

Helping You See the Savings Possible With Vision Benefits



The Story Behind the Healthy Sight Calculator

Contributors

Kovin Naidoo, O.D., MPH, PhD,
International Centre for Eyecare Education



Professor Kovin Naidoo is the Global Programs Director of the International Centre for Eyecare Education. A Fulbright Scholar, he is currently an Associate Professor

of Optometry at the University of Kwa-Zulu Natal in South Africa and adjunct faculty member at the Pennsylvania College of Optometry (PCO) in the U.S. Prof. Naidoo is the Africa Chairperson of the International Agency for the Prevention of Blindness and serves on the World Council of Optometry Governing Board and is an active participant in the World Health Organization's Refractive Error Working Group. He holds a Masters in Public Health from Temple University and Doctorate of Optometry from PCO.

Robert Pariseau, CLU, CEBS,
Benefits Solutions Group



Through his 25 years of experience in the HR and benefits industry at Mass Mutual, Cigna, Ceridian and Wachovia, Rob's expertise extends to technology, plan design, funding,

healthcare and retirement plans, benefits compliance and HR administration for Fortune 500 employers. Rob holds a Bachelor of Arts in Economics from Colgate University, the Certified Employee Benefits Specialist (CEBS) designation from Wharton School of Business and the International Foundation of Employee Benefit Plans, and the Chartered Life Underwriter designation from The American College. Rob is a past president of the Tampa Bay chapter of CEBS and currently serves on the board of the United Healthcare Children's Foundation.

Vincent Young, M.D.,
Albert Einstein Medical Center



Dr. Young serves as chairman of the Division of Ophthalmology at Albert Einstein Medical Center in Philadelphia, where he supervises comprehensive

services including general ophthalmic surgery, and is the director of Einstein Eyewear, a full-service optical center. Dr. Young is president of the American Association of Dispensing Ophthalmologists, and a member of the American Academy of Ophthalmology, the American Medical Association and the Philadelphia County Medical Society. He received his M.D. degree from Temple University Medical School in Philadelphia, Pa., performed a residency in ophthalmology at the Scheie Eye Institute at the University of Pennsylvania and became a board certified ophthalmologist in 1989.



With healthcare costs at an all-time high, consumers are looking for ways to manage their own preventative care to keep costs low – and good health within reach.

Because of this, people are looking hard at their medical benefits, as well as wellness programs offered through their employers. They are making educated choices about which benefits to enroll in, and – once enrolled – which to really take advantage of throughout the year.

While most consumers see a vision benefit as a way to get discounts on eyecare and eyewear, they often miss the full picture of what the benefit can do for them. They don't understand the importance of regular eye exams for early detection of eye and even overall health problems. And they don't realize how important an up-to-date prescription can be to keep them seeing well day-to-day, saving them time by increasing their productivity at work.

Consumers claim that vision is their number-one sense, yet 24 percent don't enroll, and 32 percent don't utilize their vision benefit.¹

There is also low awareness all around of just how common many eye diseases and vision problems are, especially among at-risk groups, who are increasing within the U.S. These include ethnic minorities, such as Hispanics, African Americans and Asian Americans, as well as women and the older population.

Transitions Optical, Inc. collaborated with eyecare and vision benefit experts to create the Healthy Sight Calculator as part of the Transitions Healthy Sight Working for You initiative.

Consumers claim that vision is their number-one sense, yet 24 percent don't enroll, and 32 percent don't utilize their vision benefit.¹

This interactive tool (found at www.HealthySightCalculator.org) allows you to:

1. Learn your **risk** of various eye-related conditions
2. Calculate the **costs** you could avoid with your vision plan

• Vision Problems

- Trouble Seeing Up-Close
- Trouble Seeing Far Away
- Eyestrain and Fatigue
- Severe Headaches From Light and Glare

• Eye Diseases

- Cataracts
- Diabetic Retinopathy
- Elevated Intraocular Pressure
- Glaucoma
- Macular Degeneration

• Overall Health Issues – which can be diagnosed through an eye exam

- Prediabetes
- Undiagnosed High Blood Pressure

To avoid the costs shared in the calculator, people should be using plans that offer the highest level of coverage, otherwise known as "premium level." These plans should include yearly eye exams and coverage of or discounts on lens enhancements (like photochromics and anti-reflective coatings) to enhance and protect vision.



Time – minutes per day or entire workdays lost through decreased productivity



Money – money lost in medical costs without early intervention



Sight – vision lost without taking the steps necessary to care for your eyes and protect your most precious sense

The Healthy Sight Calculator was developed by analyzing existing data on the prevalence of various eye diseases and conditions among specific populations, as well as published research on related medical costs and possible productivity loss. This paper shares the source information and medical based rationale that shaped the Healthy Sight Calculator.

