You and Your Vision Health

Yes! Something More Can Be Done
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You and Your Vision Health: Yes! Something More Can Be Done

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Introduction

This guide is intended for all Canadians who want to learn about vision health and the leading causes of age-related vision loss. It also aims to reduce some common feelings of frustration, anxiety, fear and sadness frequently experienced by people who are learning to deal with vision loss. The guide can also be used by family members, friends and health-care providers.

There are proactive steps you can take if you are diagnosed with vision loss. You can maintain your independence and achieve a good quality of life by making simple adaptations, learning new techniques and consulting with professionals. The resources you need are available through your eye doctor and vision support service organizations.

In this guide you’ll learn:
- How the eye functions.
- Symptoms, risk factors and treatment options for age-related eye conditions.
- How to talk to your eye doctor to better manage your vision health.
- How you might benefit from vision rehabilitation and other vision support services.
- How to find useful low vision aids.
- How to arrange your home to increase independence.
- How family members, friends and health-care professionals can be inclusive while minimizing over-protectiveness.
- Where to go for more information.
Introduction

Lillie’s Story
I have been diagnosed with AMD in both eyes. I did not know that I could receive supportive services prior to losing all my sight. It's a shame that seven years ago when I was diagnosed, I was not told about these services or the various other vision services available to me. You can imagine my reaction when I was told, “you're going blind, and I can't do anything about it.”

Consequently, I did my own research and have made dietary and other lifestyle changes as a result. For example, I protect my eyes and don't go anywhere without sunglasses. Today, I still have vision in both eyes and continue to work full-time using computers and doing all sorts of paperwork.

Maybe this guide will raise awareness about how to be compassionate and helpful. Thank you for doing this project.
While vision loss affects Canadians of all ages, it is highest among older people and is increasing every year. The number of seniors with vision loss is expected to more than double in the next 25 years.

Dealing with vision loss can be very difficult, and when people have one or more other health issues, it can be even more challenging. Many elderly people have problems with mobility, agility, hearing, speech and memory. They may need extra support, resources and time to learn to adapt to vision loss.

Is vision loss inevitable?
Although there are certain eye conditions associated with age, vision loss is usually not a natural part of aging. Often people develop eye disease when they age as a result of several risk factors, some of which are preventable. There is a difference between the natural aging of our eyes and the development of vision loss as a result of other factors.

The Importance of Eye Examinations
If you think you are experiencing changes in your vision, an eye examination is the best way to know if the changes you are noticing are a normal part of the aging process or are connected to a more serious eye condition. Vision changes may also be the first signs of a more serious health problem. Your eye doctor can provide you with early diagnosis and treatment options that may prevent future vision loss, so it is important to get examined as soon as you are aware of any change in your vision.
You should also receive eye examinations on a regular basis, because many eye conditions can be present without symptoms and can progress to irreversible vision loss without you noticing it. Early detection can literally save your sight. Speak to your eye doctor about how often you should have eye examinations based on your medical and family history.

Make an appointment with your eye doctor if you:

- Notice an increased sensitivity to light and glare. Do you find yourself squinting more frequently?
- Have difficulty distinguishing colours. Do you often have difficulty matching clothes such as socks?
- Misjudge distances. Do you spill food or drinks because you are not sure where they really are?
- Find you have difficulty seeing printed material. Do you find it hard to copy information from written texts?
- Are feeling clumsy. Do you bump into things and people, have difficulty threading a needle or have trouble finding food on your plate?
- Are tripping or falling. Do you miss steps or trip on objects because you cannot see them on the floor?
- Have blurred vision or have trouble distinguishing objects from each other. Do you have difficulty seeing at night?
- Experience difficulty driving. Do you make mistakes such as missing streets or traffic signs? Do you only feel comfortable driving at certain times of the day?
- See flashes of light and flickering in your side vision or experience uncontrollable eye movement.
Useful Terminology

Here are some terms you may hear in connection with your vision health care.

There are some eye conditions that can be corrected with glasses or contact lenses. These are called **refractive errors**. Refractive errors include three treatable eye conditions in which the eye has difficulty focusing light onto the retina.

- **Nearsightedness (myopia):** Images are focused so they fall in front of the retina instead of right on it.
- **Farsightedness (hyperopia):** Images are focused so they fall behind the retina instead of right on it.
- **Astigmatism:** An irregularly shaped cornea (the outer transparent layer of the eye) focuses the light rays into more than one point causing image distortion.

**Presbyopia:** As we get older the lenses inside our eyes become less flexible and less able to bend and focus light. As a result, close-up tasks such as reading and sewing will become more difficult.

These four eye conditions are usually correctable with glasses or contact lenses.

Uncorrectable Vision Loss

Uncorrectable vision loss refers to sight that cannot be restored with glasses, contact lenses, medication or surgery. It is more commonly found in older people; however it affects people of all ages. The causes of vision loss vary and the reasons for the progression of some eye conditions are unknown. People with uncorrectable vision loss are usually still able to see and may or may not wear glasses.
Low Vision

Low vision is a term used to describe vision that is reduced such that it affects the ability to perform everyday activities. For example, a person with low vision might struggle to read the newspaper, even with their glasses on.

Some people with low vision may have difficulty with glare or contrast, or with reading, writing, getting around their communities or using household appliances. Consequently, many people with low vision benefit from the use of vision aids such as: audio books, improved task lighting, magnifiers and computer adaptive software. See Section 6: Staying Independent for more details.
Legal Blindness

Ninety per cent of people who are legally blind retain some useful vision. The definition of legal blindness is a cut off point for government programs and services, and differs from one country to another.

Normal vision is defined as 20/20. In Canada, legal blindness is defined as a visual acuity that does not exceed 20/200 in the better eye even with correcting lenses (20/200 means that a person must be 20 feet from an eye chart to see what a person with normal vision can see at 200 feet) or a visual field extent of less than 20 degrees in diameter horizontally.

Did you know?
Did you know that 9 out of 10 people with vision loss have some usable vision? Many people with vision loss can see people, shapes and objects very close to them or can read words and signs if they are very large. Sometimes it is not obvious that someone has low vision.
How the Eye Works

To understand any eye condition, it is helpful to have a basic idea of how vision works.

Our eyes function much like a camera. Covering the front of the eye is a transparent layer called the cornea. Light (reflecting from the things we see in the world) passes through the cornea into a dark central opening in the eye called the pupil. The coloured part of the eye is called the iris and automatically adjusts the size of the pupil according to the amount of light that is entering the eye. Our pupils become larger when there is less light available and become smaller when light is brighter.

After light passes through the pupil, it hits the lens, which — acting just like the lens in a camera — focuses the image. Most of the central part of the eye is filled with a fluid called the vitreous gel, so from the lens, the light passes through the vitreous gel to the retina. The retina is a thin layer of tissue lining the back surface of the eye and is made up of rod and cone cells (which together are known as photoreceptors). The retina and photoreceptors are like the film in a camera. The image focused on the retina is inverted (upside down, left becomes right), as it would be on a piece of film. (In photography, the inversion is corrected when a negative is made into an actual print.)

Rod cells are most highly concentrated on the outer edge of the retina, and are responsible for peripheral (side) vision and seeing in low light. Cone cells are most concentrated in a very small central part of the retina called the macula and are responsible for seeing fine details and most colours. Blood vessels within and behind the retina provide the eye with nutrients.
The optic nerve, which consists of thousands of nerve fibers, transforms the light signals on the retina into an electrical signal and then sends this signal to the brain. The visual cortex, located in the brain at the back of the head, then processes and interprets the image. It also fixes the inversion of the image so we see it “right side up.”
**Medical Conditions Causing Age-Related Vision Loss**

**AGE-RELATED MACULAR DEGENERATION (AMD)**

**Gwendolyn’s Story**
At the age of 71, Gwendolyn began to notice her vision was changing. “A road would look like it was hilly when in fact it was straight and things like the edge of the stove or a painting would look like they were wavy,” she says.

After being diagnosed with wet AMD, Gwendolyn’s vision loss progressed rapidly and soon she had to give up driving and reading, two activities that had been very important to her. She became depressed, but with some urging from family and friends, Gwendolyn sought help.

While receiving medical treatment for her condition, Gwendolyn also contacted vision support services in her area. She received a low vision assessment, acquired appropriate low vision aids, learned how to use a white cane to get around, and gained skills to label and identify objects in her house. She joined the CNIB Library and began reading again using audio books. She also joined a support group for people with vision loss and started enjoying life once more.
AMD Basics

Age-related macular degeneration (AMD) is the leading cause of vision loss in Canadians 50 years and older. Nearly one million Canadians have AMD causing some level of vision loss, while 250,000 have an advanced form of this condition.

AMD causes damage to the macula, the central part of the retina responsible for seeing fine details (such as reading print or seeing faces). Vision loss due to AMD is usually permanent and can range from mild to severe. People who have AMD typically have some peripheral vision and almost never lose all vision completely.

Every person with AMD experiences this condition differently. The early stages of vision loss may not be noticeable. Moreover, if only one eye is affected, it may be almost impossible to notice the visual symptoms.

It is not known what causes AMD or why it progresses to the later stages. However, there are treatments available to slow down the degenerative process.
Types of AMD

There are two types of AMD: dry and wet. Dry AMD accounts for 90 per cent of all AMD cases but the wet form accounts for most of the severe vision loss caused by AMD.

Dry AMD

AMD generally starts out as the dry form of the disease. With dry AMD, vision loss occurs slowly, usually over a number of years. It may cause little or no visual symptoms until it is more advanced. However, vision may suddenly worsen (progressing to wet AMD) without warning. Or it may remain the same and never get any worse. In this sense dry AMD is unpredictable and should be carefully monitored by your eye doctor.

Dry AMD occurs when the layer of cells beneath the retina (called the retinal pigment epithelium) begins to age and thin. One of the most common early medical signs of dry AMD is the presence of small yellow-white deposits called drusen, which accumulate under the retina. These deposits may affect the overlying retina, particularly the light-sensitive cells in the macula.

The presence of drusen does not necessarily indicate someone will develop AMD. In fact, a harmless type of drusen is often found in people over age 60.

Dry AMD has three stages:

**Early:** The central vision is similar to those without AMD. The eyes may have some small drusen. At this stage, there is a low risk (1.3 per cent) of progressing to advanced dry AMD.
**Intermediate:** Near and distance vision is affected, and a person may have a blind spot or blurring to some degree in the central vision. People with intermediate dry AMD are likely to have many medium-sized drusen, or one or more large drusen. After five years with intermediate dry AMD, the risk of progressing toward the advanced stage is 18 per cent. For people with large drusen in both eyes, the risk of developing advanced AMD is even greater.

**Advanced:** At the advanced stage, the photoreceptor cells in the macula completely lose their ability to function. There is a definite blurred or blank spot in the central vision. Over time, vision will worsen and a person will have difficulty reading or recognizing faces. Up to 43 per cent of people in this stage of dry AMD will progress to wet AMD, the more aggressive form of the disease.

