

OPTOMETRY

Emily McMorris

Optometry



INTRODUCTION

Optometrists are health professionals who help ensure the health and optimization of our eyes and vision. Doctors of optometry - the primary focus of this chapter - diagnose, treat, manage and prevent diseases and disorders of the eye, visual system and its related structures. Ophthalmologists and opticians are two other groups of health professionals concerned with our vision. Ophthalmologists are medical doctors and surgeons, allowing them to diagnose and then treat eye disorders medically or surgically (Canadian Ophthalmological Society). Registered opticians are trained to design, fit and dispense ophthalmic devices (eyeglasses, contact lenses, low vision aids, ocular prosthetics) to improve their client's eyesight (Opticians Association of Canada, 2014).

Optometrists play an important role in maintaining the eye health of Canadians, providing not only eye exams but also diagnosing, treating, managing and preventing visual disorders and diseases such as glaucoma, cataracts, macular degeneration, diabetic and hypertensive retinopathy, infections, allergies and injuries (Doctors of Optometry Canada, 2014). Optometrists are also able to prescribe drugs for the treatment of various eye conditions (College of Optometrists of Ontario, 2014). As primary health-care practitioners, optometrists collaborate with other professionals to help maintain the overall health of their mutual patients. They can also be involved in health-care research, education activities, and the promotion of eye and health safety (College of Optometrists of Alberta, 2014).

Optometry is a growing health profession, with the number of optometrists in Canada increasing sharply between 2005 and 2016 at a rate of 53% (CIHI, 2017). Some provinces, such as Alberta, have experienced even larger growth (CIHI, 2017).

Only two Canadian schools offer the Doctor of Optometry degree program: the University of Waterloo and the Université de Montréal. Due to these limited educational opportunities, many Canadian optometry students choose to attend one of the 23 optometry schools located in the United States (British Columbia Association of Optometrists; ACOE, 2014).

HISTORY¹

THE ORIGIN OF OPTOMETRY IN CANADA

Although the study of vision dates back to 300 and 400 BC with Plato and Euclid's respective theories on vision (Swedberg-Kohli, 2011), it wasn't until the 1700s that spectacle-makers first immigrated to Canada from Europe and sold eyeglasses out of their wagons as they travelled across the country—effectively marking the beginning of eye care in Canada (Hirsch & Wick, 1968). As the country's population grew, the number of self-proclaimed optometry professionals grew as well, creating a need for regulation to determine who was qualified to perform certain tasks.

CANADA'S FIRST OPTOMETRY LEGISLATION

In 1909, the first Canadian provincial optometry acts were passed in Ontario and Manitoba, with Manitoba's being modelled after the legislation passed in New York in 1908. (The evolution of optometry in Canada has been—and continues to be—greatly influenced by events in the United States.) Legislation spread quickly across Canada; by the mid-1920s every province had optometric legislation that ensured only qualified individuals could call themselves optometrists, thereby providing legitimacy to the profession and protection to the public. Legislation also served to standardize optometric education by regulating entry requirements, course content and instructor qualifications.

PROVINCIAL AND NATIONAL OPTOMETRY ASSOCIATIONS

Québec established Canada's first provincial optometry association in 1904. This was followed by the creation of the Western Canada Optometric Association in 1920, which intended to promote a closer relationship among optometrists in the Western provinces. The Maritime Association of Optometrists was formed in 1922.

Several attempts were made to create a national association of optometry, but none were successful until the establishment of the Canadian Association of Optometrists in 1941, with Herbert McClung

(founder of the Saskatchewan Optical Association and an important advocate for a national optometry association) serving as its founding president. The Canadian Association of Optometrists was formally incorporated on June 30, 1948, with the passing of Bill C5.

HISTORY OF OPTOMETRY EDUCATION

Optometry education in the 19th century

The first educational programs for optometry in Canada consisted of correspondence courses, quick classes at private schools and private instruction. In the 1890s, the Optical Institute of Canada and the Dominion Optical College were established in Toronto and Montreal respectively. Lionel Laurence, an immigrant from England, operated both schools and was primarily interested in teaching students to use the optometric instruments he and his brother sold. The two-week training programs at these schools were the first of their kind in Canada and cost \$10 to complete. Many other programs soon followed, such as the Ophthalmic College in Toronto and the British Columbia School of Optometry. Because there was no legislation at the time, these schools were not subject to any quality control. They received no funding from the government and many operated for profit (Swedberg-Kohli, 2011).

