2008 Georgia Data Summary

VISION IMPAIRMENTS

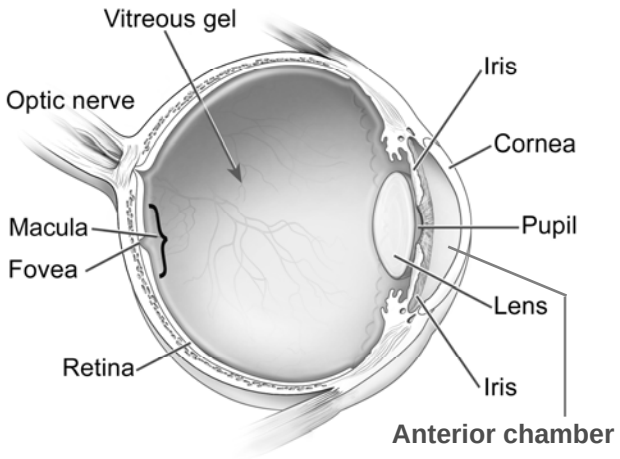
Vision impairment is a serious disability. Awareness of vision impairment and its causes is crucial in reducing and eliminating preventable blindness and preserving eyesight.

OVERVIEW

- The leading causes of vision impairment and blindness in the United States are primarily age-related eye diseases such as **macular degeneration**, **diabetic retinopathy**, **cataract**, and **glaucoma**.[1]
- Although half of all blindness could be preventable, the number of people who suffer vision loss continues to rise. The number of Americans at risk for age-related eye diseases is also increasing as the nation's aging population grows.
- Research indicates that the number of Americans with age-related eye diseases and associated vision impairments is expected to double within the next three decades.[1]

NORMAL EYE

Cross Section of an Adult Human Eye[2]



- The lens is a clear part of the eye that helps to form an image on the retina, the light-sensitive tissue located at the back of the eye.
- The macula, a small area highly sensitive to light, is at the center of the retina.
- The optic nerve is a bundle of nerve fibers connecting the retina to the brain.
- The retina converts light, or an image, into electrical nerve impulses and sends these signals to the brain via the optic nerve.
- A healthy optic nerve is necessary for good vision.

NORMAL VISION

- Vision is a faculty of sight or an inherent ability of light perception.
- The human eye has many visual perception abilities. One of them is visual acuity, the ability to resolve fine details.
- Visual acuity is part of the routine clinical measurement of visual function. A person with a visual acuity of 20/20 is considered to have normal eyesight.

BLINDESS AND VISION IMPAIRMENT

- **Blindness** may be defined as inability to see, deprivation of sight, or loss of light perception. It can be temporary or permanent, partial or complete loss of vision without light perception. However, complete blindness is rare. Many people with vision impairment have a permanent loss of some, but not all, of their eyesight.
- In the United States, "**legal blindness**" is simply defined as visual acuity with best correction in the better eye worse than or equal to 20/200 or a visual field extent of less than 20 degrees in diameter.[1]
- **Vision impairment** means having 20/40 or worse vision in the better eye even with eyeglasses. People with mild degree of vision impairment can still face many challenges in their daily lives.[1]

Age-related macular degeneration is a leading cause of vision loss in Americans age 60 and older.[3]

Estimated Number of Persons with Vision Problems in Georgia and the United States*, 2004[1]

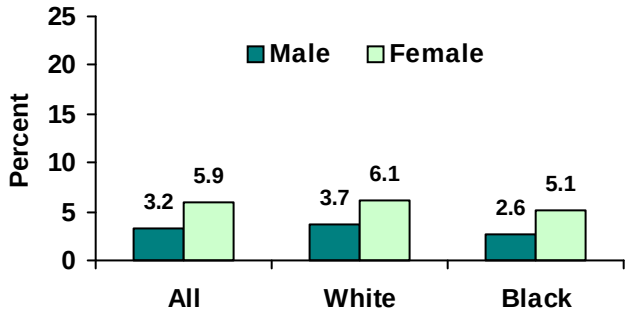
Vision Problems	Number of Persons (in thousands)	
	Georgia	United States
Vision Impairment**	77	3,638
— Blindness	24	1,035
Age-related Macular Degeneration	45	2,075
Diabetic Retinopathy	117	4,483
Cataract	526	22,326
Glaucoma†	64	2,291
Refractive Errors††	1,179	45,312

Note. * Age 40 and older except AMD, which is for 50+ years
** Includes blindness † Primary open-angle type
†† Nearsightedness (Myopia) and Farsightedness (Hyperopia)

AGE-RELATED MACULAR DEGENERATION

- Age-related macular degeneration (AMD) is a condition that primarily affects the macula. The macula is responsible for sharp central vision that is needed for "straight-ahead" activities like reading, sewing, and driving.
- Of two types, Dry AMD (non-exudative) is more common. At the early stage, vision loss is usually moderate but is slowly progressive and can become worse.
- The less common form, Wet AMD (exudative), is more threatening to vision, and damage to the macula occurs rapidly.
- AMD can affect either eye or both but causes no pain.[3]

Self-reported AMD in Adult Georgians*, 2007[5]