**Wet AMD**

In wet AMD vision loss occurs rapidly, sometimes within months or even weeks. However, with early detection and treatment, further vision loss may be prevented. This is why it is important to contact your eye doctor immediately if you notice any changes in your vision.

Wet AMD (also known as choroidal neovascularization or CNV) involves the spontaneous growth of abnormal blood vessels below the retina, which break into the macula, leaking blood and fluid. Photoreceptors in the macula become damaged, resulting in central blind spots and blurred vision. Once wet AMD is detected in one eye the chance of developing it in the other eye greatly increases.
Medical Conditions Causing Age-Related Vision Loss

**Symptoms**

Although the condition affects everyone a bit differently, generally, people with AMD experience central vision that is blurred with a growing central blind spot. They may also notice a decreased ability to distinguish colour contrast, especially under poor lighting or distorted vision, which includes images fading or running together. Both near (close) vision and distance vision may be unclear or blurry.

**Some signs of AMD include:**
- Having difficulty adjusting to changes in lighting, such as coming in from outside on a bright day.
- Having difficulty matching clothes.
- Seeing the outline of a clock but having difficulty seeing the numbers or hands.
- Being able to see the edges of a book, but having difficulty seeing words on a page.
- Difficulty recognizing faces.
- Seeing the outline of a building but no doors or windows.
- In wet AMD words on a page seem to be arranged in wavy lines or straight objects such as the side of a building appear crooked.

If you notice any of these symptoms, contact your eye doctor immediately.

**Risk Factors and Prevention**

Although researchers do not have a definitive picture of what causes AMD, they have identified a number of factors that may put a person at greater risk for the disease.
Risk Factors

- **Age:** The older you are, the greater your chances of developing AMD.
- **Family history:** Your risk increases significantly if your parents, grandparents or siblings have AMD.
- **Ethnicity:** If you are Caucasian you are more likely to develop AMD.
- **Smoking:** Primary and second-hand smoke from cigarettes is a major risk factor for AMD. If you smoke you are up to three to four times more likely to develop AMD. For those who have AMD, up to 20 per cent of vision loss may be avoided if you quit.
- **Poor diet:** Research has shown that a diet high in fats and low in nutrients (such as those found in fresh vegetables) may increase the risk of developing AMD and that a healthy diet may reduce that risk. For example, high consumption of linoleic acid, monounsaturated, polyunsaturated fats and hydrogenated oils – commonly found in many processed foods – is associated with a higher risk of developing wet AMD. Increase your intake of fish high in omega-3 fatty acids, fresh fruit and dark green leafy vegetables, as they provide nutrients and antioxidants that are healthy for the macula.
- **Excessive sunlight exposure:** Use sunglasses to reduce exposure to the sun’s harmful rays which can damage the retina. Wear a hat with a brim when outside.
- **Obesity:** Have regular physical examinations with your family doctor to monitor your weight and ensure you are not at risk.
AMD and the Importance of Eye Examinations
A key risk factor for AMD is related to eye examinations. The earlier you discover AMD, and the more frequently it is monitored, the better your results in terms of treating the condition. If you have a family history or other risk factors for AMD, ask your eye doctor about how often you should get a checkup.

If you are diagnosed with AMD, it is important to monitor for visual symptoms daily. Notify your eye doctor immediately if there are any changes in your vision. This will increase treatment options and could even save some or most of your vision.

Diagnosis
There are several tests your eye doctor may use to diagnose AMD. None of these tests will harm your vision.

- **Visual acuity test**: The standard measurement of a person’s ability to see, using an eye chart.
- **Dilated eye examination**: Drops are placed into the eye to widen (dilate) the pupils to allow a direct view of the retina. A special magnifying lens is used to examine the retina and the optic nerve for signs of damage.
- **Fluorescein angiogram**: A dye is injected into a vein and then circulates within the eye. Photographs of the retina are taken to see if there are any abnormal blood vessels.
- **Optical coherence tomography (OCT)**: A diagnostic imaging device a doctor can use to aid in the detection of retinal disease.
Another useful tool to detect AMD is the **Amsler Grid**, a test that can be done in a doctor’s office but is also useful for monitoring AMD at home. The Amsler Grid test consists of a grid of evenly spaced horizontal and vertical lines. A small dot is located in the center.

You can find a tear-out Amsler Grid on the last page of this guide. You can also download a copy at www.cnib.ca.
To use the Amsler Grid, place it on your refrigerator, bathroom mirror or in another convenient location.

- Position yourself 12 to 14 inches away (at a comfortable reading distance).
- If you wear glasses, keep them on. If you wear bifocals, use the reading portion of the lens.
- Cover one eye and look at the dot in the center of the grid. Note whether or not there are any distortions or breaks in the lines of the grid. Also note if the centre dot or any of the lines disappear.
- Test the other eye the same way.
- Check the grid daily or as often as recommended by your eye doctor. Notify your doctor if you discover any changes at all in your vision.

**Treatment – Dry AMD**

At present there are no effective treatments for **dry AMD**. With advances in AMD research, however, there is hope for new options in the future.

Although there is no treatment for **dry AMD**, the National Eye Institute’s Age-Related Eye Disease Study (AREDS) found that **ocular vitamins** for people with intermediate dry AMD can lower their risk of developing the advanced form of the condition. A specific high-dose formulation of vitamins was found to be effective in lowering this risk. It is important to note that this vitamin formulation is not the same as a standard multivitamin. If you have dry AMD, speak to your eye doctor to determine if this special supplement may be right for you. If you smoke or take other medication or supplements, let your doctor know before considering this high-dose formulation.
Treatment – Wet AMD

There are treatments available for people with wet AMD to slow down vision loss and in some cases, restore vision. Wet AMD treatments may have costs that are not covered by some provincial health care insurance plans. Ask your doctor about the cost of any treatments you may be considering.

Wet AMD treatments include:

- **Laser photocoagulation therapy:** A thermal laser in specific areas of the retina to stop the growth of abnormal blood vessels. Laser photocoagulation therapy is not very common, as it can cause damage to retinal tissue, leaving permanent blind spots in vision. Additional treatments may be necessary because abnormal blood vessels often grow back.

- **Photodynamic therapy:** A light-activated drug injected intravenously into the arm. A non-thermal laser is used inside the eye to activate the drug, sealing leaking blood vessels without damage to the retina. This therapy slows the degenerative process but may not prevent further vision loss in all people. Typically several treatments are required.

- **Intraocular (anti-VEGF) injections:** Drugs that are injected into the eye to stop the growth of abnormal blood vessels. Many of these drugs show very promising results and some may even improve vision, although a complete return to normal vision is unlikely. Injections must be given every four to six weeks, sometimes for two years or longer.

New treatments for AMD are constantly evolving so it is important to consult regularly with an eye doctor to keep up with developments in this field.
Living with AMD

It is always better to be proactive about your vision care when living with any eye condition. Refer to the suggested list of questions in Section 5: Questions To Ask Your Eye Doctor which will help you when discussing care and treatment.

Living with vision loss can be difficult and it is not uncommon for some people to feel depressed after being diagnosed with an eye condition. However, vision support services are available and they can make a big difference in restoring hope and independence. Please see Section 6: Staying Independent for more details.
GLAUCOMA

Alfred’s Story
During a routine eye examination, Alfred was astonished to learn that he had glaucoma. He had not experienced any symptoms nor did he have any indication something was wrong with his eyes other than a bit of trouble with his peripheral vision, which he attributed to aging.

Fortunately, Alfred’s condition was manageable with drops and other medication, and further loss of vision was prevented. After referral for a low vision assessment, Alfred and his wife talked to a vision rehabilitation specialist about ways to maximize Alfred’s remaining vision and help him to stay safe, active and independent.

Glaucoma Basics

Glaucoma is the second most common cause of vision loss in seniors in Canada. More than 250,000 Canadians have chronic open-angle glaucoma, the most common form of the disease.

Glaucoma involves damage to the optic nerve. Most often this is caused by high pressure inside the eye due to a build up of excess fluid. However, occasionally people with normal eye pressure may also develop glaucoma. High eye pressure is not always a sign that you have glaucoma but may be an indication you are at risk of developing it.

Glaucoma can begin without any symptoms and most people do not know they have it. Over time the disease develops into a loss of peripheral (side) vision. If glaucoma is untreated it could advance to later stages where central vision narrows to “tunnel” vision or it may result in complete loss of vision. Early detection and treatment is essential to prevent severe vision loss or blindness.
Types of Glaucoma

**Primary** types of glaucoma have no known cause, while **secondary glaucoma** is caused by external factors.

**Primary open-angle glaucoma** accounts for about 90 per cent of all cases in Canada. People with this type of glaucoma can initially drive, read and do most of their daily activities, because their vision loss is not obvious until it is too late. This loss of vision cannot be reversed and is permanent. With primary open-angle glaucoma, the normal drainage canals in the eye become blocked, increasing fluid pressure inside the eye. But in a variation called **normal tension glaucoma** (a type of open-angle glaucoma) a person’s vision may worsen even with normal eye pressure.

**Primary acute closed-angle glaucoma** involves a buildup of fluid in the eye because the distance between the iris and the drainage system has been closed, stopping fluid from draining from the eye. This type of glaucoma occurs very suddenly (often in a matter of hours) and is a medical emergency. Severe vision loss can occur if treatment is not sought immediately.
Chronic angle closure glaucoma also involves a narrowing of space between the iris and the drainage system but it occurs much more gradually than in the acute form of the condition (and can take weeks or even years). There are no symptoms other than vision loss.

Secondary glaucoma can result from a variety of other conditions such as an eye injury or inflammation, eye surgery complications, diabetes and the use of certain medications.

Symptoms

Primary open-angle glaucoma and chronic angle closure glaucoma have no symptoms other than eventual vision loss. Vision will appear normal and there is no pain. A person may not be aware they have glaucoma for a long time, despite the fact that their vision is becoming more and more at risk.

Acute closed-angle glaucoma occurs with a sudden onset of symptoms such as severe eye pain, blurred vision, nausea, redness in the eye and haloes around lights. Warnings that this may occur include haloes around lights, blurred vision and mild headaches especially in dim light.

Risk Factors and Prevention

Although researchers do not have a definitive picture of what causes glaucoma, they have identified a number of factors that may put a person at greater risk for developing glaucoma.
Risk Factors

- **Elevated pressure in the eye:** People with higher than average pressure within the eye have an elevated risk of developing glaucoma.
- **Family history:** People with a family history of glaucoma are at a much higher risk for open-angle glaucoma.
- **Age:** It is common to develop glaucoma after age 40 and the risk increases for everyone over the age of 60.
- **Ethnicity:** Open-angle glaucoma is the more common form of glaucoma among people of African descent. Angle closure glaucoma is the more common form of glaucoma among Asians and Inuit people.
- **Myopia:** People who are nearsighted have an increased risk of developing glaucoma.
- **Diabetes:** People with diabetes have an increased risk of developing glaucoma.

Seniors may develop open-angle glaucoma and cataracts around the same time, although there is no relationship between these two conditions.