Optometry education in the 20th century

Legislation came in 1909 with the *Optometry Act of Ontario*, which required optometry schools to include at least four instructors and the latest technological equipment. The legislation also required students to complete 1,000 hours of training—a significant advance from the two-week courses offered in the 1890s. The beginning of optometric education in the university setting came when Herbert McClung forged a relationship between the College of Optometry and the University of Toronto. The *École d'Optométrie* became affiliated with the Université de Montréal in 1925, though it wasn't until 1969 that the school was fully integrated within the university.

¹ The history was informed heavily by *Lucto et Emergo* (Struggle and Emerge) by Susan Swedberg-Kohli.

Integration of the College of Optometry into the university setting was also a slow process and didn't fully occur until 1967. The University of Toronto denied integration for years, ostensibly due to a lack of space and money. However, Dr. Jack Huber, former president of the Canadian Association of Optometry, felt that the field of medicine feared competition and therefore did not want another Canadian school of optometry (Swedberg-Kohli, 2011). In 1964, the University of Toronto gave notice that the land the College of Optometry was situated on was to be expropriated, propelling the College of Optometry to formally apply for a place at the University of Waterloo. On July 1, 1967, it was announced that the College of Optometry would reside within the School of Optometry at the University of Waterloo.

EDUCATION

CANADA'S OPTOMETRY SCHOOLS

There are only two optometry schools in Canada: the School of Optometry and Vision Science at the University of Waterloo, and the École d'Optométrie of the Université de Montréal. The latter has been in operation for more than 100 years (Swedberg-Kohli, 2011) and both schools are accredited by the Accreditation Council on Optometric Education (ACOE), the only accrediting body for professional doctor of optometry degree programs in the United States and Canada. This accreditation status grants graduates from these schools eligibility to practice in any jurisdiction within Canada or the United States.

ADVANCEMENT OF CANADIAN OPTOMETRY SCHOOLS

Renamed in 2012 to the School of Optometry and Vision Science at the University of Waterloo, this optometry program has progressed significantly since its founding in 1967, with the school now housing the Centre for Contact Lenses Research, the Low Vision Centre for Sight Enhancement and the Canadian Optometric Education Teaching Foundation. It also offers graduate programs at the master's and PhD level. Students in graduate studies can specialize in health care, education and delivery; neurosciences; ocular biology and pathophysiology; and technology and optics (University of Waterloo). The École d'Optométrie at the Université de Montréal has also progressed throughout the years, with its 'new school' approach helping it become known for its leadership in neuron science and research (Swedberg-Kohli, 2011).

PROGRAM REQUIREMENTS AND ADMISSIONS

Including previous undergraduate studies, optometrists complete seven to eight years of post-secondary education. To be eligible for acceptance at the University of Waterloo, applicants must have a minimum of three years of undergraduate education (concentrated in the sciences); most applicants, however, have obtained an undergraduate degree.

WHAT'S IN A NAME?

The current professional designation for Canadian optometrists is Doctor of Optometry (OD). Under previous legislation, only professions licensed under medical legislation—which optometry was not—were permitted to use the title 'doctor'. This legislation was overturned in 1934 after a Toronto law firm argued that optometrists should be permitted to use the title of doctor. Optometrists in Ontario were the first permitted to use the title. As similar legislation spread across Canada, many optometrists were wary to use the title, concerned that doing so would harm their relations with other medical professionals. Gradually, more and more optometrists began to self-label as doctors, and today the title is widely accepted.

Applicants to the École d'Optométrie must complete a preparatory year for the optometry program unless they have a bachelor's degree that is considered equivalent to the preparatory year (École d'Optométrie, 2013). The Doctor of Optometry program runs for four years, with a small number of students completing a one-year residency after finishing their degree. This residency provides graduates with advanced clinical skills. The University of Waterloo currently offers two residencies: a cornea and contact lens residency and an advanced primary care residency.

Entry to the Doctor of Optometry program is quite competitive. At the University of Waterloo, only 90 students are admitted annually out of an approximate 250 applicants. To be considered for admission, applicants must have a cumulative grade point average of 75%; most accepted students' averages are between 79% and 92%.