Risk Rates

Certain factors, such as your age, gender and ethnic background may increase your risk for eye-related diseases and vision problems, and impact how much they will cost you.

Of course, there are many factors beyond these that contribute to your risk as well. Family history plays a factor. So do lifestyle choices, such as regular exercise, diet and smoking. The best way to understand your individual risk and what you can do to promote your eye health is to speak to your eyecare professional, but the Healthy Sight Calculator can at least get you thinking. For this tool, your age, gender and ethnicity are all considered in calculating your individual risk.

Calculating Risk Rates

Risk rates for most of the conditions featured in the calculator were determined through an analysis of the raw data available through the Centers for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance System (BRFSS).² This is the world's largest, ongoing telephone health survey, which has been tracking health conditions and risk behaviors in the United States yearly since 1984. The data set used for the calculator involved interviewing more than 430,000 people! The analysis to determine risk rates for the calculator involved sorting data to find the prevalence of each condition by age, gender and ethnicity. In categories where sample size was not sufficient (primarily "Other" for race), an average for all ethnicities by age and gender was applied.

The prevalence of Elevated Intraocular Pressure (IOP) – a precursor of glaucoma – was not available through the CDC data, but the prevalence of glaucoma was. Since a study by the National Eye Institute and Prevent Blindness America shows that while at least 2.2 million people in the U.S. have glaucoma, another five to 10 million have elevated IOP, it is safe to assume that at least twice as many people have elevated IOP as glaucoma.³ (Two times 2.2 million people with glaucoma is still less than 5 million, the low range of those with elevated intraocular pressure.) Therefore, the risk of elevated IOP is assumed as twice that of the risk for glaucoma itself.

The risk rate for undiagnosed high blood pressure also involved an extra step. Obviously, respondents to the CDC survey couldn't know whether they had undiagnosed high blood pressure because they hadn't yet been diagnosed. However, since only 65 percent of hypertensive male patients and 72 percent of hypertensive females are aware they have the disease, according to a study published in the Archives of Internal Medicine,⁴ risk of undiagnosed high blood pressure was calculated by multiplying the risk of diagnosed high blood pressure (according to the CDC data) among male populations times 35 percent and female populations times 28 percent.

Risk rates for eyestrain and fatigue, and headaches were extracted from analysis of raw data available through the Transitions Healthy Sight Global Survey, an annual survey that measures consumers' awareness of eye health factors and the steps they are taking – or not taking – to maintain healthy sight.⁵ The analysis involved sorting data to find the prevalence rate of each problem at the national level by gender. For headaches, only respondents that indicated "light" or "glare" as the main cause of their headaches were counted.

Age

Age can impact your risk for vision problems.

Younger adults may have trouble seeing up-close or far away because they put off visiting the eye doctor or have out-of-date prescriptions.

Around age 40, most people begin showing signs of presbyopia. This is a hardening of the lens inside the eye that makes it more difficult to see objects up-close. Despite trouble seeing, many people delay wearing eyewear because they see it as a sign of aging, or may use over-the-counter readers not prescribed by their eye doctor, so their vision may not be corrected as well as it could be.



Many serious, sight stealing diseases become more common as you age. People over the age of 60 are at increased risk for eye conditions like cataract, glaucoma and macular degeneration.⁶ They also are more likely to develop overall health issues like diabetes and hypertension that can affect eye health.^{7,8}

Gender

Both men and women are often surprised to learn that gender can impact their risk for vision problems.

Women are more likely than men to suffer from eye-related diseases and conditions, such as:

- Cataract
- Glaucoma, and
- Age-related macular degeneration (AMD).⁹

Women are also more likely than men to experience eyestrain and fatigue, as well as headaches from light and glare.¹⁰

Women are more likely than men to experience eyestrain and fatigue, as well as headaches from light and glare.¹⁰

Men have similar risks as women for a number of eye and overall health issues that can impact vision, and have an increased risk depending on their lifestyle and ethnicity, and as they age.

Ethnicity

Ethnic background is a factor that can impact your risk of vision problems.

African Americans



African Americans are more likely than Caucasians to suffer specific vision problems such as:

Cataracts – African Americans are more likely to develop cataracts and five times more likely to develop blindness as a result.¹¹

Glaucoma – African Americans are five times more likely to develop glaucoma, and four times more likely to suffer blindness from it as a result.¹²

African Americans are at higher risk for the following overall health conditions that can also impact vision:

Diabetes – African Americans are about twice as likely to have diabetes, and are more likely to experience complications from diabetes and die from it. Diabetes can lead to diabetic retinopathy and cataracts, and is the leading cause of blindness among African Americans aged 20 to 44. Yet, 90 percent of diabetes-related blindness can be prevented.¹³

Hypertension (high blood pressure) – African Americans are 40 percent more likely to have high blood pressure, and are 10 percent less likely to have it under control. It can lead to hypertensive retinopathy, which causes blurry vision and even blindness.¹⁴

Asian Americans

Asian Americans are at higher risk than the general population for a number of eye-related issues.