* Age 40 and older

Diabetes is a leading cause of new cases of blindness among working-age adults in the United States.[3]

Prevalence of Eye Diseases and Injuries among Adult Georgians*, 2007[5]

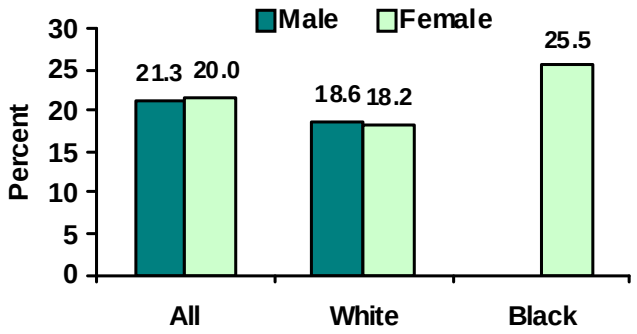
Disease or Condition**	Percent	Estimated Cases (in thousands)
Age-related Macular Degeneration	4.6	172
Diabetic Retinopathy	21.4	141
Cataract	20.0	761
Glaucoma	3.7	140
Injury to the Eye at work	7.2	273

Note. * Age 40 and older ** Self-reported, doctor-diagnosed

DIABETIC RETINOPATHY

- Diabetic retinopathy is a common complication of diabetes. It is also a leading cause of new cases of blindness in adults aged 20 to 74.[4]
- Long standing, high blood glucose levels destroy tiny blood vessels of the retina by breaking, leaking, or blocking them, resulting in vision impairment and blindness.
- Generally, the longer the duration of diabetes, the greater the risk for developing diabetic retinopathy, and the more progressive and the worse the extent of visual loss.
- Diabetic retinopathy usually affects both eyes.
- When women with diabetes become pregnant, they may develop diabetic retinopathy.
- Diabetes also increases the risk for developing cataract and glaucoma.[3]

Self-reported Diabetic Retinopathy in Adult Georgians*, 2007[5]



* Age 40 and older

Prevalence for black males is not shown due to small sample size.

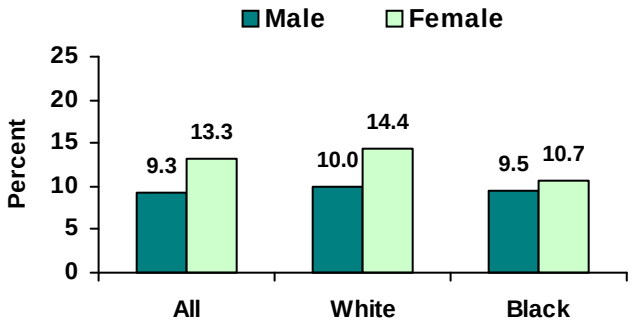
Diabetes can cause diabetic retinopathy, cataract and glaucoma.

For all age-related eye diseases, early detection and timely treatment are crucial.

CATARACT

- Cataract is a clouding of the eye's naturally clear lens.
- In a normal eye, light passes through the transparent lens and creates a sharp image on the retina. If the lens is cloudy from a cataract, the image will be blurred.
- Most cataracts appear with advancing age. By age 80, more than half of all Americans either have a cataract or have had cataract surgery.
- Cataract can also occur at any age as a result of other conditions or diseases such as eye injury, exposure to toxic substances or radiation, birth defect, or diabetes.
- A cataract can occur in either or both eyes. It cannot spread from one eye to the other.[3]

Self-reported Cataract in Adult Georgians*, 2007 [5]

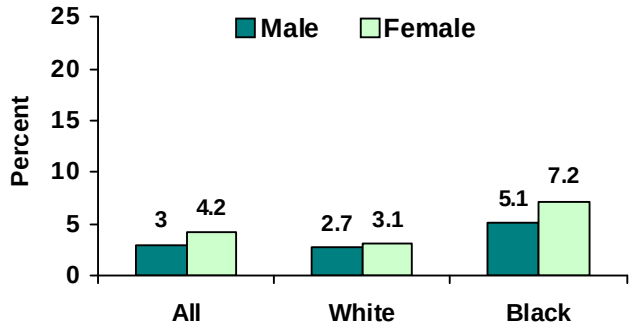


* Age 40 and older

GLAUCOMA

- Glaucoma is a group of eye diseases that cause gradual degeneration of the optic nerve, which carries visual information from the eye to the brain.
- As the nerve cells die, vision is slowly lost, usually starting in the periphery. Often, the vision loss is unnoticeable until considerable nerve damage has occurred.
- Although its exact cause is unknown, primary open-angle glaucoma is the most common form of the disease.
- Normally, a clear fluid flows continuously in and out of the anterior chamber, the space located in front of the eye, nourishing nearby tissue. The fluid leaves the chamber at the open angle where cornea and iris meet.
- If the fluid cannot pass through the angle properly, it will build up inside the eye. The fluid pressure will rise to a level that may damage the optic nerve, and open-angle glaucoma will develop.
- Regular checking and controlling the pressure inside the eye, as needed, is essential for African-Americans over age 40 and everyone else over age 60.
- Other types of glaucoma, including angle-closure, secondary, and congenital glaucoma, occur in relation to specific physical causes.
- Anyone can get glaucoma, and, if left untreated, it can cause vision loss. Any vision lost to glaucoma cannot be restored. However, most cases of glaucoma can be controlled, and vision loss can be slowed or halted by proper treatment.
- Medications, laser treatments, and surgery can be used to reduce the eye pressure.[3]