Prerequisites

Applicants must complete many prerequisite courses prior to acceptance, including courses in the arts, biology, chemistry, mathematics and physics (University of Waterloo School of Optometry and Vision Science). Applicants to the University of Waterloo are also required to complete the Optometry Admissions Test (OAT), a North American standardized test organized by the Association of Schools and Colleges of Optometry. The OAT consists of testing on the natural sciences, reading comprehension, quantitative reasoning and physics (Association of Schools and Colleges of Optometry). To be eligible for admission, applicants must achieve a minimum score of 300 on the OAT; the average OAT score among applicants to the University of Waterloo's 2016 cohort was 370 (University of Waterloo School of Optometry and Vision Science). The test costs \$330 to write and is administered year round.

To be eligible for admission at the École d'Optométrie, applicants must pass the Uniform Test of French Language and Literature from the Ministry of Education of Québec or achieve a score of at least 785 on the French International Test. The R score or *cote de rendement* is used to categorize the academic performance of

Québec students (École d'Optométrie). Students are then selected based on their academic record and admissions interview. A total of 46 students are accepted to the program every year; in Québec, completion of the OAT is not required.

THE COSTS OF AN OPTOMETRY EDUCATION

Canadian schools

The four-year Doctor of Optometry degree can cost anywhere from \$60,000 to \$70,000 to complete, including tuition, books, supplies and equipment. Students can finance their education through student loans or personal bank loans.

American schools

More than 20 universities in the United States are accredited and recognized in Canada. Due to the limited educational opportunities in Canada for optometry, many Canadian students study in the U.S. In fact, there are as many Canadians studying optometry in the United States as in Canada (CAO 2014); however, it is significantly more expensive to attend school in the U.S., with costs ranging from \$175,000 to \$200,000 for the four-year program (CAO).

INTERNATIONALLY EDUCATED OPTOMETRISTS

Because American optometry schools are accredited by the Accreditation Council on Optometric Education (ACOE), students graduating from these schools can work in Canada. Students from schools other than those accredited by the ACOE are considered international graduates and may be able to obtain a licence or certificate of registration to practice in Canada. Non-ACOE accredited international optometric graduates applying to any province (with the exception of Québec) are assessed by the Federation of Optometric Regulatory Authorities of Canada (FORAC, previously the Canadian Optometric Regulatory Authorities), which determines the steps to be followed to qualify for the Canadian Assessment of Competence in Optometry (CACO) licensing examination. The steps of this intensive process are described on the FORAC website.

International Optometric Bridging Program

Some international optometric graduates may be required to take the International Optometric Bridging Program at the University of Waterloo. This program assists applicants with the academic, clinical and language skills required to practice optometry in Canada. After completing the program, applicants will be better prepared to write the CACO exam (University of Waterloo International Optometric Bridging Program). For international optometrists wishing to practice in Québec, the Ordre des optométristes du Québec provides help with bridging education and experience (CAO).

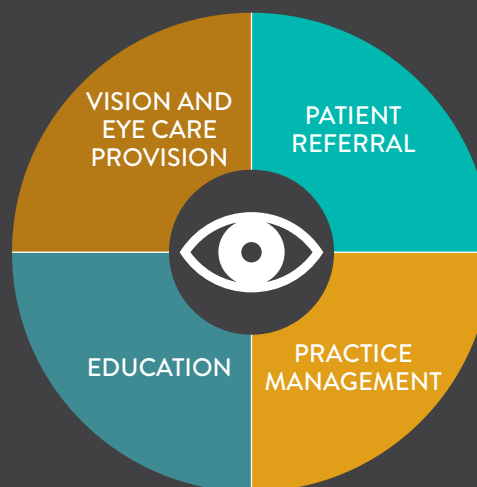
Core competencies

The Canadian Examiners in Optometry (CEO) assess the competency of graduates of ACOE-accredited optometry schools and international graduates as well as their ability to perform the required tasks of the profession. CEO also facilitates the CACO exam required to practice optometry in Canada (CEO, 2014). Graduates cannot be licensed to practice without writing the CACO.