Because early treatment of glaucoma is essential in preventing vision loss, it is important to have regular eye examinations to monitor for this condition. Speak to your eye doctor about how often you should get your eyes checked for this condition.
There are a few **preventive steps** you can take at home if you have, or are at risk of, glaucoma, to try to keep the pressure in your eyes from building up:

- Do not drink fluids excessively (more than eight glasses a day).
- Do not wear tight collars or ties.
- Avoid standing on your head (for example, in doing exercise such as yoga).
- Consult your eye doctor before beginning any weight-training program.
- Avoid playing wind instruments that you have to blow hard.

### Diagnosis

Diagnostic tests for glaucoma include:

- **Visual acuity test:** The standard measurement of a person’s ability to see, using an eye chart.
- **Visual field test:** Measures your peripheral vision.
- **Dilated eye examination:** Drops are placed into the eye to widen (dilate) the pupils to allow a direct view of the retina. A special magnifying lens is used to examine the retina and the optic nerve for signs of damage.
- **Tonometry:** A test that measures pressure inside the eye.
- Other tests may include **confocal laser ophthalmoscopy (HRT)**, **optical coherence tomography (OCT)**, **diurnal pressure testing**, **scanning laser polarimetry** and **pachymetry**. Refer to **Appendix B: Definitions** for a brief description of these diagnostic tests.
Treatment

Primary open-angle glaucoma can be treated if detected. Eye pressure is commonly managed with eye drops. Laser treatment or surgery may also be prescribed.

**Eye Drops:** Regular use of prescribed eye drops is very important even if you have no symptoms. *Although keeping to the routine may be challenging, do not forget to take the medication exactly as prescribed to prevent further vision loss.* Create a reminder strategy for taking medication regularly (such as creating regular times of day or posting a large notice on your refrigerator). Eye drops are usually taken several times a day. Side effects may include stinging, burning and redness in the eyes.
To insert eye drops:

- Wash your hands.
- Hold the bottle upside down in one hand and tilt your head back.
- Place the bottle’s dropper as close as possible to your eye without touching it.
- With the other hand, pull your lower eyelid down and slightly away from your eye. Place the prescribed number of drops into the pocket formed between your eye and your lower eyelid. Close your eye for at least one minute to keep the drops in the eye.
- Repeat with the second eye if needed.
- If you have been prescribed two kinds of eye drops, wait at least five minutes after instilling one kind of drop and before instilling the second kind. Otherwise medications will lose their effectiveness.
- **You may wish to practice this procedure with your eye doctor or ophthalmic assistant before leaving the doctor’s office.**

Laser: Argon laser trabeculoplasty (ALT) and selective laser trabeculoplasty (SLT) aim to increase the drainage out of the eye. SLT causes less tissue damage and can be performed more frequently if needed. Laser treatment does not have to be done in a hospital. Side effects may include mild inflammation with soreness or mild blurriness that comes and goes. These symptoms are temporary. If there is glaucoma in both eyes, laser treatments will be scheduled several days or weeks apart. The effects of laser treatment may last a year or more and can wear off over time.
Surgery: Conventional surgery may also be performed if drops and laser surgery are not successful in lowering inner eye pressure. This procedure involves creating a channel for fluid to flow out of the eye or inserting a tube to allow fluid to drain. Surgery must be done in the hospital and each eye is treated separately four to six weeks apart. You will need to take special drops for several weeks before and after surgery to prevent infection and inflammation. These drops are not the same as your eye pressure drops. The surgical procedure is 60 to 80 per cent effective; a second operation may be needed if the new drainage opening closes. Side effects may include slight vision loss, cataracts, corneal problems, shadows in vision, inflammation and infection inside the eye. Complete vision loss from this surgery is very rare but can occur.

Living with Glaucoma

It is always better to be proactive about your vision care when living with any eye condition. Refer to the suggested list of questions in Section 5: Questions For Your Eye Doctor, which will help you when discussing care and treatment.

Living with vision loss can be difficult and it is not uncommon for some people to feel depressed after being diagnosed with an eye condition. However, vision support services are available, and they can make a big difference in restoring hope and helping you get your life back. Please see Section 6: Staying Independent for more details.
Alice’s Story
Alice developed Type 2 diabetes when she was in her mid-20s after giving birth to her second child. Initially she was able to manage the condition through diet alone but eventually she needed medication to keep her symptoms under control.

In her late 40s, Alice noticed her vision was becoming blurry. Her eye doctor told her she had diabetic retinopathy and that she was slowly losing her vision.

Alice credits the support of her family and vision rehabilitation service providers with helping her adjust to vision loss and maintain her good spirits and sense of humor. After a low vision assessment, Alice received assistance to move around her community comfortably and she advises anyone with diabetes to carefully monitor and control blood sugar levels because this can prevent the loss of their vision.

Diabetes and Diabetic Retinopathy Basics
More than 1.5 million Canadians are believed to have diabetes and about half of them don’t know they have it. This number is expected to double by 2016. Diabetes can affect many parts of the body, including blood vessels, nerves, kidneys and the heart – and people with diabetes are at a high risk of developing vision problems.

Diabetes occurs when the body is unable to control the level of sugar (glucose) in the blood because it cannot produce a hormone called insulin. In Type 1 diabetes the body produces little or no insulin, which can be controlled by insulin injections. Type 2 diabetes occurs when the body produces inadequate amounts of insulin or cannot
respond appropriately to it. Type 2 diabetes may be controlled by diet, medication and sometimes exercise.

It is estimated that half a million Canadians have diabetic retinopathy. Many people who have diabetes have some form of this eye condition. In diabetic retinopathy, elevated glucose levels in the blood cause blood vessels in the eye to swell and leak in the retina. New blood vessels may also grow causing further damage.

Without treatment, diabetic retinopathy can advance to uncorrectable vision loss or even blindness, usually in both eyes. With routine eye examinations, it can be detected and treated.

**Types of Diabetic Retinopathy**

There are four stages of diabetic retinopathy, ranging from mild to severe. In the first three stages, vision loss may not be detected.

**Mild nonproliferative retinopathy:** At this stage, tiny blood vessels swell in the retina. Some early leakage may take place.

**Moderate nonproliferative retinopathy:** Some of the blood vessels that feed the retina become blocked. Leaky blood vessels are more likely.
Severe nonproliferative retinopathy: More blood vessels are being blocked and other areas of the retina are not being nourished as a result. Signals are sent to the body to grow new blood vessels.

Proliferative retinopathy: At this advanced stage, new abnormal blood vessels grow ("proliferate") along the retina and the clear, vitreous gel inside the eye. These begin to replace old blood vessels that fed the retina. The abnormal vessels have thin fragile walls that leak easily, causing blurred vision, severe vision loss or blindness. Vision loss can occur quickly at this stage.

The advanced stages of diabetic retinopathy can also increase a person’s vulnerability to developing other eye conditions such as a detached retina or glaucoma.

Macular edema may also occur at any stage of diabetic retinopathy. In this associated condition, blood and fluid leaks into the macula causing it to swell. Macular edema causes vision loss in the central retina, which allows us to see fine detail.

Symptoms

In the early stages of diabetic retinopathy, there are often no symptoms and vision is not affected.

People with macular edema or proliferative retinopathy may notice vision loss from leaking blood blocking the field of vision. Still, even in these advanced states, it is possible to have no symptoms at all even though there is a very high risk of vision loss.
See your eye doctor as soon as possible if you notice:
• Dark spots in your visual field.
• Blurred, distorted or double vision.
• Large “floaters” – specks in the form of dots, circles, lines or cobwebs that move across your field of vision. They are most noticeable when looking at a white wall or clear sky. (These may or may not be a sign of diabetic retinopathy, but should be checked.)

Risk Factors and Prevention

Everyone with diabetes is at risk of developing diabetic retinopathy. The risk increases the longer a person has the disease.

Risk Factors

• **Type of diabetes:** People with Type 1 diabetes are more likely to experience vision loss than those with Type 2 diabetes.
• **High blood sugar:** People with diabetes who do not control their blood sugar are almost eight times more likely to develop diabetic retinopathy. People who have high blood sugar are at risk for serious vision loss and blindness.
• **Blood pressure:** People with diabetes who have high blood pressure and/or high lipid (fat) levels are more likely to have signs of retinopathy.
• **Ethnicity:** Aboriginal Canadians are three to five times more likely than the general population to develop diabetes and are, therefore, at a much higher risk of developing diabetes-related vision problems.
• **Smoking:** Smoking when you have diabetes increases your risk of vision loss. It also increases blood pressure and blood sugar levels, making it harder to control diabetes.
Diagnosis

At the time of diagnosis of diabetes, if you are not already followed by an eye care specialist, ask your family physician for a referral to an eye doctor regarding diabetes monitoring.

Routine eye appointments will reduce the risk of vision loss if you have diabetes. Speak to your eye doctor about how often you should have an eye examination to check for retinopathy and other eye conditions.

Diagnostic tests for eye conditions relating to diabetes include:

- **Visual acuity test**: The standard measurement of a person’s ability to see, using an eye chart.
- **Dilated eye examination**: Drops are placed into the eye to widen (dilate) the pupils to allow a direct view of the retina. A special magnifying lens is used to examine the retina and the optic nerve for signs of damage.
- **Tonometry**: A test that measures pressure inside the eye.
- **Fluorescein angiogram**: A dye is injected into a vein and then circulated within the eye. Photographs are taken of any abnormal blood vessels.
- **Optical coherence tomography (OCT)**: A diagnostic imaging device a doctor can use to aid in the detection of retinal disease.

Treatment

Lost vision from diabetic retinopathy cannot be restored, but with early detection, treatment is often very successful and can prevent your vision from getting any worse.

During the first three stages of retinopathy, a person’s vision is monitored carefully. At these stages, treatment is usually not justified because vision has not yet been affected and some treatments have side effects.
In the fourth stage, proliferative retinopathy is treated by:

- **Scatter laser treatment:** This treatment is more effective before bleeding occurs and works to shrink abnormal blood vessels. Treatment is done in your eye doctor’s office or an eye clinic and consists of a large number of microscopic thermal laser burns in the retina. This treatment may slightly reduce peripheral vision, colour and night vision. Several treatments may be necessary as new blood vessels continue to grow, leaking blood into the eye.

- **Vitrectomy:** If blood has leaked into the centre of the eye, the vitreous gel must be removed. A tiny incision is made in the eye, and the vitreous gel is replaced with a salt solution. After surgery, a person’s eye will be red and feel sensitive. If both eyes need the procedure, each surgery is done separately, several weeks apart. Surgery is done in hospital either as a day procedure or overnight.

- **Intraocular (anti-VEGF) injections:** Drugs that are injected into the eye to stop the growth of abnormal blood vessels. This treatment is currently being tested in clinical trials and shows some promise for the future.