Glaucoma – Asian Americans are more likely to develop angle-closure glaucoma, caused by rapid or sudden increases in pressure inside the eye. Glaucoma is often characterized by the loss of periphery vision that can progress to complete vision loss without treatment.¹⁵ People of Japanese descent

are also more prone to a particular type of the disease, called low-tension glaucoma.¹⁶

Myopia, or nearsightedness, is also more common among Asian Americans.¹⁷

Asian Americans are affected by several overall health issues, which can impact their eye health:

Diabetes – Among Asian Americans between the ages of 45 and 64, diabetes is the 5th leading cause of death. Asian Americans are also more likely to develop type 2 diabetes than the general population. Diabetes can take quite a toll on eye health. It can contribute to the eye diseases diabetic retinopathy, cataracts, age-related macular degeneration and glaucoma, all of which can lead to blindness without proper treatment.¹⁸

Because Asian Americans are less likely to be obese – one of the most easily spotted risk factors for the diabetes – doctors are often late in diagnosing them as diabetic. Diabetes can be detected through a comprehensive eye exam, which can play a key role in early diagnosis and treatment.¹⁹

Caucasians

The Caucasian population tends to be at higher risk for age related macular degeneration (AMD), a serious eye disease that destroys sharp central vision.²⁰ While there is currently no cure for AMD, early intervention can slow vision loss, so regular visits to an eye doctor are very important.



Hispanics

Hispanics are at a higher risk for many eye health issues.

Age-Related Macular Degeneration (AMD) – Approximately one in 10 Hispanics is at risk for developing advanced AMD – a disease that destroys sharp, central vision. Extended exposure to UV rays is a risk factor.²¹

Cataracts – Among Hispanics, cataracts are three times more common vs. Caucasians and African Americans. The disease is the leading cause of visual impairment among Hispanic adults. Extended exposure to UV rays is a risk factor.²²



Glaucoma – Among Hispanics, open-angle glaucoma – caused by rising pressure in the eye – is the most common cause of blindness.²³

Hispanics are also affected by several overall health issues, which can impact their eye health:

Diabetes – As many as 95 percent of Hispanics with diabetes have preventable, type 2 diabetes, which can be detected through an eye exam. Type 2 can lead to many problems throughout the body and eye.²⁴ One in 10 Hispanics has diabetes, which is three times the rate of the general population.²⁵

Hypertension (High Blood Pressure) – Roughly 29 percent of Hispanics are affected by high blood pressure. It can lead to hypertensive retinopathy, which causes blurry vision and even blindness. High blood pressure can sometimes be detected through an eye exam.²⁶

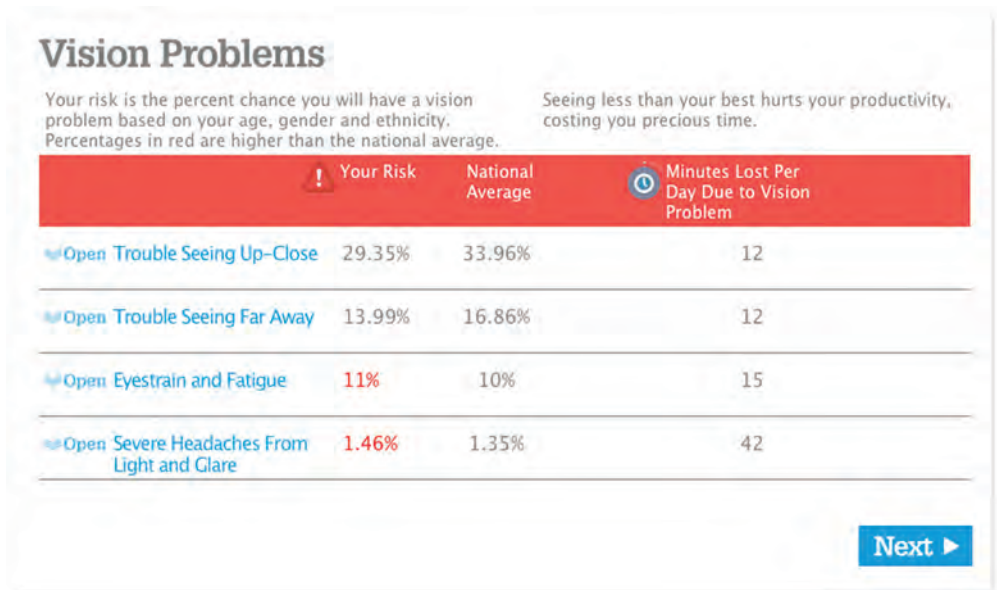
Other

Those with varied ethnic backgrounds can be at risk for a number of eye and overall health issues that can impact vision, and are at increasing risk depending on their lifestyle and gender, and as they age.