As illustrated in Figure 1, the CEO has identified four core competencies essential for Canadian optometrists:

- **Vision and eye care provision:** Using their knowledge, skill and judgment to meet patients' eye- and vision-related needs with the objective of achieving appropriate outcomes and maintaining or improving the quality of life of their patients.
- **Patient referral:** Referring patients as necessary to meet their vision- and health-related needs.
- **Education:** Providing education on eye and vision health with the goal of encouraging healthy living and appropriate effective eye and vision care. Optometrists should be able to educate groups or individuals in settings other than the patient-practitioner relationship.
- **Practice management:** Applying management skills to optimize the care of patients and make efficient use of health resources.

Figure 1: Core competencies for Canadian optometrists



Source: CEO, 2015

As outlined in Table 1, underlying these competencies are several general attributes Canadian optometrists should possess.

TABLE 1: Attributes underlying optometry competencies

| Attributes Underlying Competencies | Description of Attributes |
|--|--|
| Knowledge and reasoning abilities | <ul style="list-style-type: none"> • Knowledge and comprehension of the core information associated with their profession • Evidence-based decisions made through daily practice |
| Planning abilities | <ul style="list-style-type: none"> • Effective time management, resource management, delegation skills and organizational skills |
| Communication abilities | <ul style="list-style-type: none"> • Ability to effectively use and respond to written, verbal and non-verbal communication |
| Values and ethical principles | <ul style="list-style-type: none"> • Ethical principles applied in professional and societal contexts • Exhibit behaviours that recognize and respect cultural and personal variability in values, communication and lifestyles • Responsibility for outcomes associated with their decisions |
| Self-directed learning abilities | <ul style="list-style-type: none"> • Self-directed learning capabilities utilized to maintain and advance practice and professional role in society |

Source: CEO, 2015

THE COMPETENCY-BASED MODEL OF SCOPES OF PRACTICE

The World Council of Optometry is a global membership organization dedicated to improving eye and vision care internationally through education, policy development and humanitarian outreach. In 2005, it adopted the Global Competency-based Model of Scope of Practice in Optometry. In addition to being a framework to allow mobility for practitioners across countries and coordination of optometric education programs, it is also used to compare the scopes of practice of optometrists internationally (World Council of Optometry). The foundation of the Model is the World Council of Optometry Concept of Optometry Statement, which was agreed upon by all member associations of the World Council:

Optometry is a healthcare profession that is autonomous, educated, and regulated (licensed/registered), and optometrists are the primary healthcare practitioners of the eye and visual system who provide comprehensive eye and vision care, which includes refraction and dispensing, detection/diagnosis and management of disease in the eye, and rehabilitation of conditions of the visual system. (World Council of Optometry)

The Model includes four categories of services, each category building upon the previous:

1. Optical Technology Services

Management and dispensing of ophthalmic lenses, ophthalmic frames and other ophthalmic devices that correct defects of the visual system.

2. Visual Function Services

Investigation, examination, measurement, diagnosis and correction/management of defects of the visual system.

3. Ocular Diagnostic Services

Investigation, examination and evaluation of the eye and adnexa, and associated systemic factors, to detect, diagnose and manage disease.

4. Ocular Therapeutic Services

Use of pharmaceutical agents and other procedures to manage ocular conditions/disease.

The Model has been used to add uniformity to optometric education and scopes of practice internationally.

REGULATION

REGULATORY COLLEGES AND COMMITTEES

Separate regulatory bodies in each province and territory are responsible for the regulation of the optometry profession (see Table 2). Most provinces are regulated by a college of optometry, which receives its authority under provincial health professions legislation. For example, the College of Optometrists of Ontario regulates optometrists in that province under the *Regulated Health Professions Act, 1991*. Some provinces, including Saskatchewan, Manitoba and New

Brunswick, have a government-authorized regulatory committee as a component of the Association, which is formed under an independent act. The territories are regulated by government departments.

Regulatory colleges and committees are responsible for ensuring optometrists provide high-quality care to patients and meet the standards of practice (College of Optometry of Ontario, 2014). Colleges are directed by a board of appointed optometrists and sometimes representatives from the general public.