Macular edema treatment is treated by:

- **Focal laser treatment:** This treatment reduces the risk of further vision loss by 50 per cent and may improve vision for a small number of people. A large number of microscopic thermal laser burns are made around the macula, which slows down the leaking blood vessels. This procedure involves a topical anesthetic and is usually performed in your eye doctor’s office or an eye clinic. Permanent blind spots in peripheral vision may occur. Additional treatments may be necessary if abnormal blood vessels grow back.
• **Intraocular anti-inflammatory injections:** This is an injection used to reduce swelling and inflammation inside the eye. This procedure takes about 15 to 20 minutes. In some severe cases several treatments may be required. Side effects may include the development of cataract, glaucoma and, rarely, infection.

In the more advanced stages of diabetic retinopathy, other eye complications may need to be treated, such as a retinal detachment. Ninety per cent of retinal detachment cases can be repaired if they are caught in time. Vision loss may result from retinal detachment treatment, but this depends on how early the treatment occurs, as well as the condition of the macula before surgery.

**Living with Diabetic Retinopathy**

Controlling your blood sugar can help reduce the risk of developing vision loss due to retinopathy. Regular follow up with your family doctor regarding control of your blood sugars, blood pressure and cholesterol plays an essential role in helping to preserve vision.

It is always better to be proactive about your vision care when living with any eye condition. Refer to the suggested list of questions in **Section 5: Questions For Your Eye Doctor**, which will help you when discussing care and treatment.

Living with vision loss can be difficult, and it is not uncommon for some people to feel depressed after being diagnosed with an eye condition. However, vision support services are available, and they can make a big difference in restoring hope and helping you get your life back. Please see **Section 6: Staying Independent** in this guide.
CATARACTS

Kate’s Story
I started having trouble seeing and thought I needed a new prescription for glasses. I didn’t see an eye doctor right away because I was getting used to making minor adaptations that helped me to function better. However, it turned out I had cataracts.

Prior to surgery, I had difficulty distinguishing where stairs started and ended, I couldn’t see traffic light signals, I constantly mixed up actors on TV and shopping mall floor tile patterns looked like stairs or unlevelled ground.

The good news is that I had the cataracts removed from both eyes only one month apart. Both times I noticed a difference within three hours and the surgery was painless. I couldn’t believe the detail I could now see and how colours were much brighter and more brilliant. For example, now I can see traffic lights when I cross the street.

My advice to others is to make an appointment with an eye doctor if you notice changes in your vision.
Cataract Basics

More than 2.5 million Canadians have cataracts and it is estimated that by 2031, almost one-quarter of Canadians over the age of 40 will have cataracts.

There is a common misconception that cataracts “grow” on top of the eye. In fact, cataracts develop within the existing lenses in our eyes. As we age, our lenses naturally harden and may also turn cloudy. A cloudy lens blocks light from reaching the retina and interferes with vision. The effect is similar to looking through a dirty car windshield.

Cataracts may form in one or both eyes, at the same or at different times. Fortunately, cataracts can be removed and vision can be restored.
Symptoms

Cataracts may take years to develop before they affect vision. Depending on the location of the cataract on the lens, you may or may not notice it developing. Cataracts are painless and are usually detected during routine eye examinations.

As the cataract develops, a person may feel more sensitivity to bright light or experience glare and haloes around lights.

People with early stage cataracts may also experience:
- Difficulty seeing details and poor central vision.
- An inability to distinguish colours.
- Difficulty seeing at night.
- An increased need for brighter light for reading.
- Frequent changes to their eyeglass prescription.
- Increased blinking in an attempt to reduce blurred vision.
- Double vision.

In the later stages, people with cataracts may have a yellowish or whitish colour in the pupil.
Risk Factors and Prevention

Regular eye examinations and attention to risk factors can help reduce your risk of developing cataracts.

Risk factors include:
• **Age:** Most cataracts occur with age because of an increased exposure to risk factors over time.
• **Family history:** You are at higher risk if your family members have cataracts.
• **Other health problems:** If you have other medical conditions, such as diabetes, you may be more prone to secondary cataracts.
• **Smoking:** Smoking is a preventable risk factor for cataracts.
• **Drinking alcohol:** Heavy drinking is a known risk factor for the development of cataracts.
• **Excessive sun exposure:** Choose sunglasses that protect your eyes from harmful ultraviolet rays. Wear a hat with a brim when outside.
• **Medications:** Medications such as steroids can cause cataracts in some people.
• **Eye Injury:** Injuries may include a hard blow, puncture, cut, intense heat or chemical burn to the eye.

Diagnosis

Diagnostic tests for cataracts include:
• **Direct observation** with the use of a slit lamp microscope (to look inside your eye).
• **Visual acuity test:** The standard measurement of a person’s ability to see, using an eye chart.
• **Dilated eye examination:** Drops are placed into the eye to widen (dilate) the pupils to allow a direct view of the retina. A special magnifying lens is used to examine the retina and the optic nerve for signs of damage.
Treatment
Cataract surgery is among the most highly perfected, safe and successful procedures in medicine – more than 95 percent of patients have improved vision after surgery. The surgical procedure involves removing the cloudy lens and replacing it with an artificial one.

Because cataracts do not harm vision if left untreated, the decision about when to have surgery is a matter of personal preference. Cataract surgery is usually recommended once a person feels their vision interferes with daily activities such as driving, reading or watching TV.

Surgery is painless and takes about fifteen minutes. However, the procedures before and after surgery usually take two to three hours. If cataracts are present in both eyes, the second eye is likely to be treated at another appointment.

Before Surgery
You and your eye surgeon will select the lens implant that is best for you. There are many options available, including lenses that treat astigmatism or work better for near or far vision.

During Surgery
You can expect the following from the surgical procedure:
- Most cataract operations are performed on an outpatient basis, so you will likely go home the same day.
- Eye drops may be prescribed before and after surgery to reduce eye inflammation and infection.
- Before surgery a nurse will assess you and use drops to dilate your eye.
• You will be awake during surgery and given a local anesthetic to prevent any pain. Most people receive drops or an eye gel as a topical anesthetic. Or you may receive an injection behind the eye that will freeze it and prevent any movement of the eye.
• If you receive a topical anesthetic, your eye doctor may ask you to move your eye during surgery.
• Using an instrument called an ultrasonic phaco probe, the cataract is carefully broken up and removed from the eye.
• Once the cataract has been removed, the new lens is inserted within the same membrane that held your natural lens.

After Surgery

Usually the incision from cataract surgery is so small that it heals rapidly, leaving no visible scar and eliminating the need for sutures (stitches). After surgery, your eye will function normally, unless you receive your anesthetic by injection, in which case your eye will remain frozen for a few hours. Your eye will have a patch on it for protection. You will be able to leave immediately; however you should arrange for a ride home as you will not be able to drive.

A follow up appointment will be scheduled, usually the next day, and at that point the patch is removed. **You will likely notice an improvement in vision immediately and the improvement may continue for a few months.** For some people, the ability to distinguish colours may also improve.

You should not bend or lift anything heavy for up to three weeks after surgery and avoid rubbing or pressing your eye. You can continue to walk, climb stairs and do light household tasks. Most people need prescription glasses following cataract surgery, if only to read. You should wait six to eight weeks before getting eyeglasses.
Complications

Occasionally, the membrane that surrounds the lens may tear during the surgery or parts of the cataract may fall into the back of the eye. The surgeon may decide during your operation that this needs to be corrected and may even decide the new lens should be inserted during the corrective process. The corrective procedure may be done right away or the next day in the hospital by a retinal surgeon. These complications are relatively rare, but they do happen and are usually fixed quite successfully.

Some people may notice a change in vision months or years after cataract surgery. The eye’s membrane holding the artificial lens may become cloudy, reducing your vision. Laser treatment may be used on the cloudy membrane. It is a simple procedure done in your eye doctor’s office and generally has a good result.

After cataract surgery you are slightly at risk for retinal detachment. A retinal detachment is a medical emergency. Early treatment by an eye surgeon can prevent permanent vision loss. The following signs could lead to retinal detachment. Contact your eye doctor immediately if:

- You experience eye pain that persists after taking over-the-counter pain medicine.
- Your vision gets worse or you have an eye injury.
- You experience nausea or vomiting.
- You see an abnormal amount of floaters. Floaters are dots, circles, lines or cobwebs that move across your field of vision. They are most noticeable when looking at a white wall or clear sky.
- You see flashing lights, even if your eye is closed. These tend to happen in one eye at a time.
Living with Cataracts

It can sometimes take a while before you receive cataract surgery. In the meantime, it is better to be proactive about your vision care. Refer to the suggested list of questions in Section 5: Questions For Your Eye Doctor, which will help you when discussing care and treatment.

“You will likely notice an improvement in vision immediately and the improvement may continue for a few months.”
Questions for Your Eye Doctor

Here are some suggestions for working with your eye doctor so you can make better decisions about your vision health. Occasionally, time with an eye doctor may be limited, so it is a good idea to prepare for any appointments in advance.

When you book your appointment:
- Ask whether your vision will be temporarily affected by any tests you will be taking and whether you will be able to drive home.
- Ask if your province's health plan or any private insurance you may have will cover the cost of the exam. If not, ask how payment will be handled.

Before an eye exam, make notes about:
- Any problems you have noticed with your vision. For example, note symptoms such as floaters (beginning, increasing numbers, etc.) or difficulty seeing at night.
- Any recent eye injuries or eye surgeries. Include dates, doctors' names and the names of hospitals where you were treated.
- All current and previous significant medical conditions or operations you have had, whether they relate to your vision or not. Don't forget to include any diagnosed eye conditions (macular degeneration, glaucoma, cataracts, etc.), diabetes, allergies, high blood pressure or chronic health problems.
- Your family's current and previous history of significant medical conditions.
- Any drugs (over-the-counter or prescription), vitamins, herbal medicines or supplements you are taking. Note dosage and frequency.
- Any eye drops you may be using.
Bring to the exam:

- Your notes from above.
- Your glasses, contact lenses, sample bottles of your current prescription and over-the-counter medication, and your health insurance card.
- Any low vision aids or devices that you have been using (magnifiers, reading glasses, etc.).

Questions to ask if your doctor is recommending further tests:

- What kinds of tests are they? How do they work?
- What are you looking for?
- When can I expect the results? How will you let me know?
- Do I need to prepare for any of the tests?
- Are there any side effects or risks associated with these tests?
- How many tests will I need?
- Will any of the tests affect my activities at home or work?
- Can I drive home after each test or should I arrange for someone to pick me up?
- Are these tests going to cost me anything?

Questions to ask if you are diagnosed with an eye condition:

- What is the name of my diagnosis? Can you describe this eye condition and provide me with more information?
- What caused my condition?
- Do you know how my vision will be affected now and in the future? Do you know if my vision will get worse?
- Is this an inherited condition? Does my family have a greater chance of getting this eye condition?
- Are there any signs or symptoms that I should watch for and notify you about?
• Are there any diagnostic tests that I can do at home?
• Can I make any lifestyle changes to try to prevent further vision loss?
• How do I make an appointment if I note a significant change in my vision? What do I do if I cannot reach your office?

