Vision Health & Patient Choice

PERSONALHEALTHNEWS.CA

Helping Canadians Build a New Vision of Aging

Growing older is a fundamental truth of life and living. But aging is not a story about decline, of becoming less, or making less of a contribution to family and society. There are more of us living longer and in good health than ever before!

Canadians of all ages, and most especially seniors, have the capacity and capability to live in good health, function autonomously and greatly enrich our entire society. But we must be vigilant and proactive about our health and well-being.

Our identities are defined to a large degree by the things we do. When our ability is diminished, for whatever reason, be it a physical or mental change that impacts our function, our sense of self also often changes. Family and friends may also see us differently. The single greatest impact on functional ability in older people comes from sensory impairments like the loss of vision. Every year, more than 50,000 Canadians lose their sight and more than 5.5 million Canadians live today with significant eye disease that could cause vision loss.

We have the technology

Despite our fear, the great news is that many of the conditions that result in vision loss and blindness are treatable. Significant progress has been made in the development of new therapies and preventive treatments for eye diseases such as diabetic retinopathy, age-related macular degeneration, retinal vein occlusion, and glaucoma. In many cases, vision can be preserved or even restored if these conditions are diagnosed early enough. There is a challenge though. Comprehensive eye screening and safe and appropriate treatments must be available and accessible to all those who need them.

Scientific breakthroughs resulting in vision-saving preventive treatments are of little value if those who are at risk are not aware that they should be screened, or if the screenings are not accessible to them. Initiatives like the teleophthalmology program at the South Riverdale Community Health Centre in Toronto, reaching out to provide screenings for large numbers of disadvantaged Canadians at risk of diabetic retinopathy, is a powerful example of creating solutions to ensure equal access regardless of social and economic status. But the journey has just begun.

Dr. Jane Barratt
Secretary General,
International Federation
on Ageing (IFA)

"The single greatest impact on functional ability in older people comes from sensory impairments like loss of vision."

Simultaneously, improving education is essential to empowering patients in the decision making when it comes to determining the most appropriate and effective treatment for the stage and nature of the condition. Self-determination is vital to patients' journey and their lifestyle. When there are multiple treatments available, as with the anti-VEGF therapy that treats several eye diseases, it is absolutely necessary that Canadians are invested in making an informed decision in their own vision care, independent of issues of cost.

If we as a society are committed to creating an environment that supports and enhances the autonomy and independence of our citizens as they age, decisions that may limit access to appropriate therapy must be based on scientific evidence and in consultation with stakeholders including patients, physicians, and patient organizations.