Health Insurance

Whether you have health insurance can have a big impact on how much you'll pay in medical expenses if you develop an eye disease.

The calculator considers this when computing how much money you could save with proper vision care and vision wear through your vision benefit.



If you do not have health insurance, the calculator assumes you will pay your full medical costs yourself.

Obviously, if you have health insurance, you will pay less out of your pocket on medical expenses. But, even with health insurance, people usually still pay close to 20 percent of their medical bills themselves.²⁷ The calculator assumes that users with health insurance will pay 20 percent of any medical costs they'd be likely to incur due to vision-related health issues.

Bottom line – early treatment and prevention of eye diseases – and overall health problems that can be detected through an eye exam – will help you save more of your hard-earned money

Putting Your Risk in Perspective

To help consumers using the Healthy Sight Calculator understand how their risk compares to that of others, an “Overview of Your Risk” section lists all the vision conditions explored in the calculator and highlights conditions in red if that individual’s percent chance of having the condition is higher than the national average.

Percent of Americans with Conditions Potentially Impacted by a Premium Vision Plan²⁸

Vision Problems		Eye Disease		Overall Health Issues (That Can Be Diagnosed Through an Eye Exam)	
Trouble Seeing Up-Close	33.96%	Cataract	12.08%	Prediabetes	1.04%
Trouble Seeing Far Away	16.86%	Diabetic Retinopathy	1.83%	Undiagnosed High Blood Pressure	5.94%
Eyestrain and Fatigue	10%	Elevated Intraocular Pressure	8.54%		
Severe Headaches From Light and Glare	1.35%	Glaucoma	4.27%		
		Macular Degeneration	4.26%		

The calculator then provides more detail for each condition, showing the user's risk based on the age, gender and ethnicity entered, and the national average for comparison.

The All-Too-Common Cost of Vision Problems

The toll of vision problems on Americans today is much higher than most people would expect. And much of it can be avoided with preventative eye care and eyewear through a vision benefit.

The calculator considers costs in three areas: time, money and sight. Consider that:

- Seeing less than your best could hurt your productivity, costing you precious **time** and keep you from doing the things you enjoy.
- An eye exam can detect many vision and overall health problems early enough to better treat or even stop them – and keep more **money** in your wallet.
- 50 percent of vision loss can be prevented with an eye exam, preserving your **sight**, and helping you protect your most valued sense.

For each vision-related condition shared in the calculator, documented time and money savings are assigned where research is available. Additionally, a simulation is included for most conditions demonstrating what loss of sight could be like, reinforcing that the biggest cost of all is really not able to be calculated. For each vision-related issue, a "Learn More" section can be accessed for additional information.

Vision Problems and Productivity

If you can't see well, it's hard to work well.

There are a number of studies that show how poor vision leads to poor performance, draining productivity and robbing you of much-needed time in your day. Whether your eyeglass lens prescription is slightly off, or you are suffering from eyestrain and fatigue, or even headaches, these vision-related issues can cost you big time.

The calculator reviews the ability of an eye exam and proper vision wear to impact four common vision problems:

- Trouble Seeing Up-Close
- Trouble Seeing Far Away
- Eyestrain and Fatigue
- Severe Headaches From Light and Glare

Eye Diseases

Your risk is the percent chance you will have an eye disease based on your age, gender and ethnicity. Percentages in red are higher than the national average. Eye diseases cost more to treat the longer you wait.

	Your Risk	National Average	Medical Costs Per Year Without Early Intervention
Close Cataracts	1.69%	12.08%	\$ 770.00

You probably know, or have heard of someone having cataracts. More than 12% of the U.S. population reports having this disease.

A cataract is a clouding of the eye's lens. A cataract can develop in one or both eyes, slowly or rapidly, but will eventually interfere with vision to some degree. It usually develops with age — although there are other kinds of cataracts — and is most commonly treated with surgery.

Risk factors include family history of cataracts, medical problems like diabetes, other eye diseases, use of certain medications (like steroids), and smoking and alcohol use. Exposure to the sun's harmful UV rays can contribute to the

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Trouble Seeing Up-Close and Far Away

A surprising 34 percent of Americans report trouble seeing up-close and 17 percent have trouble seeing far away, even while wearing prescription eyeglasses or contacts to correct their vision.²⁸ This is according to how people responded to the following questions posed by the CDC in its annual health survey: "How much difficulty, if any, do you have reading print in newspaper, magazine, recipe, menu, or numbers on the telephone?" (34 percent said they had at least some difficulty.) "How much difficulty, if any, do you have in recognizing a friend across the street?" (17 percent said they had at least some difficulty.)