**Questions to ask about treatment options:**
• Can my eye condition be treated? What are your recommendations? Are there any other options?
• How many treatments will be necessary?
• What are the benefits and risks associated with each treatment? What is the success rate?
• How will my vision be affected after treatment?
• How soon should I have the treatment? Who will perform the treatment? Where will it take place?
• How long will the procedure take and what can I expect?
• Will I need an anesthetic (local or general)?
• Are there foods, medications or activities I should avoid before or after treatment?
• Will my provincial health plan or my insurance cover the treatments? If not, how much will they cost?
• Can you recommend another eye doctor for a second opinion?
• What will happen if we do not pursue treatment?
• Do you have any written information so I can learn more about my options?
Questions to ask before undergoing any treatment:
- How long can I expect it to take for me to recuperate?
- Will I notice a change in my vision? When?
- When should I notify you if I experience further vision problems? What signs or symptoms should I look out for?
- If my treatment includes taking eye drops, how should I take them? If I miss a dose, when should I take the next one? If I have to take more than one prescription for eye drops, do I need to wait a certain amount of time in between doses of each medication to maintain their effectiveness?
- What will I need after this treatment? For example, glasses, medication, vision aids or special products, etc.
- Can I drive after the treatment or should I arrange for someone to pick me up?

Questions to ask if you are diagnosed with uncorrectable vision loss:
- Can you refer me for a functional vision assessment and a source for vision aids to help me adapt to my vision loss?
- Can you refer me to an organization to help me adjust my day-to-day activities at home, work and in the community?
- Can you suggest a way to get in contact with a peer support group or supportive counseling?
Staying Independent through Vision Support Services

Joan’s Story
After Joan was diagnosed with AMD, she learned independent living skills to manage her home life and acquired safe travel skills so she could continue her life in the community. An avid reader, she now borrows audio books from the CNIB Library to keep up with her favourite authors, and reads magazines and newspapers online. She also joined a peer support group for seniors living with vision loss and now leads a weekly group herself.

“Vision support services helped tremendously with the skills I needed to regain my confidence and maintain my independence,” says Joan. “I was also able to talk to people who were having the same experiences I was. We traded tips and advice, and shared a lot of laughs as well.”

Many people assume that someone with uncorrectable vision loss will have to give up many aspects of life. Although it is true that vision loss can require a lot of adjustment, it is quite possible to enjoy most of the same activities you did before you lost your vision. Many people with vision loss learn to deal with their disability and go on to lead very satisfying lives.

Vision support services or vision rehabilitation services are available to help you adjust to vision loss and continue to live independently. The goal of vision rehabilitation services is to increase independence in day-to-day living.
You should seek vision rehabilitation services if you have difficulty:

- Reading newspapers, magazines and other fine print when wearing your glasses.
- Seeing the faces of family and friends at a distance of four meters or 12 feet.
- Moving around or bumping into things at home.
- Traveling independently.
- Locating curbs and stairways.
- Seeing cars on the road during the day or at night.
- Identifying money or paying bills.
- Driving at dusk, dawn or at night.

Often, it is assumed that only people who are completely blind can benefit from vision support services. People who are diagnosed with vision loss may wait too long before seeking help and some professionals may believe a referral for vision support is not necessary unless one is completely blind.
Vision rehabilitation services cannot restore sight but they can help you to make better use of any sight you do have and teach you skills to compensate for vision loss. Through this approach, you will learn to take positive steps and develop confidence to achieve your personal goals. With practice, patience, motivation and a little guidance, you can learn creative coping strategies and solutions to better manage work and home responsibilities and stay active in community life.

Vision rehabilitation services can help you to learn about many things, including:

- New ways to read a book or newspaper, write a letter or watch TV.
- Training in the use of assistive devices to increase your independence.
- Better ways to use any remaining vision you may have.
- Skills to manage household tasks such as food preparation.
- Ways to travel safely in the community and use public transit.
- Strategies to handle over-the-counter medications and prescriptions.
- Banking and money management.
- Skills for personal grooming.
- Ways to connect with peer support groups and supportive counseling.

Whether you have recently experienced changes in your vision, are newly diagnosed with an eye condition or have been diagnosed for years, it is a good idea to find out about the vision support services available in your area. Programs and services may change from time to time, so it is smart to inquire about program availability on a yearly basis.
Contact your eye doctor or nearest vision rehabilitation service provider to find out more. Well-known providers are listed in the back of this guide. Eligibility varies in each province or territory. A referral is usually not required. However, vision rehabilitation service providers may request medical information from your eye doctor at a later date.

**When to Seek Vision Rehabilitation Services**

If you are diagnosed with vision loss, there is no time like the present to look into vision rehabilitation services. It is never too early to receive support, acquire helpful skills, or learn how to prevent or prepare for future vision loss. Vision rehabilitation services can help you adjust to vision loss more easily and help decrease feelings of hopelessness, fear and isolation.

**Adjusting to Vision Loss**

Vision rehabilitation services can also provide strategies to overcome emotionally difficult issues, such as no longer being able to recognize friends’ faces or dealing with overprotective family members and friends.

It is common for newly diagnosed people to experience a mix of emotions, including:
- Shock, disbelief or denial.
- Anger and frustration ("why me?").
- A sense of being overwhelmed.
- Sadness and depression.
- A drop in self-esteem.
- Fear (of the future, of being dependent or a burden, of losing independence).
- Anxiety and loneliness.
Acceptance often comes once these feelings have been fully experienced and dealt with. Obtaining some supportive and confidential counseling (for yourself and possibly for your spouse and/or close family members) may assist with the process of adapting to vision loss. Some vision rehabilitation services or community organizations offer counseling services.

Additionally, some vision support service organizations offer **peer support groups**, which are a great way to meet and talk with other people experiencing vision loss. Many people find peer support groups to be empowering and informative because they provide an opportunity to share concerns and challenges, tips and personal strategies and vision health resources.

### The First Step in Adjusting to Vision Loss
The first step in adjusting to vision loss is coming to a new understanding of independence. Seeking assistance, being flexible and making adaptations lead to self-acceptance and independence – not dependency.

You might also be interested in some of these additional vision support services:

- **Deafblind services**: CNIB and other similar organizations provide special services for people who have both vision and hearing loss.
- **Consumer services**: Many organizations such as CNIB, the Canadian Council of the Blind and the Alliance for the Equality of Blind Canadians provide information and advocacy support.
- **Career and employment services**: Some organizations provide vocational assessments that can help you explore career interests, develop employment plans, reach potential employers and investigate job opportunities and accommodations.
Independent Living Skills

Independent living skills give you safe and effective methods for managing daily responsibilities. You can learn new ways to do your activities of daily life, such as adaptive skills for cooking, laundry, cleaning, taking medication and managing health care, grooming, handling correspondence, banking and leisure activities. Learning new ways to do these things will help you maintain or regain your independence.

Specially trained professionals will work with you on a plan for independent living, using your personal goals as a guide. For example, a trained specialist may come into your home to help you learn how to use appliances such as washing machines, stoves or microwave ovens using large print labels or raised indicator dots. Or you may visit a vision rehabilitation service organization to learn new strategies for cooking.
Your plan for independent living will likely include some assistive devices. The specialist working with you will recommend products to fit your needs and help you to learn how to use them effectively. Descriptions of some of these products are provided in the **Maximizing Existing Vision** section. Information about where to purchase vision aids (assistive devices) is located in **Appendix A: Helpful Resources** under Government Agencies.

**The Decision to Stop Driving**

Driving may feel like a necessity for people of all ages and is synonymous with feelings of autonomy, self-worth and freedom. However, no matter how devastating it may be to give up driving, people with vision loss cannot afford to live in a state of denial.
Are you a hazard on the road? Can you still see well enough to drive? While vision loss is definitely not the only safety issue for drivers, it is a major one. Lighthouse International offers the following questions to help guide the decision about whether to stop driving:

- Have you been involved in a car accident or several accidents?
- Are you able to see cars clearly when driving, use rear view mirrors, etc?
- Have you been ticketed for traffic violations?
- When driving, are you getting lost more than usual?
- Are you driving through stop signs or traffic lights, missing exits or not yielding the right of way?
- Are you driving too slowly, causing other drivers to honk their horns often?
- Do you feel confused, overwhelmed and fearful when driving?
- Do you feel comfortable driving at all times – both day and night, and in sunny or cloudy weather?

If you answered “yes” to one or more of these questions, this is a cause for immediate concern.

Giving up driving does not necessarily mean the loss of freedom and independence, and it can have some benefits. You may find many of your anxieties relieved in terms of others’ safety and the fear of not being able to see at certain times of the day. You may finally have an opportunity to rid yourself of the stressors associated with owning a car such as maintenance costs, rising gas prices, parking, license fees, the cost of insurance and taking a driver’s test.

There are some transportation options available to you because of your vision loss. For example, people who are legally blind are eligible for a CNIB ID card, which provides discounts or even free travel on many public transit
services and Via Rail. Additionally, when you cannot travel with family and friends, some not-for-profit organizations have volunteer drivers to get you where you need to go. You can also contact your vision rehabilitation services organization to learn new skills to travel independently.

If you have been told by a professional to stop driving or if you’ve thought about it yourself and know you should, make the switch now before it is too late!

**Getting Around on Your Own**

Most people with vision loss are able to get around independently – they work, shop, do their banking and visit friends just like anyone else. Getting around safely can present a challenge at first. A lack of accessible signage, traffic, unclear walking paths, weather and different lighting conditions may present barriers, but these traveling obstacles can be overcome with time and learning. Your vision rehabilitation service organization has specialists who can teach you how to move safely around the home and in the community. These professionals have received specialized training in “orientation and mobility” (See Appendix B: Definitions).
People with vision loss may or may not use vision aids to get around. Some people may use a white cane or a guide dog. A specialist can help you learn to use these aids effectively and will accompany you when learning new routes (for example, to attend a new class you are taking or to visit a family member). You might also receive training in the use of public transit or in dealing with others who offer you assistance (see the Sighted Guide section).

The Sighted-Guide Technique

When you are first adjusting to vision loss or later on at specific times (for example, in crowded situations, at street crossings or in unfamiliar places) a sighted guide may come in handy.

A sighted guide is someone who assists you by offering their arm, allowing you to follow them to your destination. The sighted guide technique is designed to provide maximum comfort, respect and safety for the person with vision loss.

It is good to become familiar with the sighted guide technique so you can direct other people on how to guide you. Many sighted people are not familiar with the technique and will be glad to be given some direction. You may want to show this section to friends and family members.
First the sighted guide should always ask if assistance is desired. The sighted guide should walk half a step ahead of the person being guided. One should never take the person’s arm or hand, nor try to push them or pull them. One should let the person grasp their arm lightly just above the elbow. The sighted guide should always remain half a step ahead of the person being guided. They should always approach curbs, stairs and doorways squarely – never at an angle – and let the person know when to step up or down. They should come to a full stop before stairs and, if necessary, switch sides so the person being guided can use the handrail. The person will find the first step by sliding their foot forward until they feel the stair and the sighted guide will proceed up or down together with the person being guided. The guide should announce when the last step has been reached.