We can't afford not to

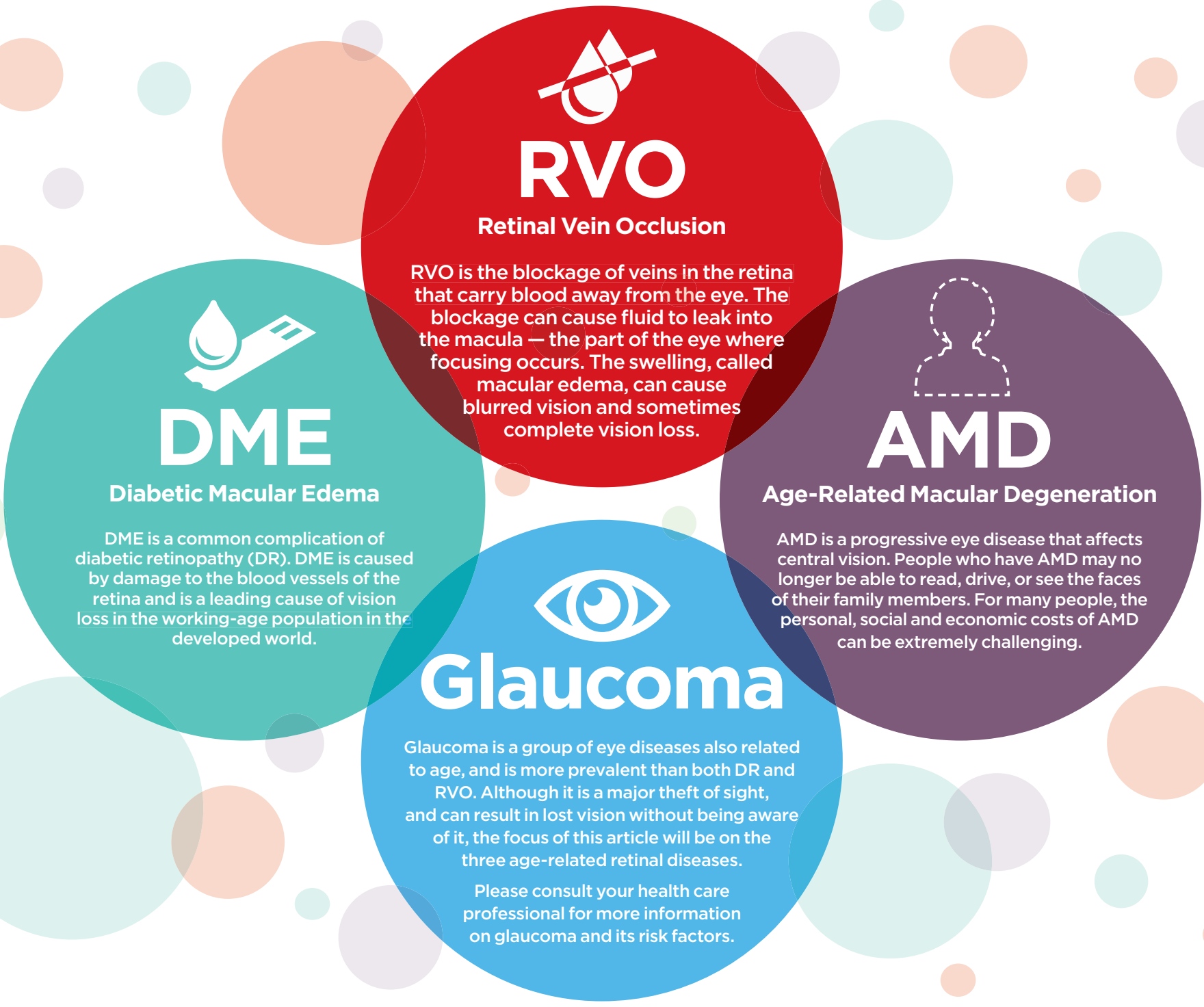
Putting older Canadians at the centre of their own care is a moral imperative in its own right, but the benefits extend well beyond the individual. By changing the narrative of aging and refusing to accept that loss of vision, health, and autonomy are inevitable, we create an entire cohort of experienced, invested, and solid contributors to Canadian society.

This is not a luxury agenda item. With a rapidly aging population both in Canada and globally, the question of how long older Canadians will be able to continue being active contributors rather than passive dependents may well spell the difference between a period of unprecedented growth and an economic crisis.

We need those healthy, independent, and clear-sighted older Canadians to lead the younger generations into a prosperous future.

Dr. Jane Barratt

Presented by the **International Federation on Ageing**



Safeguarding Your Eyesight Now to Prevent Vision Loss in Old Age

Healthy vision is central to the well-being of Canadians, especially as they age. Unfortunately, more than 50,000 Canadians lose their sight every year, and over 5.5 million live with diseases that could eventually cause vision loss.

Dr. Netan Choudhry
Medical Director, Vitreous Retina Macula Specialists of Toronto

Dr. Keith Gordon
Vice President, Research, CNIB

Dr. Alan Berger
Vitreoretinal Surgeon, St. Michael's Hospital

"The big challenge in Canada is that we have an aging population, and all the major retinal diseases that cause vision loss are associated with aging," says Dr. Keith Gordon, Vice President of Research at the Canadian National Institute for the Blind. "We're outliving our eyes."

The big three retinal diseases

When it comes to age-related retinal diseases, the two major ones are diabetic macular edema (DME) and age-related macular degeneration (AMD), with retinal vein occlusion (RVO) being the less significant third. DME is a condition that causes damage to the retina due to diabetes, and is a consequence of diabetic retinopathy, which is the leading cause of blindness in people aged 20 to 64. AMD comes in two forms: the more common dry variant and the less common, but more severe, wet variant. In both types, deposits in the back of the eye weaken the layer under the retina, allowing blood vessels to grow through. Retinal vein occlusion is a blockage in the veins that drain blood from the eye, and can result in rapid and complete vision loss.