More than four out of five adults need some kind of vision correction in their lifetime. Earlier in life vision correction can help with trouble seeing up-close (due to hyperopia or farsightedness), trouble seeing far away (due to myopia or nearsightedness), general blurriness (due to astigmatism) or a combination of any of these. And, just about everyone will have trouble seeing up-close after age 40, when a condition known as presbyopia causes the lens of the eye to lose its ability to focus as well as in the past.

Proper vision correction with eyeglasses or contacts fixes these problems. But many people have eyewear prescriptions that are out-of-date, so they still have trouble seeing up-close or far away even while wearing eyewear. Other people may not realize they are seeing poorly, because they've never worn eyeglasses, and haven't had their vision checked.

A surprising 34 percent of Americans report trouble seeing up-close and 17 percent have trouble seeing far away, even while wearing prescription eyeglasses or contacts to correct their vision.²⁸

Research shows that having even a slight problem with your vision can reduce your productivity by at least 2.5 percent,²⁹ which can mean a loss of up to 12 minutes per day (based on an eight-hour work day)! The calculator assumes people with a premium vision plan will see their eye doctor regularly and be wearing an up-to-date eyeglass prescription if vision correction is needed, helping potentially save them 12 minutes per day by avoiding trouble seeing up-close or far away. In other words, getting your vision checked and wearing the right eyewear can increase your productivity at work and provide you more time to do the things you enjoy.



Vision simulation in glaring conditions

Eyestrain and Fatigue

Approximately 10 percent of Americans say they have problems with eyestrain and fatigue,³⁰ which is caused by intense focusing of the eyes. This can occur when reading up-close or working on a computer for an extended period of time. It can also happen when the eye tries to adjust to glare or bright light outdoors. If not fixed, muscle fatigue from straining the eyes can cause blurred vision, and squinting to overcome this can cause headaches.

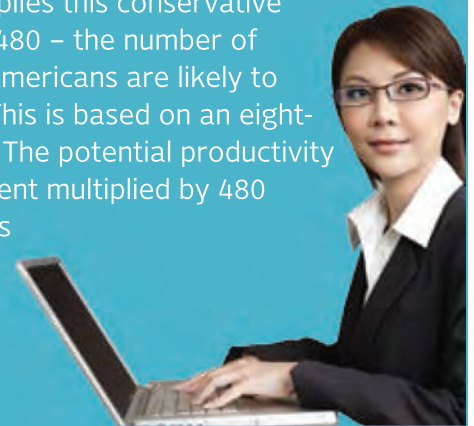
Workers notice the impact of eyestrain and fatigue on the job. Eyestrain is the #1-complaint of all workers,³¹ and 80 percent of Americans agree that glare and bright light outdoors affect eyesight.³² Research shows that employees could save as much as 15 minutes per day by avoiding eye focusing problems.³³ Assuming 240 possible workdays (52 weeks per year times 5 workdays minus 20 days for paid time off and holidays), that adds up to 7.5 workdays per year! The calculator assumes you could save this time simply by wearing the right eyewear to reduce eyestrain and fatigue.

Several glare-blocking options are available, so you can see better and save time on and off the job. Photochromic Transitions® lenses, for example, are as clear as regular lenses indoors and adapt their darkness outdoors to reduce glare and enhance vision. Anti-reflective coatings reduce reflections on the surface of eyeglass lenses so you can see more clearly and others can see your eyes. Many vision plans are now covering options like these.

Research Spotlight: Poor Vision and Productivity

A study conducted at the University of Alabama measured the impact of computer workers wearing the right eyeglass lens prescription on their productivity. It found that miscorrected vision – even so slight that a worker may not have noticed – can reduce productivity by up to 20 percent.²⁸ Because an employee’s productivity is impacted by a range of factors, the study suggests 2.5 percent as a more conservative estimate for productivity increase with the most accurate prescription.

To determine how much time you could save if you avoided problems seeing up close or far away, the calculator multiplies this conservative percentage by 480 – the number of minutes most Americans are likely to work per day. This is based on an eight-hour work day. The potential productivity loss of 2.5 percent multiplied by 480 minutes equates to 12 minutes per day!



Headaches

Almost everyone experiences headaches, which can be distracting and outright debilitating – leading to missed work and difficulties concentrating on the job. Of those who report headaches, nearly one in four cite glare or light as a main cause (22 percent of men, 27 percent of women).³² Of all headaches, 5.4 percent are severe enough to cause productivity loss (3.5 hours per week) at work, according to a study published in the Journal of the American Medical Association.³³ Considering this, the calculator assumes that 1.19 percent of men and 1.46 percent of women suffer from severe headaches from light and glare.

