by caregivers averages more than \$47,000 annually.<sup>v</sup>

Aging is the number one factor correlated with an increased risk of developing low vision disorders such as age-related macular degeneration, glaucoma, cataracts and diabetic retinopathy. Other factors increasing that risk are gender, ethnicity, family history, smoking, exposure to UVA/UVB wavelengths and dietary habits. African Americans, for example, are at higher risk for diabetic retinopathy, glaucoma and other low vision disorders than other ethnic groups.

Prevention will be an even more important concern as the incidence of adult vision impairment continues to increase. Regular, comprehensive exams with an eye care provider can help diagnose these disorders when they are most treatable. In addition, providers can suggest tools and devices – including magnifiers, telescopic eyewear and talking book players – to help those with low vision maintain or regain their independence. If left untreated, eye disorders can result in blindness.

In this report, The Vision Council highlights the impact of low vision and explores the options for utilizing remaining vision.

### Vision loss can:

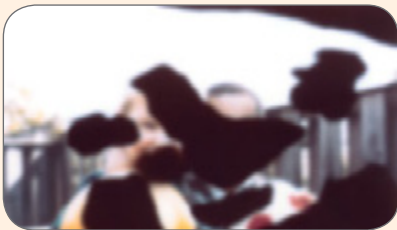
- Increase risk of falls
- Foster conditions for isolation and depression
- Impact independence and quality of life

## Defining Low Vision

Low vision refers to visual impairment that is not correctable through surgery, pharmaceuticals, glasses or contact lenses. It is often characterized by partial sight such as blurred vision, blind spots or tunnel vision. Listed below are disorders that cause vision loss:



**Age-Related Macular Degeneration (AMD):** AMD is the leading cause of vision loss among Americans over 65, accounting for nearly half of all low vision cases. It is caused when the part of the eye responsible for sharp, straight-on vision – the macula – breaks down. The result is a loss of central vision. There are two types of AMD: wet and dry. Wet AMD is caused by the growth of abnormal blood vessels under the macula. Central vision loss occurs rapidly with wet AMD. In dry AMD, light-sensitive cells in the macula slowly break down, leading to a gradual loss of central vision. The NEI estimates 2 million Americans age 50 and older are impacted by AMD,<sup>vi</sup> and the Centers for Disease Control and Prevention (CDC) estimates as many as 7 million are at risk for developing AMD.<sup>vii</sup>



**Diabetic Retinopathy:** According to the NEI, more than 30 percent of Americans diagnosed with diabetes have some form of diabetic retinopathy. This translates to an estimated 7.6 million Americans with the condition<sup>viii</sup>. It is a major cause of blindness and is directly related to high blood sugar, which damages blood vessels. That damage affects the retina and can result in its detachment.



**Glaucoma:** With glaucoma, portions of vision are lost over time, usually with no warning signs or symptoms. For many people, a decrease in peripheral vision is the first sign of glaucoma. Nearly 3 million Americans are living with this disorder, according to the NEI.<sup>ix</sup>



**Cataracts:** More than 20 million Americans have cataracts, according to Prevent Blindness America. A cataract is a clouding of the lens of the eye and causes vision to be blurry. It is one of the main causes of visual impairment among aging Americans. Nutrition has been linked to helping prevent or delay the progression of cataracts.



**Retinitis Pigmentosa:** This is a group of inherited diseases affecting the retina and resulting in progressive vision loss. This type of vision impairment often begins in childhood, with poor night vision, and progresses over time.

There are many additional causes of low vision, including strokes, traumatic brain injury (TBI) and other diseases common among a wider age range such as Stargardt's, albinism and retinopathy of prematurity (ROP).

## Issues Impacting People with Low Vision



Low vision disorders can foster an environment of isolation and can contribute to mental health problems. Activities such as driving, reading, cooking, housework and even walking become more difficult. According to a report by the International Federation of Ageing, vision loss is the leading cause of age-related disability.<sup>x</sup>

- **Falls:** In 2012, 24,000 Americans over 65 succumbed to injuries sustained in falls, according to the CDC. The rate of life-threatening injuries after a fall has nearly doubled from the previous decade.<sup>xi</sup> Vision is an important factor in maintaining balance.<sup>xii</sup> Glaucoma, cataracts, macular degeneration and other vision issues often impact adults' visual acuity, including contrast sensitivity and depth perception. In a typical home, stairs, carpets and rugs, electrical cords and toilet seats can be hazardous for someone whose sight is impaired. Many communities designed for older adults have specially outfitted homes to assist them in living a healthy and safe life.
- **Isolation and Depression:** Low vision can impact a person's self-esteem by stealing their independence and worsening their ability to accomplish everyday activities. A 2012 study published in the journal *Investigative Ophthalmology and Visual Science* found that 40 to 50 percent of older adults with chronic eye disorders limited their activities because they feared falling, putting these individuals further at risk for social isolation, immobility and disability.<sup>xiii</sup>