These three conditions have a variety of different profiles and risk factors, both controllable (diet and smoking, for example) and uncontrollable (like genetics). Three things that these conditions all have in common, however, are that the risk of developing them increases with age, they currently have no cure, and they have a similar metabolic mechanism. "The three diseases are all driven metabolically by the formation in the eye of unusual levels of a hormone known as vascular endothelial growth factor (VEGF)," explains Dr. Netan Choudhry who is the Medical Director of the Vitreous Retina Macula Specialists of Toronto.

Good treatment options, but no cure

Within the last two decades, the arrival of a number of anti-VEGF therapies on the market has revolutionized the treatment of these diseases, often allowing doctors to completely preserve eyesight in cases where blindness would have been previously inevitable. "The treatments are miraculously successful," says Dr. Alan Berger, a vitreoretinal surgeon at St. Michael's Hospital. "But it's important to remember that they are a treatment, not a cure."

Injection of anti-VEGF therapies needs to continue on an ongoing basis for treatment to be successful, and the outcome can vary dramatically depending on how early the disease is caught. "We wish we had a cure or a good preventive treatment for these diseases, and one day we may have it," says Dr. Berger. "Right now, though, early diagnosis is the best chance for a good outcome."

Early symptoms of these eye diseases can include blurry or distorted vision, dark spots in central vision, or sudden loss of vision and pain in the eye. In some cases, however, the diseases can progress quite severely before any symptoms are noticed. "We have two eyes, and in a situation where one eye is losing vision, the other eye takes over to an extent, so the vision loss creeps up on most people," says Dr. Choudhry. "One of the best things patients can do is to see an eye care provider for a dilated eye exam once a year, starting at the age of 45. Since there are therapies available for these conditions, there is no reason why anyone should go blind provided they have solid education on these diseases — period."

Catching these diseases early, before they have progressed, not only results in better prognosis with current treatment options but can also preserve vision in a way that may leave the door open should a cure be developed in the future. "There is an incredible amount of work going on right now that is very promising," says Dr. Gordon. "But we'll have to wait at least a few years."

D.F. McCourt

Publisher: **Ryan Shepherd** Managing Director: **Martin Kocandrle** Production Director: **Carlo Ammendolia** Lead Designer: **Matthew Senra** Web Editor: **Camille Co** Contributors: **D.F. McCourt, Dr. Jane Barratt**
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RISK FACTORS OF AGE-RELATED RETINAL DISEASES

DME

- ✔ Everyone with Type 1 or Type 2 diabetes is at risk of DME and diabetic retinopathy
- ✔ **Hyperglycemia** — chronic high levels of blood sugars increase the risk of developing DR and DME. Keeping your glycemic levels as close to normal as possible may delay or even prevent the development of DR and DME
- ✔ **Dyslipidemia** — abnormal cholesterol and triglyceride levels may increase your risk of DME
- ✔ **Hypertension** — high blood pressure and the damage it does to your organs are risk factors for DME
- ✔ **Nephropathy (kidney disease)** and cardiovascular disease or heart disease also increase your risk
- ✔ **Cigarette smoking** — increases the risk of DR, which leads to DME
- ✔ **Vitreomacular adhesion** — a condition, characterized by the vitreous attaching to the retina at the macula, increases the risk of DME
- ✔ **Pregnancy** — in women with diabetes; comprehensive dilated eye exams should be considered during any pregnancy
- ✔ Anemia, sleep apnea, glitazone usage, genetics, frequent alcohol consumption, and a sedentary lifestyle

A diabetic patient at the South Riverdale Community Health Centre undergoes the screening program for detection of diabetic retinopathy. Photos: Max Rosenstein

Canadians with Diabetes Need Better Access to Vision-Saving Eye Care

Over 3 million Canadians live with diabetes, and of the many complications the disease can cause — vision loss from diabetic retinopathy is one of the most preventable.

Yet for many diabetic Canadians, access to the eye care and regular screenings that could safeguard their vision has remained elusive. A program at the South Riverdale Community Health Centre (SRCHC) is working to change that.