TABLE 2: Optometry regulatory bodies in Canada

| Province/ territory | Regulatory Body | Year of First Regulation | Current Legislation |
|------------------------|---|-----------------------------|--------------------------------|
| BC | College of Optometrists of British Columbia | 1921 | <i>Health Professions Act</i> |
| AB | Alberta College of Optometrists | 1921 | <i>Health Professions Act</i> |
| SK | Saskatchewan Association of Optometrists | 1909 | <i>The Optometry Act, 1985</i> |
| MB | Manitoba Association of Optometrists | 1909 | <i>The Optometry Act</i> |
| ON | College of Optometrists of Ontario | 1919 | <i>Optometry Act, 1991</i> |
| QC | Ordre des optométristes du Québec | 1906 | <i>Optometry Act</i> |
| NB | New Brunswick Association and College of Optometrists | 1920 | <i>Optometry Act, 2004</i> |
| NS | Nova Scotia College of Optometrists | 1921 | <i>Optometry Act</i> |
| PE | Prince Edward Island College of Optometrists | 1922 | <i>Optometry Act</i> |
| NL | Newfoundland & Labrador Optometric Board | 1928 | <i>Optometry Act, 2004</i> |
| YT | Government of Yukon, Department of Community Services | | <i>Optometrist Act</i> |
| NT | Government of the Northwest Territories, Department of Health and Social Services | | <i>Optometry Act</i> |
| NU | Government of Nunavut, Department of Health and Social Services | | <i>Optometry Act</i> |

SCOPE OF PRACTICE

According to the CAO (Doctors of Optometry Canada, 2014), optometry's scope of practice includes the following:

- Diagnose, treat and help prevent diseases and disorders affecting the visual system;
- Assist in identifying general health conditions that are often detected through an eye exam, provide referrals to specialists and help manage post-surgical care;
- Dispense glasses, contact lenses and subnormal vision devices;
- Review case history; conduct external and internal eye exams; and measure vision qualities such as eye movement and coordination, sharpness of vision and peripheral vision;
- Evaluate the patient's ability to adjust focus and to see colour and interpret depth normally; if problems are detected, recommend glasses, contact lenses, eye exercises, medication or surgery as appropriate; and
- Refer patients to ophthalmologists for medical, surgical or laser treatment.

RECENT CHANGES TO THE SCOPE OF PRACTICE: DRUG PRESCRIPTIONS

The scope of practice for Canadian optometrists has recently evolved, with optometrists now permitted to administer therapeutic pharmaceutical agents in accordance with provincial regulations and restrictions. Previously, drug prescription authorization was only granted to ophthalmologists (to whom optometrists refer patients when needed). As quoted by Fred Horne, the Alberta Minister of Health, one reason for this expanded scope was to improve access:

“A key strategy in improving the health and wellbeing of Albertans is providing increased access to primary health care services in communities – which is where and when Albertans need it. By increasing the scope of practice of Alberta optometrists, the need for referrals to specialists for basic eye care services can be reduced and Albertans will have immediate access to the eye care they need closer to home.” (Government of Alberta, 2014)

The ability to prescribe limited medications required each province to develop new regulations under the *Optometry Act, 1991* (Ministry of Health and Long-Term Care, 2011). It was argued that prescriptive rights would improve access to care for Canadians while reducing the burden on medical and hospital resources. All Canadian provinces have permitted optometrists to prescribe drugs to treat allergies, infections and inflammation. The Western provinces as well as Ontario, Québec, New Brunswick and Yukon allow prescriptive authority for treatment of glaucoma. In Alberta and Saskatchewan, optometrists may also order laboratory diagnostic testing (Alberta College of Optometrists). Table 3 summarizes the prescriptive authority for optometrists across Canada.

TABLE 3: Topical and oral prescriptive authority for optometrists in Canada*

| Province | Medications to treat: | | | |
|----------------------------------|-----------------------|------------|----------|---------------------------|
| | Allergies | Infections | Glaucoma | Pain/Inflammation (NSAID) |
| British Columbia | T | T | T/O | T |
| Alberta | T/O | T/O | T/O | T/O |
| Saskatchewan | T/O | T/O | T/O | T/O |
| Manitoba | T | T/O | T/O | T |
| Ontario | T/O | T/O | T/O | T |
| Québec | T/O | T/O | T | T |
| New Brunswick | T | T | T/O | T |
| Nova Scotia | T | T | | T |
| Prince Edward Island | T | T | | T |
| Newfoundland and Labrador | T | T | | T |
| Yukon | T | T | T | T |