For a complete explanation of the Sighted Guide technique contact your local CNIB office for a copy of *Step by Step: A How-to Manual for Guiding Someone With Vision Loss* or see website information in Appendix A: Helpful Resources.

**Maximizing Existing Vision**

*Low vision services* focus on helping people with vision loss to maximize the use of their remaining sight. Trained specialists in low vision services will teach you visual skills and how to use vision aids (see the section on *Vision Aids and Other Useful Products* below) to function independently in day-to-day activities according to your goals.
As part of low vision services, you will likely receive a **functional vision assessment**. A specialist will assess your current vision, record your vision history and make recommendations about how you can use your remaining vision to meet your goals. These recommendations often include the best methods for you to continue reading and writing, using large print, vision aids, electronic text and/or audio books.

Low vision services are located at some optometrists’ and ophthalmologists’ offices, low vision eye clinics, rehabilitation centres in Quebec, CNIB offices, opticians’ offices, hospitals and some universities. To inquire about financial support for assessments and vision aids, contact a low vision service provider near you. Financial support varies across Canada and is subject to change.

**Vision Aids and Other Useful Products**

**Carl’s Story**
A graphic artist for most of his life, Carl began to notice something wrong with his vision. When he consulted his doctor, he was told he had age-related macular degeneration, the leading cause of vision loss in Canadians over 50.

Vision loss could have spelled disaster for Carl. But with the proper training, he learned to use a tabletop magnifying device – a closed circuit television (CCTV) – to enlarge not only printed material but the illustrations he was working on. The CCTV allowed him to fill in fine details by bringing sections of the work into focus.

“My vision is blurred,” says Carl, “but with my magnifier I can see everything. The machine is my lifeline.”
Whether you have some usable vision or not, there are likely many vision aids that can help you to live independently. These products are often referred to as assistive devices or adaptive aids and can include both low- and high-technology devices.

**Low-tech devices** include things such as specially tinted glasses, magnifiers, telescopes, task lighting, canes, talking clocks and watches, colour identifiers and large print labels. Some of these devices may not require a lot of training, but you may benefit from practice and some instruction to improve your comfort, speed and effectiveness when using them.

**High-tech devices** may require minimal to extensive training and practice. They include specialized glasses (such as head mounted electronic glasses), closed circuit televisions (CCTVs), computer screen magnification software, computer screen readers, digital talking book players and portable braillers.
Some provinces have financial aid programs for assistive devices. Financial eligibility may depend on a variety of criteria, such as your visual acuity and field of vision, level of earnings, benefit and pension plans, age and working status. Speak to your eye doctor or vision support service provider to find out more.

Information on vision aids can be obtained from a consumer products specialist at a low vision service provider or from companies that sell these products directly. There is a lot of information about assistive devices on the Internet. Additionally, some vision support service providers have a lending program to help people become familiar with products prior to purchase. You should get an assessment with a low vision services provider before purchasing most assistive devices.

You can receive a catalogue of assistive devices available through CNIB by calling 1-866-659-1843, or you can access the catalogue or make purchases at www.cnib.ca/en/services/products. Refer to Appendix A: Helpful Resources under Government Agencies for additional information about where to purchase vision aids.

**Stick With It!**

Have patience when you are beginning to use a vision aid for the first time. Some products may take some practice to master, but the benefits make the effort worthwhile.
Examples of Vision Aids

Reading Devices

- **Magnifiers**: There are a range of different magnification powers, shapes and sizes as well as adjustments for brightness and lighting features. Styles may include hand held magnifiers, magnifiers with stands, and bar and pocket magnifiers. Some magnifiers can also be mounted on eyeglasses.

- **Closed circuit televisions (CCTVs)**: These devices use video technology to enlarge printed or graphic material and display it on a video monitor. These images may be further enhanced by adjusting contrast or brightness, filtering colour and a variety of other options.

- **Electronic glasses**: Lightweight glasses that are battery operated and have up to 30 times magnification. Some individuals can use these for theatre, movies or TV, and they can be converted into a desktop video magnifier for reading books and magazines, writing letters or cheques and viewing photos.
• **Scanner reading software:** A software program that converts scanned printed materials such as books and newspaper clippings into electronic format which then can be saved. Scanner reading programs have the ability to read electronic text aloud, magnify the size of text displayed on the computer screen and change the colour contrast for increased visibility.

• **Computer screen magnification:** Screen magnification programs enlarge all text, graphics and images displayed on a computer screen. Some programs have options for a larger mouse pointer or cursor, choices of magnification power and other features.

**Writing**

• **Signature guide:** A plastic template with a square cutout, used for guiding your hand when you sign a cheque or a document.

**Time Keeping**

• **Watches and clocks:** Wristwatches, travel alarm clocks, desk and wall clocks are available in large high-contrast print, braille and audio formats in a variety of sizes and styles.

**Telephone**

• **Large button phone:** Large buttons help people with low vision.

• **Cell phone:** You can purchase phones specifically designed for people with vision loss that have magnification and speech feedback to help you navigate through the phone’s menu structure.
Getting Around

- **White cane:** With proper training from a qualified specialist, the use of a cane can help when getting around outside the home. There are a variety of canes for people of various heights, for identification purposes (no training necessary), wayfinding and white canes that also provide physical support.

Television

- **TV magnifier:** Can be put in front of your TV screen, increasing the size of the image.
- **Large button remote:** Can be used with TVs, VCRs, DVDs and cable boxes.

Baking and Cooking

- **Liquid level indicator:** Used when pouring hot liquids. It is a simple battery-operated device that hangs on the inside of a cup and beeps when the cup is full.

Staying Active

Recreational activities are a major part of life. They can influence our happiness, physical health and adjustment to vision loss. Fortunately, there are many ways to keep active with vision loss, sometimes with the help of assistive devices.

- **Games:** Playing cards, bingo cards, puzzles, chess, checkers, backgammon, cribbage, Monopoly, dominoes, Chinese checkers and Scrabble can all be found in accessible formats that use large print, braille or tactile markings. There are even tactile dice available.
Outdoor activities clubs: Bowling, curling, golf, tandem cycling with a sighted guide, downhill and cross country skiing, camping, canoeing, sailing, hockey and dragon boat racing are some of the many activities open to people with vision loss. In fact there are few leisure activities in which people with vision loss cannot participate.

Household activities and hobbies: Self-threading needles for sewing, large print cookbooks and specialized gardening tools are available.

Letter writing: In Canada, mailing privileges allow free postage when sending specialized audio and braille material to or from people with vision loss. Write “Free Matter for the Blind” under or near the address label.

Reading: CNIB and most public libraries provide accessible books and information in various formats for people with vision loss. One revolutionary new format is DAISY, a digital talking book format that allows users to jump directly to a specific section or passage, use a bookmark and skip from page to page. Online library databases and websites have electronic texts that can be read with adaptive computer technology. Refer to “Appendix A: Helpful Resources” for a list of libraries that provide reading material in alternative formats (audio books and electronic text).

News and events: The CNIB Library provides eight Canadian magazines on audio CD. Additional magazines and more than 50 national and regional newspapers are also available online at the CNIB Digital Library. CNIB clients can register by calling 1-800-268-8818 or by sending an email to reader.services@cnib.ca. If you are not a CNIB client, contact a CNIB office in your community to inquire about your eligibility.
• **Movies and television**: The CNIB Library has a collection of described videos and DVDs available for popular movies and television programs in a variety of genres. Some movie theatres now offer a descriptive service for new theatrical releases and some programs now come with description on TV.

• **Attractions and events**: A CNIB ID card (if eligible) can provide discounts to attractions and events in your community. For example, it may provide discounted access to art galleries, community attractions, sports events, museums, zoos, theme parks, travel and festivals. For more information contact CNIB. When requesting information about an event or attraction it may be helpful to ask, “Do you provide any discounts for CNIB ID card holders?”

### Tips for Making Your Home More Accessible

#### Lighting Tips

For people with vision loss, the ability to see indoors and outdoors can be strongly influenced by lighting. Older people require three to four times more light for most tasks.

- When reading try using a clear plastic yellow sheet (available at many office supply stores) over text to reduce glare and increase contrast sensitivity.
- Do not face windows when you are reading.
- Wear a hat with a brim and high ultraviolet (UV) blocking sunglasses for outdoor activities to reduce glare and protect your eyes.
- Direct a strong light onto any task you are working on that requires fine detail. For example, use a small directed light (called “task lighting”) for reading books or the newspaper or preparing food on a kitchen counter.
Labeling Tips

Learn to identify items using colour, contrast, textures and special features. You can also modify cupboard organization techniques. Here are some other labeling tips:

- **Large print labels** with adhesive backs can be purchased for home appliances and computer keyboards.
- Use a **wide felt-tip marker** and **labels** or **index cards** and **tape** to identify canned goods, packages, cleaning products and medication bottles.
- Other items such as **rubber bands**, **felt dots** and **raised rubber indicator dots** can be used to identify objects or buttons on appliances. To reduce clutter and maximize effectiveness, dots should only be used on essential places such as the stove temperature that is most commonly used. Raised rubber indicator dots can be purchased from CNIB.
- For simplicity, put labels or dots in the same place on every appliance: for example, on the number five on the microwave oven and the five on a telephone or numerical keypad.

Commercial-labeling products, cupboard organizers and medication organizers are available at drugstores and other retail stores.
Creating Safe Spaces

Keep these guidelines in mind to make household navigation and management easier and safer for anyone who has vision loss:

- Push chairs into a table when vacating them.
- Keep all doors completely open or closed. If you experience difficulty identifying one door from another, mark doorknobs with a piece of yarn, tape or a rubber band.
- Keep cupboard doors closed.
- Keep furniture, household items and other equipment in the same place; ask other people you live with to discuss any changes with you in advance.
- To increase the visibility of steps (especially the first and last step) and entrances, use contrasting paint, safety tape or tread strips.
- Contact your local telephone company or CNIB to find out if there is a free directory assistance service in your area for people with vision loss.
Vision loss can be very difficult to adjust to – and not just for the person experiencing it. Friends and family members of someone with vision loss may have a difficult time accepting and adapting as well. Not only can it be hard initially to see someone you are close to having to deal with vision loss, this experience may evoke personal fears of losing vision and challenge people to wonder how they themselves might feel and cope.

In addition, it is common for people who are sighted to be unsure how to behave and fear saying or doing something inappropriate when they meet someone with vision loss.

If you have vision loss, the tips in this section will help you to work with the people in your life to help them interact with you in a positive manner to maximize your independence. If you are a family member or friend of someone with vision loss, this section will help you to become more comfortable, respectful and supportive in this position. If you are a health-care professional who sometimes comes into contact with people with vision loss, this information will also be valuable.

The first step if you are a family member or friend is often seeking help for yourself. Vision support service organizations can assist family and friends by:

- Helping you to be patient and understanding during difficult times.
- Providing you and your family with access to counseling services, to deal with any emotions or sense of loss you may be experiencing.
- Educating you on how to show appropriate concern and give help when needed.
• Giving you proactive strategies to minimize over-protectiveness and maximize inclusiveness.
• Helping you to create an accessible environment at home.
• Teaching you strategies to encourage the person with vision loss to take on new tasks.