"Sight-threatening diabetic retinopathy and blindness are quite preventable, so it's important that people with diabetes get screened regularly," says Dr. Michael Brent, an associate professor of ophthalmology at the University of Toronto. "Data from a recent study by the Institute for Clinical Evaluative Sciences in Toronto discovered that more than 400,000 Canadians living with diabetes had not had a single eye screening test over a two-year period, whereas we recommend annual screenings. The areas with the poorest screening rates are in large cities, in low-income communities, and in indigenous communities."

Building the bridge

Seeking to bridge this gap in care, Dr. Brent contacted the SRCHC, an organization in Toronto that serves a very large patient population and focuses primarily on disadvantaged groups who face barriers accessing health services. "Even in the GTA, despite there being excellent access to optometrists and ophthalmologists, people are still under-screened," says Rebecca Merritt, Manager of the Service Administration and Quality Team at the SRCHC. "There are still barriers to people getting the care they need."

Together, Dr. Brent and the SRCHC piloted a program to reach out to and serve as many of these under-screened patients as possible. When clients come in for a screening under this program, they first receive a visual acuity test, followed by a test of their eye pressure, and then finally a dilating eye drop so that a technician can take high resolution photos of their retina. The whole appointment takes about 40 minutes. And then the magic happens. "We use the Ontario Telemedicine Network (OTN) to securely transfer the information to a retina specialist," says Merritt. "The specialist reviews the images and notes from the clinical assistant and makes a recommendation, which is securely transmitted back to us via the OTN. That recommendation is then forwarded to the client's primary care provider." This allows the SRCHC to leverage their existing staff to effectively let them operate as though they had a retinal specialist on site.

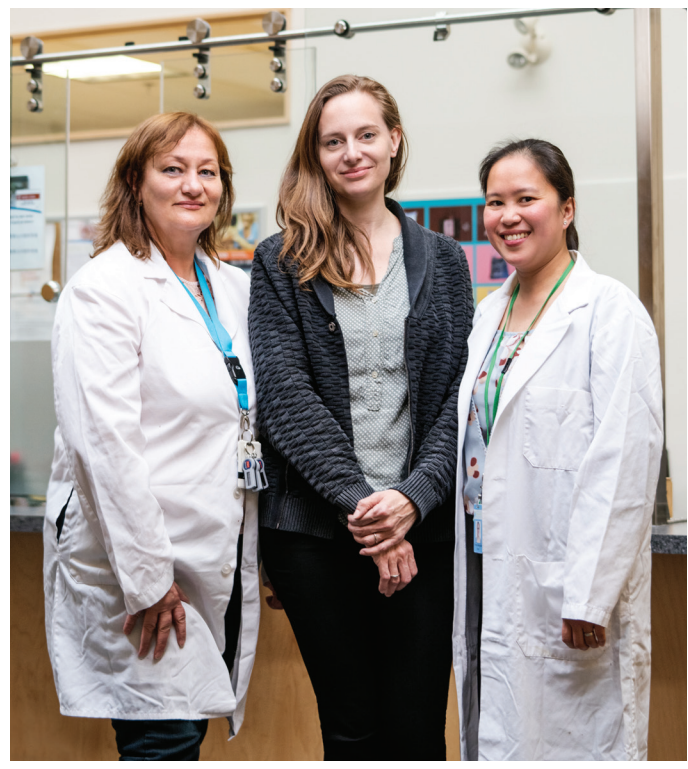
At risk without knowing it

Since launching in December of 2013, the program has screened over 650 patients at five sites. For many, it was their first eye screening since being diagnosed with diabetes. Roughly 60 percent of those screened showed some pathology of the eye, with 19 percent presenting moderate to severe diabetic retinopathy. That's over a hundred Canadians who were at risk of losing their vision without knowing it, and without knowing anything could be done about it. And many of them had no idea. "Often people are asymptomatic as the disease progresses," says Dr. Brent. "By the time they notice symptoms, the disease can be quite advanced. If you don't have treatment for diabetic retinopathy, you are at risk of going blind. But the treatments are very good now, with a high success rate in preserving vision."