The calculator also assumes that this time lost could be regained if the headaches were avoided by wearing eyewear that reduces glare and minimizes the impact of bright light. That could mean a savings of 42 minutes a day (assuming 3.5 hours per week divided by 5 days a week times 60 minutes per hour)!

Of those who report headaches, nearly one in four cite glare or light as a main cause.³²

While 90 percent of employees say headaches affect their work performance, only 33 percent tell their employers,³⁵ so it is likely a much bigger issue than most employers realize. Headaches cost the nation \$17 billion dollars in absenteeism, lost productivity and medical expenses, according to the National Headache Foundation.

Eye Disease and Medical Savings From Early Detection

Adult eye diseases can lead to serious vision loss, high medical costs and lost productivity. Comprehensive eye exams can help detect these diseases in their early stages. Since several eye diseases can progress before changes in vision are noticeable, it is important to see your eye doctor regularly – not just when experiencing a vision problem. By that time, it could be too late to reverse damage.

Eye diseases are on the rise – especially among the aging population – but regular eye exams and protective eyewear can help reduce the chance of severe vision loss and the steep costs that go with it. Certain ethnicities and women also experience eye disease at a higher rate.

The calculator reviews the ability of an eye exam and proper vision wear to impact the four most common eye diseases (and a pre-condition to one of these):

- Cataracts
- Diabetic Retinopathy
- Elevated Intraocular Pressure (IOP)
- Glaucoma
- Macular Degeneration

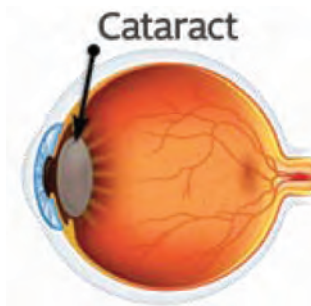
Cataracts

More than 12 percent of the U.S. population reports having cataract, which is a clouding of the eye’s lens. A cataract can develop in one or both eyes, slowly or rapidly, but will eventually interfere with vision to some degree. It usually develops with age – although there are other kinds of cataracts – and is most commonly treated with surgery.



Vision simulation with cataract

Risk factors include family history of cataracts, medical problems like diabetes, other eye diseases, use of certain medications (like steroids), and smoking and alcohol use.



Fortunately, you and your eye doctor can take steps to avoid or delay cataract development, as well as to monitor and treat the disease if you do develop it.

Research published in a Bulletin of the World Health Organization shows that proper

treatment of cataracts (through the right surgery) can reduce medical costs by \$770 per year³⁶. The calculator assumes that people with a premium vision benefit will visit their eye doctor regularly, ensuring they are advised on the best treatment options, so they can see this savings in medical costs.

Your eye doctor can also ensure that you are wearing the best eyewear to protect your vision and see your best. Exposure to the sun’s harmful ultraviolet (UV) rays can contribute to the development of cataract, making UV-blocking eyewear especially important for those at risk. And people with cataract are often more sensitive to light and glare, so may benefit from Transitions® lenses or anti-reflective coatings to reduce distracting glare and enhance vision.

Diabetic Retinopathy

25.8 million children and adults in the United States have diabetes.³⁷ Diabetic retinopathy is the most common eye disease associated with diabetes and a leading cause of new cases of blindness in American adults aged 20-74.



Vision simulation with diabetic retinopathy

When you have diabetes, your body does not use and store sugar properly. High sugar levels can cause damage throughout the body, including in your eyes.

Blood vessels in the back of the eye can swell or leak, interfering with vision, and damaging the lightsensitive tissue at the back of the eye (retina).

Diabetic retinopathy can lead to serious vision loss without the proper treatment. Fortunately, your eye doctor can recommend



The American Diabetes Association estimates that 15 percent of all diabetes-related healthcare costs are associated with the eye.³⁸

steps to avoid diabetic retinopathy, as well as to monitor and treat the disease if you do develop it.

Many people with early diabetic retinopathy have no symptoms before major bleeding occurs.

This is why everyone at risk for or with diabetes should have regular, comprehensive eye exams.

Having diabetes can also make people more susceptible to UV damage and more sensitive to light and glare, so your eyecare professional may recommend UV and glare-blocking eyewear, like Transitions® lenses.

The American Diabetes Association estimates that 15 percent of all diabetes-related healthcare costs are associated with the eye.³⁸ This means significant savings are possible by avoiding diseases like diabetic retinopathy. The calculator assumes that people with premium level vision insurance will be seeing their eye doctor regularly and will be advised on steps to take to avoid diabetic retinopathy, helping them avoid its steep medical costs.