*For details on specific provisions and restrictions please see:

https://opto.ca/sites/default/files/resources/documents/optometry_scope_across_canada_grid_2018_-_july_2018_update.pdf

Source: Canadian Association of Optometry, 2018

Legend: T Topical drugs

O Oral drugs

DEMOGRAPHICS

NUMBER OF OPTOMETRISTS IN CANADA

Between 2005 and 2016, the number of optometrists working in Canada increased by 53%, with a reported 6,102 optometrists in 2016. Ontario and Québec have the most optometrists—and are also the only two provinces with accredited Doctor of Optometry education programs (CIHI, 2017). Alberta has experienced the largest increase in optometrists, climbing 99% between 2005 and 2016. While data on optometry in the territories is scarce, as of 2016 there were nine optometrists in the Territories (CIHI, 2016).

GENDER OF OPTOMETRISTS

As noted in the right-most column of Table 4, the proportion of women in optometry has increased over the years. As of 2016, 53% of Canadian optometrists were female. Québec has the highest proportion of female optometrists, at 68% in 2016 (CIHI, 2012).

Statistics from the School of Optometry and Vision Science at the University of Waterloo suggest that female optometrists will continue to outnumber male pharmacists. Figure 2 profiles the gender of first-year students from 2008 to 2016.

TABLE 4: Number of optometrists in Canada, 2005–2016

| Jurisdiction | 2005 | 2012 | 2016 | Percentage Change, 2005–2012 | Female (%), 2016 |
|--------------|-------|-------|-------|------------------------------|------------------|
| BC | 521 | 606 | 745 | 43% | 49% |
| AB | 384 | 617 | 766 | 99% | 50% |
| SK | 117 | 149 | 183 | 56% | 51% |
| MB | 95 | 141 | 165 | 74% | 45% |
| ON | 1,386 | 2,106 | 2,347 | 69% | 46% |
| QC | 1,249 | 1,424 | 1,549 | 24% | 68% |
| NB | 98 | 116 | 124 | 27% | 57% |
| NS | 86 | 113 | 132 | 53% | 49% |
| PE | 18 | 20 | 21 | 17% | 62% |
| NL | 41 | 57 | 61 | 49% | 48% |
| Territories | N/A | 7 | 9 | N/A | N/A |
| Canada | 3,999 | 5,356 | 6,102 | 53% | 53% |