One of the fundamental challenges in our health care system is bringing effective screening and treatment to those who need it most, and this program provides one shining example of how that can be successfully done.

For more info visit ***www.srchc.ca*** *or* ***www.eyeseeyou.care***

D.F. McCourt



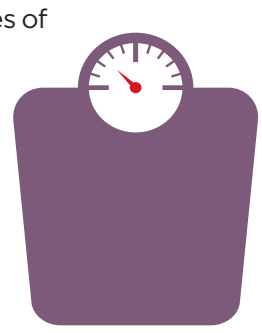
Rebecca Merritt (middle) with two members of her team at the SRCHC. Photos: Max Rosenstein

RVO

- ✔ Age
- ✔ Hypertension
- ✔ Arteriosclerosis
- ✔ Raised intraocular pressure
- ✔ Diabetes mellitus
- ✔ Hyperlipidemia
- ✔ Smoking
- ✔ Oral contraceptive pill
- ✔ Vascular cerebral stroke
- ✔ Blood hyperviscosity, and thrombophilia
- ✔ A strong risk factor for RVO is the metabolic syndrome (hypertension, diabetes mellitus, and hyperlipidemia

AMD

- ✔ The number one risk factor is age
- ✔ Smoking increases a person's chances of developing AMD by two- to fivefold
- ✔ Family history of AMD
- ✔ Gender
- ✔ Race
- ✔ Diet
- ✔ Obesity



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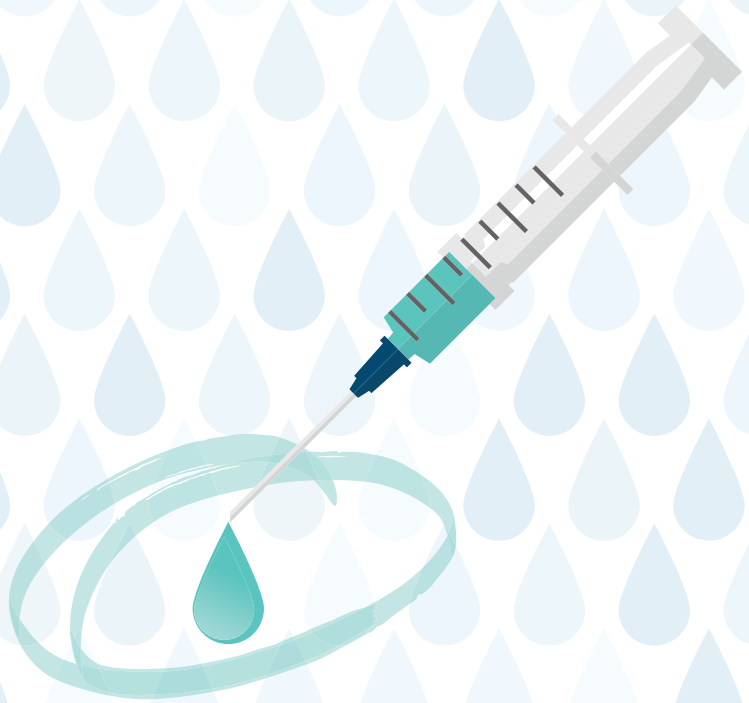

FOR EYE DISEASE,

TAKE AN ACTIVE ROLE IN CHOOSING YOUR TREATMENT

Just fifteen years ago, there were no good treatments for major eye diseases like diabetic macular edema (DME), retinal vein occlusion (RVO), and wet age-related macular degeneration (wAMD). Even patients receiving the best care available at the time had to resign themselves to progressive vision loss and probable blindness. The discovery of new treatments that combat vascular endothelial growth factor (VEGF) has changed that.

For many years, the only treatment for wAMD was laser-based, either through direct laser photocoagulation or through photodynamic therapy. Although these were able to slow down the progression of the disease, they were unable to prevent it — making neither laser-based therapy an ideal solution.

Within the last decade, two new anti-VEGF treatments (ranibizumab and aflibercept) have been approved by Health Canada for use in the eye — these have had dramatic benefits for patients with retinal diseases. During this time, a third anti-VEGF treatment (bevacizumab) has been added to the mix, despite the fact that it is not approved for use in the eye. "These treatments are all in a class called anti-VEGF," explains Dr. David Wong, Ophthalmologist in Chief at St. Michael's Hospital. "VEGF is the primary system that grows blood vessels and when that happens in the eye, it can be a big problem."