Self-reported Glaucoma in Adult Georgians*, 2007[5]



* Age 40 and older

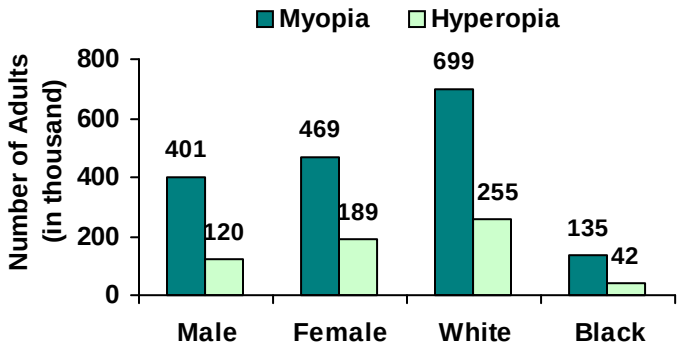
During 2007 in Georgia —

- **Women were twice as likely as men to have AMD.**
- **Whites were more likely than Blacks to have AMD.**
- **Black women were most affected by diabetic retinopathy.**
- **Cataract was more common among women than men.**
- **Black women had the highest prevalence of glaucoma.**
- **The annual dilated eye exam rate among persons with diabetes was only 71%.**

REFRACTIVE ERRORS

- Refractive errors, the most common eye problems in the United States, are optical defects that cause improper focusing of light on the retina.
- Nearsightedness (myopia) and farsightedness (hyperopia) are the two most common types. Other common refractive errors include astigmatism (uneven focus) and presbyopia (age-related problem with near focus).
- While other types of refractive errors can occur at any age, presbyopia affects most people by age 45, and it requires them to wear corrective lenses for near vision.
- Eyeglasses or contact lenses can correct almost all refractive errors. Refractive surgery may correct some refractive error problems. Uncorrected or under-corrected refractive error can result in significant vision impairment.[1]

Refractive Errors among Adult Georgians* by Type, 2004[1]



* Age 40 and older

ECONOMIC BURDEN

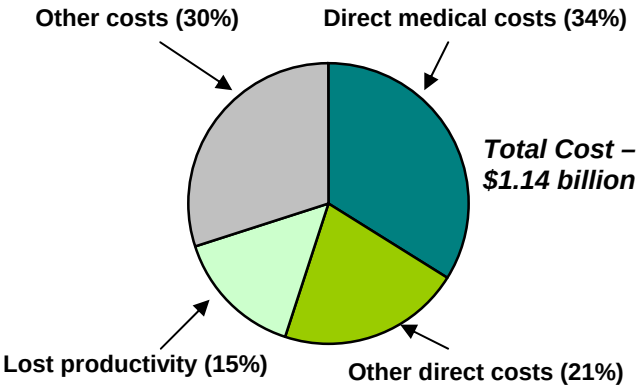
- Blindness and vision impairment pose a significant economic burden, not only to those affected by vision loss but also to the nation's economy.
- It is estimated that blindness and vision impairment cost the federal government more than $4 billion annually in benefits and lost taxable income.[1]
- More than 150 million Americans, or one in every two Americans, use corrective eyewear to compensate for their refractive errors; the estimated annual expense on eyewear is over $15 billion.[1]

Risk factors for eye diseases

- **Susceptibility based on race and sex**
- **Advancing age**
- **Family history**
- **High blood sugar levels**
- **High blood pressure**
- **Obesity**
- **Smoking**
- **Alcohol abuse**
- **Trauma to the eye**
- **High pressure inside the eye**
- **Pregnancy in women with diabetes**
- **Birth defects**
- **Prolonged exposure to ultraviolet sunlight**
- **Long-term use of steroid**
- **Radiation**

- Recent studies reveal that the annual cost of adult vision problems in the U.S. could be over $51 billion[6], including $1.14 billion for Georgia.[7]

Annual Economic Impact of Vision Problems in Georgia[7]



Data sources:

1. Prevent Blindness America & the National Eye Institute. Vision Problems in the U.S., Updated edition, 2008.
2. National Eye Institute. Normal Eye Anatomy. www.nei.nih.gov.
3. National Eye Institute. "What you should know" educational booklet series: Age-related Macular Degeneration, Diabetic retinopathy, Cataract, and Glaucoma.
4. American Diabetes Association. Complications of Diabetes in the United States. www.diabetes.org.
5. Georgia Division of Public Health, BRFSS, 2007.
6. Prevent Blindness America. The Economic Impact of Vision Problems, 2007.
7. Rein D. Total annual economic impact of vision problems in Georgia. A presentation at the Georgia Vision Institute, 2007.

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Have diabetes? Get a comprehensive, dilated eye exam at least once a year.