Isolation and immobility because of low vision can lead to social withdrawal and increase the likelihood of developing depression. Recent research has found that nearly 25 percent of people with bilateral AMD (in both eyes) developed clinical depression.<sup>xiv</sup> Other studies have shown that nearly 10 percent of elderly individuals with severe vision impairment have major depressive disorder likely due to the loss of functional ability and a lower quality of life.<sup>xv</sup>

- **Independence and Quality of Life:** Leading a fruitful, fulfilling life into retirement is a priority for most people. Vision impairment can threaten this dream. According to the International Federation on Aging, the condition leads to a loss of productivity in the workforce, absenteeism and early retirement. The type size on important documents, prescription bottles and web pages may be too small to read, which can allow predators to easily manipulate important life decisions regarding an individual's health, finances and livelihood. Chronic visual impairment also takes away from enjoying special moments such as watching grandchildren play or going to an art exhibit.

Caregivers need to be cognizant of these issues when looking into what options best address the needs of a loved one with visual impairment.

## Treating Low Vision



Thomas I. Porter, OD, FAAO  
 Medical Adviser, The Vision Council  
 Director, Low Vision Service, Saint Louis University Department of  
 Ophthalmology

Often, an eye care provider can detect early signs of eye diseases before there are symptoms of vision loss. The best way to ensure healthy vision is to have regular comprehensive exams from an eye care provider and treat any condition early in the disease progression. However, the stigma and knowledge gap on progressive eye diseases create barriers in adequately addressing the growing public health issue of low vision.

Tools and devices exist to help those with low vision maintain or regain their independence. But, as with any condition that limits one's ability to function and requires the use of adaptive equipment, there is often concern about how one looks and how noticeable the adaptive equipment is. Whether it's a hearing aid, a walker or a low vision device, being embarrassed about an impairment can cause individuals to not seek proper care.

For the vision-impaired, this stigma, coupled with lack of awareness about the technology available to maximize what vision remains, leads to an underutilization of these visual and adaptive devices. Only about 20 percent of adults with severe vision impairment use devices that could help maintain activities of daily living.<sup>xvi</sup>

Additionally, learning how to use low vision devices and having limited access to options such as rehabilitative care can frustrate patients. However, it is important for people to become engaged in their vision health early in order to achieve better long-term results. As older Americans are at increased risk for vision disorders, it is especially important to get regular eye care exams and to monitor vision health throughout the aging process. Low vision devices and medical treatments have come a long way. For most visually impaired patients, regardless of underlying eye pathology, there is probably a low vision device or treatment that will work, maximizing independence and quality of life.



## Diagnosis, Tools and Treatment

### Comprehensive and Low Vision Eye Exams

Despite cost-effective interventions to prevent vision loss, many individuals do not seek out early detection and timely treatments. During an annual exam, an eye care provider will take a medical and optical history. Family history of eye diseases and personal history of eye injury or vision problems will also be discussed. Following an assessment of ocular history, the eye care provider may measure some or all of the following:



- Visual acuity using a low vision test chart
- Contrast sensitivity
- Visual field (peripheral vision)
- Depth perception
- Ocular response to glare
- Glaucoma test and dilation of the pupils to view of the back of each eye

After a regular eye exam, a patient may be referred to a specialist for a low vision exam. This exam focuses on measurements of functional acuity and offers strategies and therapies to accomplish key goals and activities of daily living.

Education and counseling for the patient, family and other care providers should be part of the exam process. This helps provide an understanding of the state of the patient's vision and offers direction for further evaluation and treatment.

#### Once diagnosed, the patient may be encouraged to:

- Develop a care plan to adequately address their needs, including using low vision devices, accessing rehabilitative care and considering all treatment options.
- Assemble a coordinated care team, including the patient's primary care physician and the low vision specialist.

To find a low vision specialist near you, go to <http://whatislowvision.org/find-a-low-vision/>.

## Low Vision Devices and Tools

Vision loss is sometimes seen as something older adults have to live with as a product of aging. However, options are available for both patients and caregivers of those with low vision impairment.

Low vision tools and technologies are more powerful, smaller and affordable than ever. With a wide range of products on the market, from magnification to daily living aids, individuals with any type of vision loss or impairment can experience a positive outcome.

A person with low vision typically uses multiple devices, depending on the severity of the impairment and the individual's lifestyle. Listed below are some examples.