The success of these treatments has been described as miraculous, preserving and even improving vision for a great many Canadians who would otherwise have lost their sight. That has provided a great boon to the large population of older Canadians, as age is one of the most important risk factors for these diseases of the eye. "In Canada, people are living longer, but most importantly making significant contribution to Canadian society in paid employment, as well as volunteering in many capacities," says Dr. Jane Barratt, Secretary General of the International Federation on Ageing. "Healthy aging is about being enabled to do what you value, and vision is a critical factor."

2016 CAN-PAT Survey Results

A total of 89 retina specialists from the Canadian Retina Society provided a glimpse into their treatment choices in clinics nationwide.

If the three main anti-VEGF treatments all cost the same AND were covered by your provincial drug plan, which would you use for new-onset wet AMD? (87 responses)

Aflibercept and Ranibizumab	94.3%
Bevacizumab	3.4%
Other	2.3%

If all anti-VEGF agents were equally accessible to the patient (covered by provincial or private plan), which agent would you use to treat a recent branch retinal vein occlusion (BRVO) with vision-affecting macular edema? (84 responses)

Aflibercept or Ranibizumab	72.6%
Bevacizumab	25%
Other	2.4%

If all anti-VEGF agents were equally accessible to the patient (covered by provincial or private plan), which agent would you use to treat a recent central retinal vein occlusion (CRVO) with vision-affecting macular edema? (83 responses)

Aflibercept or Ranibizumab	78.3%
Bevacizumab	18.1%
Other	3.6%

What is your first-line therapy for a new phakic diabetic patient with BCVA = 20/70 and center-involving diabetic macular edema (DME)? (76 responses)

Aflibercept or Ranibizumab	65.8%
Bevacizumab	32.9%
Other	1.3%

Source: The CAN-PAT Committee – Netan Choudhry, MD, FRCSC; Matthew Tennant, MD, FRCSC; James Whelan, MD, FRCSC. The purpose of the Canadian Practice and Trends (CAN-PAT) survey is to measure CRS member retina specialists' preferences on a wide range of medical, surgical, and socioeconomic topics, providing a fascinating glimpse into the daily choices in clinics nationwide.

Not all treatments are created equal

Though the three therapies all have a similar mechanism, there are differences between them that can be very important. Most significantly, bevacizumab has only been approved by Health Canada for use in the treatment of cancer, while ranibizumab and aflibercept have been specifically approved for use in the eye. This means that all uses of bevacizumab to treat eye disease are off-label — the therapy has also not been subjected to the rigorous safety testing required for the specific application of injection into the eye.

On the other hand, bevacizumab is much cheaper than the other two options. Because bevacizumab is manufactured for use in other contexts than the eye, it is sold in much larger vials, and each injection into the eye only uses a fraction of a vial. This is not all up-side though. "When we use bevacizumab in ophthalmology, we have to rely on a compounding pharmacist to take that large vial and break it up into appropriate dosages," says Dr. Robert Devenyi, Ophthalmologist in Chief and Director of Retinal Services at the University Health Network. "So, regardless of which treatment is better, the fact that you need that extra step means that patients are unnecessarily being put at an increased risk of infection. Infection in the eye is a surgical problem and lots of patients lose their eyes completely. It's an absolutely catastrophic complication."

Between ranibizumab and aflibercept, the line is a little fuzzier. "There are differences," says Dr. Wong. "Studies show with the approved anti-VEGFs one has a more durability, but the other has the longer track record. For treating diabetic retinopathy specifically, there is strong evidence from a study called Protocol T that aflibercept performs better than the others in the first year. By the second year both aflibercept and ranibizumab were better than bevacizumab which is not approved for use in the eye."

The important thing is that patients be aware of the choice that exists between these treatments and be empowered to ask the hard questions about safety and why one is being chosen over another. "What we're looking for is a way to optimize the functional ability and contributions of older Canadians, says Dr. Barratt. "Part of that is ensuring that people are well educated and informed about the treatment options available to them to improve their sight."

D.F. McCourt