Health-related costs of having diabetes were pulled from the U.S. Agency for Healthcare Research and Quality Medical Expenditure Panel Survey (MEPS),³⁹ and were specific to age. They encompass institutional care (hospital inpatient, nursing/residential facility), outpatient care (physician's office, emergency department, ambulance services, hospital outpatient, home health, hospice, podiatry) and outpatient medications and supplies (insulin, diabetic supplies, oral agents, retail prescriptions, other equipment and supplies). These costs were multiplied by 15 percent to represent potential costs for diabetic retinopathy.

Elevated Intraocular Pressure

Around 8.5 percent of Americans likely have elevated intraocular pressure, which puts them at risk for developing glaucoma, an eye disease that can slowly destroy side vision.

Risk factors are the same as those for glaucoma, and include older age – although younger adults can get it, too – ethnicity (African Americans and Hispanics are at higher risk), medical steroid use and having a condition like diabetes or high blood pressure.

The condition can be detected through routine tests performed during an eye exam – making regular check-ups very important. With treatment as simple as eye drops, pressure can be kept from increasing and leading to glaucoma, avoiding associated medical costs.

Medications used to treat elevated intraocular pressure can make people more sensitive to light and glare. Plus, exposure to the sun's rays can contribute to other eye diseases, so your eyecare professional may recommend UV and glare-blocking eyewear to protect your vision.

The calculator assumes that access to proper care through a premium vision benefit will allow you to avoid all glaucoma-related healthcare costs, except prescription drugs.

Healthcare costs associated with glaucoma were pulled from the MEPS and were specific to age. They encompass hospital outpatient and stays, emergency room visits, home health and "any service," but not prescription drugs, since these may still be necessary to keep pressure in check.

Glaucoma

Glaucoma occurs when pressure builds up inside the eye, keeping blood from reaching the optic nerve and damaging this part of the eye. Over time, glaucoma causes side vision to disappear, creating a tunnel effect. Without treatment, this vision loss becomes worse, and can lead to blindness.

Risk factors for developing glaucoma include older age – although younger adults can get it, too – ethnicity (African Americans and Hispanics are at higher risk), medical steroid use and having a condition like diabetes or high blood pressure.



Vision simulation with glaucoma

Because of the aging population, glaucoma is expected to increase sharply. By 2020, it is likely to affect 60 percent more Americans than it does today.⁴⁰ While it tends to impact older Americans more often than the young, young adults can get glaucoma, too. African Americans in particular are susceptible at a younger age, according to the Glaucoma Research Foundation.

People usually have no symptoms at first, which is why regular eye exams are so important. There is currently no cure for glaucoma, but – if you do develop it – you and your doctor can take steps to slow or prevent vision loss with regular checkups and proper treatment, which can be as simple as eye drops. Plus, research shows that earlier treatment can lead to medical savings of \$864 a year.⁴¹

Macular Degeneration

A little more than 4 percent of Americans report having macular degeneration, or age-related macular degeneration (AMD).⁴² This disease is a leading cause of vision loss in Americans age 60 and older, and the leading cause of blindness in America.⁴³



Vision simulation with age-related macular degeneration

AMD destroys sharp, central vision, which is needed to see fine details and do tasks such as reading, driving and recognizing faces.

AMD is more common in people who are female, Caucasian, older and have a lighter eye color or family history of AMD. Smoking, taking certain medications like steroids, and having high blood pressure or diabetes increase your risk as well.



The disease is painless and usually develops slowly in one or both eyes, so people don't notice much change in their vision at first. Fortunately, comprehensive eye exams can detect the condition before it causes vision loss. Treatment can slow vision loss, although it cannot restore vision.

Exposure to the sun's harmful ultraviolet (UV) rays can also contribute to the development of AMD, making UV-blocking eyewear especially important for those at risk. Plus, people with AMD are often more sensitive to light and glare, so may benefit from Transitions® lenses or anti-reflective coatings to reduce distracting glare and enhance vision.

The calculator assumes that people with a premium vision benefit are seeing their eye doctor regularly, so getting the early screenings they need to see these costs savings. A United Kingdom study examining the cost-effectiveness of AMD screening showed that screening beginning at age 60 resulted in an average cost saving of \$48/year (costs presented in international dollars so no conversion necessary).⁴⁴ If the first screening was done at age 50, the savings were \$76. The calculator assumes that the savings would be the same (if not more) if the disease is detected at an earlier age as well.

Overall Health Savings Possible Through Early Detection

Some people say the eyes are the window to the soul. Eyecare professionals would say they are a window to your overall health.

An eye doctor can tell a lot about the health of your body from looking in your eyes, and can even see signs of many serious health issues. Americans are more likely to see their eyecare professional than their general health care provider for a physical,⁴⁵ so eye doctors may be the first health professional to detect several serious conditions.

Early disease detection through an eye exam can lead to prevention or earlier treatment to help reduce medical costs and productivity loss down the road.