Acquiring knowledge about all aspects of vision loss will allow you to understand what your friend or family member is going through. You may want to read through the rest of this guide, particularly these sections:
• **About Vision Loss.**
• **Staying Independent,** particularly **Tips for Making Your Home More Accessible** and **The Sighted Guide Technique.**

**Attitudes and Beliefs**

Keep in mind that many people with vision loss find one of the biggest barriers they face to be other people’s beliefs about what they can and cannot do. Some even find this to be a bigger barrier than vision loss itself.

Here are some specific tips for inclusive attitudes, behaviors and interactions with people who experience vision loss:
• Even though you may be curious about a person’s eye condition and what they are able to see, remember that it can be very frustrating for a person with vision loss to have to explain their situation over and over again. This kind of discussion usually only happens when you know someone very well and usually at the initiative of the person with vision loss.
• Ask: “Do you need any assistance with [the task at hand]?” or “Would you like help?” Remember to state your name when addressing an individual with vision loss, because if they cannot see you, there is no way for them to know you’re there. For example, “Hi Jim; it’s Jane.” Or “Hi there; my name’s Frank.”
• You don’t need to adjust what you say around someone with vision loss. It is okay to use terms such as “see” and “look” in conversation as you normally would. (e.g. “Did you see that movie on TV last night?”)
• Remember that vision loss and how people adapt is unique to each person. Do not assume you know what is best for someone.
• Be inclusive. Initiating friendly visits and including someone with vision loss on organized outings demonstrates that you see them as a valued person with interests first. Family members and friends can take the extra initiative to help the person with vision loss explore new hobbies, interests or activities to find or make adaptations in order to continue with old ones.
• At an event or social gathering, remember to inform a person who has significant vision loss when someone has entered the room and when you are leaving the conversation or room. Take the time to help the person mingle by offering to connect them to people they may know or introduce them to new people.
• Remember to put things away exactly as you found them. Consult with the person who has vision loss and decide together how things should be organized, labeled or adapted in the home or workspace.
• Assess the home or other environment for obstacles and make necessary adjustments to prevent accidents from happening.
• Ask first before you read aloud any printed material or offer assistance of any kind. (“Jane, would you like me to read the daily specials from the blackboard?”) This will avoid unwanted help and over-protectiveness. Remember to be discrete and maintain the confidentiality and dignity of the person with vision loss.

For more information, see cnib.ca, and publications available at www.cnib.ca/en/about/publications (select Vision Health or Accessibility).
We all can learn how to take better care of our sight. Going to an eye doctor and asking questions during routine eye examinations is a great start. Learning more about potential risk factors, signs and symptoms will help you to take action when vision health issues are a concern. When you inform your family physician of your vision health changes, he or she can help you better take care of other aspects of your overall health.

Many people with moderate to severe vision loss find that vision support services are invaluable. Contacting vision support services in the early stages of vision loss often helps greatly with the adjustment process.

Remember, taking care of your vision health and independence is up to you. Here are some final thoughts from seniors whose input went into creating this guide:

“Know that life will go on and be just as enjoyable.”

“When you lose your sight, you must not stop; you will simply have to do things differently.”

“Consider the things that you can do, not the things you can’t.”

“You don’t need to be afraid...you will overcome it. It won’t be easy, but you can do it.”

“I would say don’t despair. Life doesn’t end.”
Appendix A: Helpful Resources

Vision Health Organizations and Vision Support Services

**AMD Alliance International**
1-877-AMD-7171
1-877-263-7171
www.amdalliance.org

**American Foundation for the Blind**
(212) 502-7600 (New York)
www.afb.org
Resources: Press Room, Bookstore, Seniors Site

**The Canadian Deafblind and Rubella Association**
Toll Free: 1-866-229-5832
www.cdbra.ca

**Canadian Guide Dogs for the Blind**
(613) 692-7777
www.guidedogs.ca

**Canadian Helen Keller Centre**
Voice/TTY: (416) 225-8989
www.chkc.org

**CNIB**
1-800-563-2642
www.cnib.ca
Appendix A: Helpful Resources

**CNIB Eye Van: Ontario Medical Mobile Eye Care Clinic**
1-800-563-2642  
(705) 675-2468  
www.cnib.ca/community/ontario/programs-services

**CNIB Consumer Products and Assistive Technology**
1-866-659-1843  
www.cnib.ca/en/services/products

**The Foundation Fighting Blindness Canada**
1-800-461-3331  
www.ffb.ca

**The Glaucoma Foundation**
(212) 285-0080 (New York, NY)  
www.glaucomafoundation.org

**Glaucoma Research Foundation**
1-800-826-6693  
www.glaucoma.org

**Glaucoma Research Society of Canada**
1-877-483-0204  
www.glaucomaresearch.ca

**L'Institut Nazareth et Louis-Braille (INLB)**
1-800-361-7063  
(450) 463-1710  
www.inlb.qc.ca

**Lions Foundation of Canada Guide Dogs**
1-800-768-3030  
(905) 842-2891  
www.dogguides.com
Appendix A: Helpful Resources

Lighthouse International
(212) 821-9200 (New York, NY)
www.lighthouse.org

Mira Foundation: Guide Dogs
(450) 795-3725
www.mira.ca

Montreal Association for the Blind
(514) 489-8201
www.mab.ca

National Coalition for Vision Health
(416) 480-7687
www.visionhealth.ca

National Eye Institute of the National Institutes of Health
(301) 496-5248 (US)
www.nei.nih.gov

Royal National Institute of the Blind
1-020-7388-1266 (UK)
www.rnib.org.uk

Universite de Montreal, Ecole d’Optometrie
(514) 343-6948
www.opto.umontreal.ca

University of Ottawa Eye Institute
613-737-8575
www.eyeinstitute.net
Appendix A: Helpful Resources

University of Toronto: Adaptive Technology Resource Centre
(416) 978-4360
www.utoronto.ca/atrc

University of Toronto: Department of Ophthalmology and Vision Sciences Vision Rehabilitation Clinic
(416) 603-5892
www.utoronto.ca/ophthalmology

University of Waterloo: Centre for Sight Enhancement
(519) 888-4708
www.optometry.uwaterloo.ca/clinic/cse.html

Vision Health Research Council
www.vhrc.net

Eye Care Professional Associations

Canadian Association of Optometrists
1-888-263-4676
www.opto.ca

Canadian Ophthalmological Society
1-800-267-5763
(613) 729-6779
www.eyesite.ca

Opticians Association of Canada
1-800-847-3155
www.opticians.ca
Appendix A: Helpful Resources

Consumer and Advocacy Groups for People with Vision Loss

Alliance for Equality of Blind Canadians (AEBC)
1-800-561-4774
www.blindcanadians.ca/index.php

Association of Sight Impaired Consumers (ASIC)
(604) 241-7499
www.asic.bc.cx

Canadian Council of the Blind
1-877-304-0968
(613) 567-0311
www.ccbnational.net

Canadian National Society of the Deaf-Blind
Fax: 416-223-0182
Email: CNSDB@canada.com
www.cnsdb.ca

Consumer and Advocacy Groups for Seniors

Active Living Coalition for Older Adults
1-800-549-9799
www.alcoa.ca

Canadian Association for the Fifty Plus
1-800-363-9736
www.50plus.com
www.carp.ca

Canadian Pensioners Concerned
1-888-822-6750
(416) 368-5222
www.canpension.ca
Appendix A: Helpful Resources

International Federation on Ageing
(514) 396-3358
www.ifa-fiv.org

Seniors Mental Health
www.seniorsmentalhealth.ca

Government Agencies

Health Canada
www.hc-sc.gc.ca

Health Canada: A Guide to Choosing and Using Assistive Devices
www.phac-aspc.gc.ca

Health Canada: Food and Nutrition
www.hc-sc.gc.ca/fn-an

Health Canada: Seniors Page and Injury Prevention
www.chp-pcs.gc.ca/CHP

Industry Canada: Assistive Devices Industry Office
www.at-links.gc.ca

Office of Disability Issues
www.hrsdc.gc.ca

Opportunities Fund for Persons with Disabilities
www.hrsdc.gc.ca
Appendix A: Helpful Resources

Public Health Agency Canada
(604) 666-2083 (BC)
(416) 973-0003 (ON)
(780) 495-2754 (AB)
(514) 283-2306 (QC)
(204) 983-2508 (MB)
(902) 426-2700 (NS)
www.phac-aspc.gc.ca

Public Health Agency Canada: Assistive Devices
Info-Sheet for Seniors
www.phac-aspc.gc.ca

Seniors Canada Online
www.seniors.gc.ca

Accessible Libraries, Books and Information

Free resources:

Bibliothèque et Archives nationales du Québec
Service québécois du livre adapté (SQLA)
http://www.banq.qc.ca/portal/dt/sqla/sqla.htm

CNIB Library
1-800-268-8818
About the service, and a list of local libraries that provide access to CNIB’s books is located at:
www.cnib.ca/en/services/library

Voice Print: Canada’s Broadcast Reading Service
www.voiceprintcanada.com
Appendix A: Helpful Resources

Commercially available resources:

**Audible.com**  
www.audible.com

List of theatres offering the descriptive video service (DVS):  
http://ncam.wgbh.org/mopix/nowshowing.html

**Simply Audiobooks**  
www.simplyaudiobooks.com

Other Resources

**Canadian Cancer Society**  
(416) 961-7223  
www.cancer.ca

**Canadian Cancer Society: Quit Smoking**  
www.cancer.ca/ccs

**Canadian Diabetes Association**  
1-800-BANTING  
1-800-226-8464  
www.diabetes.ca

**Dietitians of Canada**  
www.dietitians.ca

**Diabetes Quebec**  
1-800-361-3504  
(514) 259-3422  
www.diabete.qc.ca
Appendix A: Helpful Resources

National Eye Institute: Health Information
www.nei.nih.gov/health
See Resource Guides for Age-Related Macular Degeneration, Cataract, Diabetic Retinopathy and Glaucoma

Publications

CNIB
• Clearing Our Path
• Over 101 Helpful Hints for Independent Living
• Living with Vision Loss. A Resource for Caregivers
• Step by Step: A How-to Manual for Guiding Someone With Vision Loss

To view or order:
www.cnib.ca/en/about/publications/vision-health
www.cnib.ca/en/about/publications/accessibility
1-866-659-1843


Appendix B: Definitions

This glossary has been adapted from: CNIB’s Ontario Division Children’s Services Training Manual; the Canadian Association of Optometrists website (www.opto.ca); Lighthouse International and AMD Alliance International (2006) “Science Writers Workshop on AMD”; the National Eye Institute website (www.nei.nih.gov/health/glossary.htm); and the Glaucoma Foundation website (www.glaucomafoundation.org).