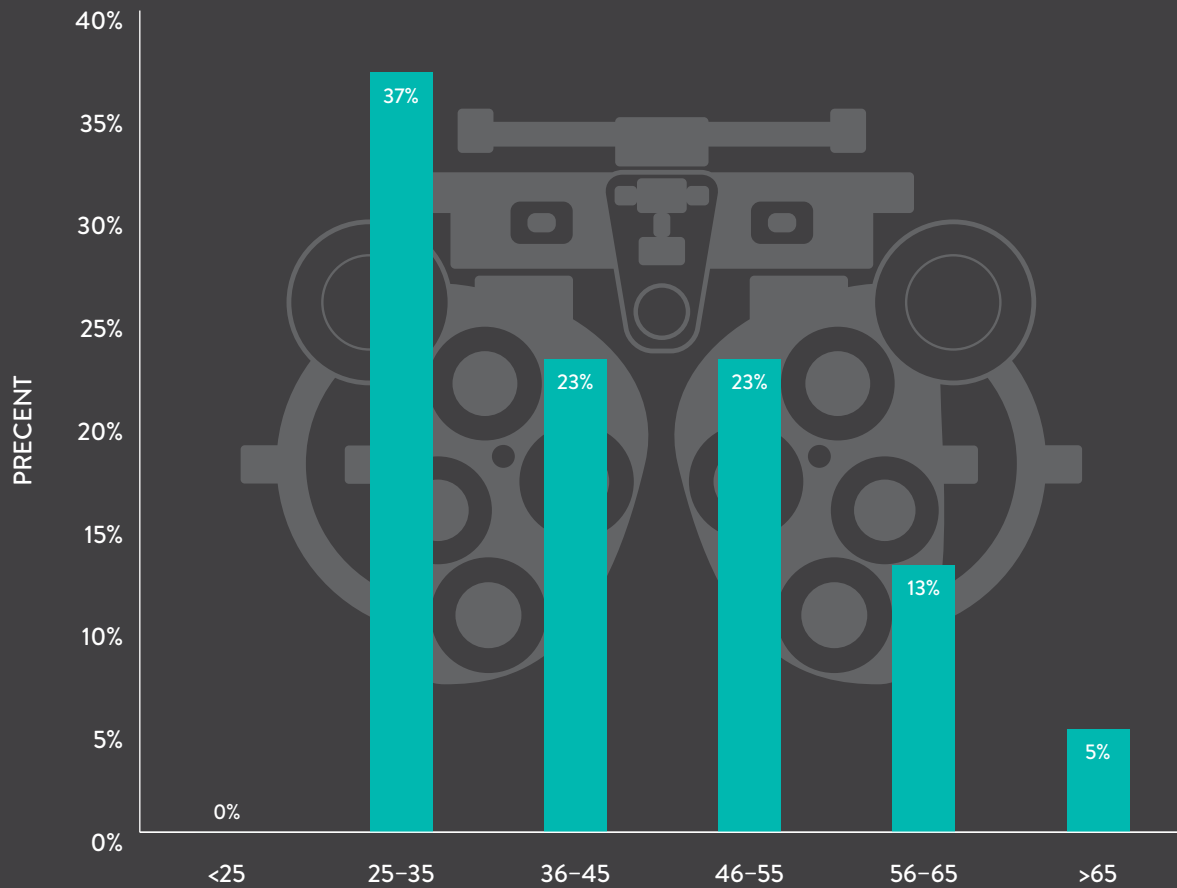
Source: CIHI, 2012; CIHI, 2017

AGE OF OPTOMETRISTS

As shown in Figure 3, the age distribution of optometrists in Canada is relatively young with the majority of optometrists between the ages of 25 and 35 (Little, 2016). Newfoundland has a slightly older optometry

workforce with an average age of 46 while the lowest average age is in Alberta at 39.9 years. The average age of optometrists across Canada is 44.5 years (Little, 2016)

Figure 3: Age distribution of optometrists across Canada by percent, 2016



Source: Little, 2016

Insurance Coverage for Optometry Services

Medical health insurance coverage for optometric eye care differs considerably by province because the *Canada Health Act* does not dictate the provision of optometric services—that is, each province determines if they will cover optometry services as well as the amount to be covered.

While provincial coverage may affect the uptake of eye care, it does not completely dictate the use of eye care providers. For example, although Prince Edward Island has never provided coverage for optometric eye care, in 2012 it had the highest percentage of the population visit an eye care provider in 2012 (Jin, 2012). Table 5 outlines provincial coverage of eye care as of 2014.

TABLE 5: Provincial coverage of eye care

| Province | Eye Health Coverage |
|-------------------------|---|
| British Columbia | Routine examinations are covered annually as a Medical Services Plan (MSP) benefit for patients 65 and older or 18 and younger. All patients are covered for medically required services. The criteria for medically required services include: ocular disease, trauma or injury, systemic diseases associated with significant risk to ocular health (e.g., diabetes), and medications that are associated with significant risk to ocular health. The BC Employment and Assistance Program covers the costs of routine eye examinations every two years and the cost of glasses every two or three years for people receiving income assistance between the ages of 19 and 64. |
| Alberta | Children under 19 and adults over 65 years of age are covered for one complete eye exam, partial exam and single diagnostic procedure per benefit year. Patients between the ages of 19 and 64 are covered for medically necessary conditions that can include monitoring for diabetes issues, glaucoma and retinal disease, post-operative optometric care for cataract patients, eye infections or injuries, and foreign objects in the eyes. Human Services covers eye examinations and glasses every one or two years for adults and dependants 19 years and younger on income support. |
| Saskatchewan | Patients with diabetes and children and youth under 18 years of age are covered for one eye exam every 12 months and for repeat and partial exams. Ocular urgencies and emergencies are covered for all residents. Patients receiving supplementary health benefits (Eg. Patients with Senior's Income Plan, Assured Income for Disability) have additional access to eye exams and coverage for glasses. |
| Manitoba | Children and youth under 19 and adults over 64 years of age are insured for one exam every two-years. Patients between the ages of 19 and 64 are no longer covered, except when medically necessary. Patients receiving Employment and Income Assistance are covered for an eye exam every two years and covered for glasses every three years. |
| Ontario | Patients under the age of 20 and over the age of 65 years are covered annually for an eye examination. Anyone between the ages of 19 and 65 is eligible for an insured major eye examination either through a requisition from a physician or when presenting with an eye disease or disorder that has been designated as meeting the criteria for an insured service. The Ministry of Community and Social Services covers routine eye examinations every two years under OHIP is not available for persons receiving income support through Ontario Works or Ontario Disability Support Program. The program assists with coverage of glasses every three years for the benefit recipient, their spouse and children under 18 years of age. |