#### Near-viewing accessories, for individuals who have trouble with activities such as reading and cooking:



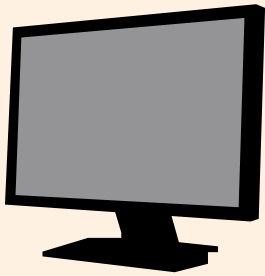
- **Optical handheld magnifier:** great for reading the small print on pill bottles and in recipes, for example.
- **Optical stand magnifier:** great for reading and writing tasks since it does not need to be held.
- **Spectacle magnifier** (readers for hands-free task): helpful when both hands need to be free.

#### Far-viewing accessories, particularly useful when attending museums, sporting events and concerts:



- **Handheld monocular telescope:** can be used selectively and is portable.
- **Mounted monocular telescope:** spectacle-mounted telescope can be attached to the lens of one's eyeglasses.

**Electronic aids, tools designed to assist individuals in many different low vision situations.** Some are portable while others sit on a desk or table. Video magnification devices now include features that can read text to a patient, store pictures, and produce high-definition images.



- **Portable hand-held video magnifier:** electronic device built for reading small text; has large, simple-to-use buttons for zooming in and out.
- **Desktop magnifier:** has flexible ergonomic design, allowing user to adjust the screen for the most comfortable viewing position.
- **Reading system:** lets visually impaired people scan printed text and then have it spoken in synthetic speech or saved to a computer file.
- **Screen magnifier software:** software that enlarges and enhances everything on a computer screen.
- **Talking book players:** handheld device that allows users to navigate forward or backward through the book using different keys.
- **Talking GPS:** verbally announces names of streets, intersections and landmarks as you walk.

#### Daily living aids, handy household items that provide accessibility and assistance when completing daily tasks:

- **Lamps:** lighting can make a big difference; certain types of light can help those with low vision see better.
- **Talking watches:** enhanced numbers on the face and voice technology can improve quality of life.
- **Scales:** individuals can accurately weigh food and ingredients in the kitchen without having to strain to read the small print on the scale, making cooking easier.



## Advances in Treatments

Access to appropriate devices help in everyday tasks and can assist in healthy living. Below are some of the latest medical interventions to help protect long-term vision health for individuals who experience visual impairment.

**Cataracts:** Cataract extractions are a relatively common procedure in which the cloudy lens is removed and replaced with an artificial lens, called an intraocular lens (IOL), to reverse vision loss.

**Age-Related Macular Degeneration:** Although there are currently no treatments to reverse the effects of AMD, new drug interventions and procedures can help slow the progression of this degenerative eye disease. Emerging technology is being tested and developed to correct some of the lost vision from AMD, such as an implantable miniature telescope that provides central vision in one eye, while the other eye provides peripheral vision.

**Glaucoma:** Eye drops to release ocular pressure are usually the first treatment recommended by eye care providers. Laser surgery is also an option for advanced forms of this disease.

**Diabetic Retinopathy:** During the first three of its four stages, no treatment is needed unless the patient has macular edema. To prevent progression of the disease, patients are advised to control their blood sugar levels, blood pressure, and cholesterol. For advanced cases, laser surgery may reduce vision loss.

## Conclusion

The impact of low vision disorders is felt deeply by individuals with severe vision impairments, as well as their communities. More than 39 million Americans have low vision or a disorder that can lead to it<sup>xvii</sup>. Combined, these impairments cost \$68 billion annually in direct health care costs, lost productivity and diminished quality of life.

This burden is expected to increase as the population ages. While low vision and aging eye diseases rob the sight of millions of Americans, they do not need to infringe upon the independence, health and wellbeing or quality of life of people with impairment. Innovations in low vision tools, technology and treatment are providing people with severe vision impairments opportunities to use remaining vision and to delay disease progression.

Regular comprehensive eye exams can help diagnose emerging vision problems before vision loss is noticeable. In addition to accurately diagnosing low vision, a low vision specialist can suggest tools and devices, such as desktop and portable magnifiers, telescopic eyewear and reading systems, to help those with low vision maintain their independence for as long as possible.

Early detection is critical to determine treatment that can slow or in some cases even stop the progression of eye disease associated with aging. To learn more about low vision or find a low vision specialist near you, go to

[www.whatislowvision.org](http://www.whatislowvision.org).