These terms are provided for descriptive purposes only and are not intended for use in diagnosis or treatment, or as a substitute for medical advice. Please consult your eye doctor if you have questions about your specific situation.

**Age-related macular degeneration (AMD):** A degenerative eye disease that causes loss of central vision.

**Anesthesia:** A drug used to prevent pain. General anesthesia temporarily puts a person to sleep and local or topical anesthesia causes a temporary loss of feeling in a specific part of the body.

**Antioxidants:** Micronutrients that combat the stimulation of abnormal cell growth (caused by disease) and cellular destruction (caused by disease and aging).

**AREDS:** The Age-Related Eye Disease Study (AREDS) is a large multi-centre clinical trial examining risk factors for patients with age-related macular degeneration and the use of high doses of antioxidants and zinc in these patients. The study can be located on the National Eye Institute website at www.nei.nih.gov/AMD
Argon laser trabeculoplasty (ALT) / Selective laser trabeculoplasty (SLT): The most common form of laser surgery performed for open-angle glaucoma. This procedure takes between 10 and 20 minutes, is painless, and can be performed in either a doctor's office or an outpatient facility.

**Blind spots:** Blank areas of vision surrounded by normal to low vision.

**Cataract:** A clouding of the lens of the eye.

**Choroid:** The vascular layer of the eye (layer containing blood vessels) lying between the retina and the sclera; provides nourishment to outer layers of the retina.

**Choroidal neovascularization (CNV):** Abnormal formation of new blood vessels in the choroid under the retina.

**Confocal laser ophthalmoscopy/scanning laser tomography (Heidelberg Retinal Tomography or HRT II):** A diagnostic device used in the detection of glaucoma. It is usually not relied upon for making a diagnosis of glaucoma in the absence of other clinical evidence.

**Consumer:** An individual who purchases low vision aids and/or uses vision support services.

**Cornea:** The clear window at the front of the eye that transmits and focuses light into the eye.

**Detached retina:** A retina that becomes separated from the back of the eye, causing blindness in the affected area (if not treated immediately).
**Dilated eye exam:** Drops are placed into the eye to widen (dilate) the pupils to allow a direct view of the retina. A special magnifying lens is then used to examine the retina and the optic nerve for signs of damage. After the exam, the eyes may be light sensitive and close-up vision may remain blurred for several hours.

**Diurnal pressure testing:** Eye pressure measurements taken at different times of the day.

**Drusen:** Small yellow deposits of extra cellular material in the retina.

**Dry AMD:** A form of AMD characterized by the accumulation of drusen and/or thinning and loss of retinal pigment epithelial cells.

**Fluorescein angiography:** A photographic imaging test used to detect the composition, size and location of choroidal neovascularization. A dye is injected into a vein, and then circulates within the eye so that photographs of the circulation can be taken.

**Floaters:** Changes in the vitreous gel that appear in the form of dots, circles, lines or cobwebs that seem to move across the field of vision.

**Focal laser treatment:** A laser surgery treatment where an ophthalmologist places a large number of microscopic laser burns in the areas of retinal leakage surrounding the macula.

**Functional vision assessment:** An assessment comprised of medical history taking, goal setting, education, relevant tests to assess usable vision and individualized recommendations (which may include visual compensation skills and specialized products to assist with adaptation to vision loss).
Fovea: Central part of the macula that produces the sharpest vision.

Glaucoma: A group of eye diseases associated with damage to the optic nerve.

Iris: Pigmented tissue lying behind the cornea that gives colour to the eye (e.g., blue or brown eyes) and constricts or expands to let more or less light into the eye through the pupil.

Laser: A very narrow high-intensity beam of light that can burn tissue, activate light-sensitive dyes or join structures together.

Legal blindness: The definition for legal blindness may vary among countries. Normal vision is defined as 20/20. In Canada, legal blindness is defined as a visual acuity that does not exceed 20/200 in the better eye even with correcting lenses (20/200 means that a person must be 20 feet from an eye chart to see what a person with normal vision can see at 200 feet) or a visual field extent of less than 20 degrees in diameter horizontally (normal visual field is 180 degrees).

Lens: The curved transparent structure in the eye that helps to focus light through the vitreous gel to the retina.

Low vision: A visual impairment that cannot be fully corrected by standard eyeglasses, contact lenses, medication or surgery, and interferes with the ability to perform everyday activities.

Macula: The area of the retina with the highest density of photoreceptors, allowing for central vision and seeing fine details.
**Macular edema:** An eye condition characterized by blood and fluid that leaks into the macula located at the back of the retina causing it to swell.

**Myopia (nearsightedness):** A refractive condition in which a person has the ability to see near objects more clearly than distant objects. Myopia is usually correctable with glasses or contact lenses.

**Neovascularization:** Abnormal formation of new blood vessels usually on or under the retina.

**Ocular vitamins:** High doses of zinc and antioxidant vitamins (vitamin C, vitamin E and beta carotene) prescribed to help slow vision loss. The AREDS formulation is one example of an ocular vitamin.

**Ophthalmic assistant, technician or technologist:** Allied health-care worker trained to perform preliminary ophthalmology examinations and specialized ophthalmic tests.

**Ophthalmic resident or fellow:** A resident who has completed medical school and earned a medical degree and is undergoing further four-year specialist training to be eligible to sit for the Royal College of Surgeons of Canada examinations to become an ophthalmologist. A fellow may be undergoing sub-specialty training, for example, to be a glaucoma specialist or a retinal specialist.
Ophthalmologist: An eye doctor who specializes in eye and vision care, and the diagnosis and treatment of eye diseases. Ophthalmologists provide comprehensive eye examinations, prescribe eyeglasses and contact lenses, prescribe and administer medication and perform surgery. Ophthalmologists have graduated from medical school, followed by one year of general medical/surgical internship and three to four years of additional residency training in the refractive, medical and surgical treatment of eye diseases.

Optic nerve: The largest sensory nerve of the brain; carries visual information from the retina to the brain.

Optical coherence tomography (OCT): A diagnostic imaging device a doctor can use to aid in the detection of retinal disease.

Optician: A professional who fits and dispenses eyeglasses and contact lenses according to prescriptions supplied by an optometrist or ophthalmologist. Opticians may also dispense low vision aids. Opticians complete a minimum of two to four years of post-secondary training through one of seven programs in Canada.

Optometrist: An eye doctor who performs eye examinations, diagnoses eye disease, treats common eye disorders and may prescribe medication in some provinces. Optometrists also prescribe eyeglasses and contact lenses, and are trained to dispense low vision aids and provide visual training. Optometrists have graduated from optometry school with a minimum of five years of post-secondary education to obtain the professional designation Doctor of Optometry (OD).
Orthoptist: A vision care specialist trained in a specific program after earning a preliminary degree. After passing board examinations, an orthoptist works under an ophthalmologist, usually a pediatric or neurological ophthalmologist. Specializes in the evaluation and nonsurgical treatment of strabismus, amblyopia and childhood eye disease.

Orientation and mobility specialist: A person who trains people with vision loss to move about safely in the home, at work and in the community.

Pachymetry: An ultrasonic wave instrument used to measure the thickness of the cornea.

Peripheral vision: Side vision. The ability to see objects and movement outside of the direct line of vision.

Photocoagulation: A surgical procedure involving the application of intense laser light to burn or destroy structures such as abnormal blood vessels and tumors.

Photoreceptor cells: A nerve or receptor sensitive to light, located in the retina, which transmits visual signals.

Presbyopia: As we get older the lenses inside our eyes become less flexible and less able to bend and focus light. As a result, close-up tasks such as reading and sewing will become more difficult.

Pupil: The opening of the iris in the centre of the eye.
Refractive error: A defect (myopia, hyperopia, or astigmatism) in the eye that prevents light from being properly focused on the retina. Eyeglasses and contact lenses can correct a refractive error.

Retina: The lining of the rear two-thirds of the eye; converts images from the eye’s optical system into electrical impulses sent along the optic nerve to the brain. The retina is like the film in a camera. It “records” the image coming into the eye.

Retinal detachment (RD): The retina becomes separated from the back of the eye, causing blindness in the affected area (if not treated immediately).

Retinopathy: A disease of the retina.

Scanning laser polarimetry: A diagnostic imaging device a doctor can use to aid in the detection of glaucoma. The test can measure the thickness of the nerve fiber layer by directing a laser beam into the eye and measuring the rate at which the light is reflected off the retinal tissues. It is usually not relied upon for making a diagnosis of glaucoma in the absence of other clinical evidence.

Scotoma: An area of partial or complete loss of vision surrounded by an area of normal vision, which can occur in advanced AMD or glaucoma. More commonly known as a blind spot.

Senior: The definition of senior citizen varies from one government to another. The government of Canada defines a senior as someone who is 55 years of age and older.

Sutures: Are stitches that surgeons use to hold severed skin, internal organs, blood vessels and all other tissues of the human body together.
**Tonometry:** A test that measures pressure inside the eye.

**Vision aids and adaptive devices:** Prescription and nonprescription devices that help people with low vision enhance their remaining vision, or help people with no vision adapt to blindness. Some examples include magnifiers, large print books, check-writing guides, braille labels, white canes and telescopic lenses.

**Vision rehabilitation services:** Services provided by specially trained professionals to assist people with adjustment to vision loss as they develop the skills and strategies needed to accomplish their goals in life. These services include: functional low vision assessments, selection of and training with low vision aids, teaching about functioning with vision loss, orientation and mobility instruction and access to information through technology.

**Visual acuity test:** The standard measurement of a person’s ability to see, using an eye chart.

**Visual field:** The complete area of vision that includes what is seen above, below, to the sides and in the centre. There is a central visual field (directly in front of us), and a peripheral visual field (which we perceive in our "side" vision). Normal visual field is 180 degrees on the horizontal plane.

**Visual field test:** This test measures your peripheral vision. It helps your eye doctor determine if you have lost side vision, a sign of glaucoma.

**Vitreous gel:** A transparent, colourless gel that fills the rear two-thirds of the eye between the lens and the retina.

**Wet AMD:** The wet form of AMD is characterized by the growth of abnormal blood vessels under the macula. The leaky blood vessels cause distortion and loss of central vision, and vision loss may occur quickly.
Appendix C: Acknowledgements

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A bibliography can be viewed at www.cnib.ca.
How to Use the Amsler Grid

Note: If you wear reading glasses, be sure to have them on when using the Amsler Grid.

- Look at Grid with one eye at a time covering the other eye with your hand (repeat for each eye).
- Make sure you stay focused on the centre dot.
- Continue to stare at the centre dot, looking to see that all the lines are straight and all the squares are the same size.
- If any area on the grid appears blurred, distorted, discoloured, or in any way abnormal, contact your eye doctor immediately.
This supportive guide can help you learn more about:

- Symptoms, risk factors, prevention and treatment of age-related eye conditions
- Coping strategies, tips and tricks
- Vision support programs and services available
- What questions to ask your eye doctor
- How to assist someone with vision loss

To obtain a print or audio copy of this guide, call 1-800-563-2642, or view it at cnib.ca.