The calculator reviews the ability of an eye exam to impact two overall health issues:

- Prediabetes
- Undiagnosed High Blood Pressure

Prediabetes

Before developing type 2 diabetes, people almost always have prediabetes. Prediabetes is when a person's blood glucose levels are higher than normal, but not high enough to for a diabetes diagnosis.

There are 57 million people in the United States who have prediabetes.⁴⁶ The good news is that people with prediabetes can take steps to prevent type 2 diabetes.

Early detection is key, and since blurred vision is one of the first signs of diabetes, your eye doctor may be the first health professional to see you while you're still in the "prediabetic" state – and can take steps to keep the disease from progressing.

Without intervention, diabetes can have a serious impact on many areas of the body, and have staggering medical costs. The calculator assumes that people with a premium vision plan are able to achieve early detection and prevent developing fullblown diabetes and the medical costs and productivity loss that comes with it. Healthcare savings referenced in the calculator are based on age-specific data from the MEPS. They encompass institutional care (hospital inpatient, nursing/residential facility), outpatient care (physician's office, emergency department, ambulance services, hospital outpatient, home health, hospice, podiatry) and outpatient medications and supplies (insulin, diabetic supplies, oral agents, retail prescriptions, other equipment and supplies).

Productivity loss totals were pulled from an American Diabetes Association study.⁴⁷

Undiagnosed and Diagnosed High Blood Pressure

Nearly 6 percent of the U.S. population has undiagnosed high blood pressure, with another 28 percent having high blood pressure itself.

Without intervention, high blood pressure can have a serious impact on many areas of the body and can lead to hefty medical costs.

For example, high blood pressure can contribute to the development of heart disease. Hypertension, with its complications of stroke and heart attack, accounts for Americans losing 52 million workdays each year.⁴⁸

Among its effects on the eye, high blood pressure can lead to bleeding, blurred vision, eye damage (the eye disease hypertensive retinopathy) and even blindness.

Fortunately, eye doctors can see signs of high blood pressure in the eye by observing the thickening of blood vessels there, and looking for other signs of damage.

Early detection through an eye exam and taking steps to prevent the worsening of high blood pressure can impact your well-being, and also your wallet, through potential healthcare savings.

The calculator assumes that those with a premium vision benefit with undiagnosed high blood pressure could be diagnosed and therefore better manage the disease, which would help them avoid the most extreme health-related costs (emergency room visits), as well as associated lost time. The calculator references data on the cost of high blood pressure-related emergency room costs from the MEPS⁴⁹ specific to age.

To determine the impact of proper high blood pressure management on your time, the calculator uses information from an American Health and Drug Benefits study,⁵⁰ which reported that employers gained 0.5 days of productivity per four-week period (or six days per year) if an employee properly managed his or her high blood pressure.

What Now?

The calculator concludes with a summary of risk and savings possible with proper vision care and vision wear through a vision benefit. A list of next steps is provided for easy reference based on each person's results. While some advice is specific to certain conditions, all people are encouraged to take advantage of their vision plan and explore the following:

Among its effects on the eye, high blood pressure can lead to bleeding, blurred vision, eye damage (the eye disease hypertensive retinopathy) and even blindness.

- A comprehensive, yearly eye exam, which will help ensure an up-to-date eyeglass prescription, and also serve as a way to detect potential eye and systemic diseases – before they become a health care burden. The exam should cover pupil dilation to give the eye doctor a clear view of the back of the eye, where signs of disease may be present.



- Eyewear options for optimal vision and protection.

These lens enhancements help alleviate problems such as eyestrain, fatigue and headaches that are addressed in the calculator and can lead to reduced productivity and lost time. For example, Transitions® lenses with anti-reflective coatings can minimize glare and reflections, helping to reduce eyestrain and fatigue, and resulting headaches. In an office, anti-reflective coatings can help eliminate reflections from office lighting, an important option considering that nearly 90 percent of those who spend three hours or more per day working at a computer suffer from vision problems associated with eyestrain.⁵¹ Outdoors, Transitions lenses also offer protection from damaging UV rays, which can lead to serious eye problems such as cataract and macular degeneration.



A premium vision benefit that includes an annual eye exam and discounts on vision wear can give you access to the vision care and vision wear you need to reduce medical costs, increase your productivity and see your best throughout life.

If you haven't already taken advantage of your vision plan, talk to your human resources manager about options available to you at your workplace. If you're already enrolled in your plan, make sure you are familiar with the details of your coverage. Find out how often you can receive an eye exam and what types of eyewear and lens enhancements – like Transitions lenses – may be available to you at no cost or at discounted rates.

Remember, if you can't see well, you can't perform well. Take advantage of your vision benefit. You could save time, money and maybe even your sight as a result!

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The Healthy Sight Calculator, contact
HealthySightCalculator@Transitions.com

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