- <sup>i</sup> "Causes and Prevalence of Visual Impairment Among Adults in the United States." *JAMA Ophthalmology*. April 2014. <http://archophth.jamanetwork.com/article.aspx?articleid=416228>
- <sup>ii</sup> Ibid.
- <sup>iii</sup> Ibid.
- <sup>iv</sup> "The Economic Burden of Vision Loss and Eye Disorders in the United States – June 2013." Prevent Blindness America. [http://www.preventblindness.org/sites/default/files/national/documents/Economic%20Burden%20of%20Vision%20Final%20Report\\_130611.pdf](http://www.preventblindness.org/sites/default/files/national/documents/Economic%20Burden%20of%20Vision%20Final%20Report_130611.pdf)
- <sup>v</sup> Ke, K.M., Montgomery, A., Stevenson, M., O'Neill, C., Chakravarthy, U. (2007). Formal and informal care utilization amongst elderly persons with visual impairment. *British Journal of Ophthalmology*, 91, 1279-1281.
- <sup>vi</sup> "Age-Related Macular Degeneration (AMD)." Age-Related Macular Degeneration (AMD). National Eye Institute, 2010. Web. 30 Jan. 2015.
- <sup>vii</sup> "Common Eye Disorders." Centers for Disease Control and Prevention. Centers for Disease Control and Prevention, 23 Apr. 2013. Web. 30 Jan. 2015.
- <sup>viii</sup> "Prevalence of Adult Vision Impairment and Age-Related Eye Diseases in America." Prevalence of Adult Vision Impairment and Age-Related Eye Diseases in America. National Eye Institute, 2010. Web. 30 Jan. 2015. <[https://www.nei.nih.gov/eyedata/adultvision\\_usa](https://www.nei.nih.gov/eyedata/adultvision_usa)>.
- <sup>ix</sup> Ibid.
- <sup>x</sup> The High Cost of Low Vision. Rep. International Federation of Ageing, n.d. Web. 25 Feb. 2015. <<http://www.ifa-fiv.org/wp-content/uploads/2013/02/The-High-Cost-of-Low-Vision-The-Evidence-on-Ageing-and-the-Loss-of-Sight.pdf>>.
- <sup>xi</sup> "Falls Among Older Adults: An Overview." Centers for Disease Control and Prevention. Centers for Disease Control and Prevention, 30 Dec. 2014. Web. 27 Jan. 2015. <<http://www.cdc.gov/homeandrecreationalsafety/falls/adultfalls.html>>.
- <sup>xii</sup> Lord, S. R. "Visual Risk Factors for Falls in Older People." *Age and Ageing* 35.Supplement 2 (2006): li42-i45. Web.
- <sup>xiii</sup> Wang, M. Y., J. Rousseau, H. Boisjoly, H. Schmaltz, M.-J. Kergoat, S. Moghadaszadeh, F. Djafari, and E. E. Freeman. "Activity Limitation Due to a Fear of Falling in Older Adults with Eye Disease." *Investigative Ophthalmology & Visual Science* 53.13 (2012): 7967-972. Web.
- <sup>xiv</sup> Rovner, Barry W., Robin J. Casten, Mark T. Hegel, Robert W. Massof, Benjamin Leiby, Allen C. Ho, and William S. Tasman. "Low Vision Depression Prevention Trial in Age-Related Macular Degeneration." *Ophthalmology* (2014): n. pag. 09 July 2014. Web. 24 Jan. 2015. <[http://www.aajournal.org/article/S0161-6420\(14\)00422-9/abstract](http://www.aajournal.org/article/S0161-6420(14)00422-9/abstract)>.
- <sup>xv</sup> Horowitz, Amy, Joann P. Reinhardt, and Gary J. Kennedy. "Major and Subthreshold Depression Among Older Adults Seeking Vision Rehabilitation Services." *American Journal of Geriatric Psychiatry* 13.3 (2005): 180-87. Web.
- <sup>xvi</sup> National Health Interview Survey, Centers for Disease Control and Prevention. National Center for Health Statistics, 2002.
- <sup>xvii</sup> "Prevalence of Adult Vision Impairment and Age-Related Eye Diseases in America." Prevalence of Adult Vision Impairment and Age-Related Eye Diseases in America. National Eye Institute, n.d. Web. 30 Jan. 2015. <[https://www.nei.nih.gov/eyedata/adultvision\\_usa](https://www.nei.nih.gov/eyedata/adultvision_usa)>.



225 Reinekers Lane  
Suite 700  
Alexandria, VA 22314

703.548.4560  
703.548.4580 (fax)

[thevisioncouncil.org](http://thevisioncouncil.org)

**About The Vision Council:** *Serving as the global voice for vision care products and services, The Vision Council represents the manufacturers and suppliers of the optical industry through education, advocacy and consumer outreach. By sharing the latest in eyewear trends, advances in technology and advice from eyewear experts, The Vision Council serves as a resource to the public looking to learn more about options in eyeglasses and sunglasses.*