TABLE 5: Provincial coverage of eye care

| | |
|----------------------------------|--|
| Québec | Coverage is provided up to age 17 and over 65 years of age. It includes eye exams, tonometry/biomicroscopy, visual field tests and contact lens exams (in some circumstances). Ocular emergency diagnosis is covered for all ages, but treatment is not. Régie de l'assurance maladie Québec covers an eye exam every two years for persons 18-64 who have received financial assistance, persons aged 60-64 who have been receiving a spouse's allowance under the Old Age Security Act and visually impaired persons. Glasses or contact lenses are covered for patients in the Social Assistance Program. |
| New Brunswick | No provincial eye health coverage. Healthy Smiles, Clear Vision is a social development program implemented to assist children 18 years and under from low-income families. This program covers eye examination fees, lenses and glasses yearly. Coverage is also provided to patients 19 years and older on social assistance. There are no other types of provincial health coverage. |
| Nova Scotia | A comprehensive eye examination (CEE) for routine care is payable once in a two-year period for children under 10 and those 65 years of age and older. A CEE is payable once per year for all ages in cases of clinical need (e.g., patients with health conditions such as diabetes, or on medications) that present a risk to ocular health. The Income Assistance program pays \$55 towards a regular eye examination. The program also assists patients with the cost of glasses every two years. The Disability Support Program covers patients for eye exams and glasses every two years. |
| Prince Edward Island | One diabetic eye exam is covered every year for patients with type 1 diabetes and every two years for patients with type 2 diabetes. Eye exams for red eye and dry eye are covered. Parents of children in junior kindergarten can apply to have one eye exam co-payment reimbursement from PEI health under the Eye See Eye Learn program. The Disability Support Program and the Social Assistance program provides optical benefits to patients that meet requirements on a case-by-case basis. |
| Newfoundland and Labrador | No provincial eye health coverage. The Department of Health will contribute \$55 towards the cost of a routine eye examination once every 12 months for children and once every 36 months for those on income support. |

Source: Little, 2016.

TRENDS IN OPTOMETRIST USAGE BY CANADIANS

In 2005, 40% of Canadians aged 12 years or older saw either an optometrist or an ophthalmologist at least once that year (Jin, 2012). Utilization of eye care providers changes based on patient age, with Canadians between the ages of 30 and 39 being the least likely to visit an eye care provider. Visits gradually increase, however, between the ages of 40 and 80. Canadians aged 70 to 80 are most likely to see a provider, most likely due to the increased likelihood of being diagnosed with an eye disease at an older age (Jin, 2012).

Utilization of eye care providers also varies based on region. Individuals residing in Newfoundland and Labrador were least likely to see an eye care provider, while residents in Ontario and Prince Edward Island were the most likely to visit an eye care provider. Even if residents of Newfoundland and Labrador were diagnosed with glaucoma, cataracts or diabetes, they were still significantly less likely to see an eye care provider (Jin, 2012). Incomplete eye care coverage and differences in coverage between provinces may explain this variance.

DIABETES AND VISION HEALTH OF INDIGENOUS PEOPLES

One of the biggest challenges facing the more than 1.2 million Indigenous people in Canada is a disproportionate prevalence of diabetes and related vision loss.

The number of Indigenous people with type 2 diabetes is three to five times higher than the general population. One of the most troubling potential consequences of diabetes is adult blindness (Chris, 2010). Due to the increased occurrence of diabetes in Indigenous communities, a significant amount of preventable blindness will occur in this population. Due to the often rural and remote location of Indigenous communities, access to regular eye exams is limited for Indigenous peoples. A review of the international literature by the National Collaborating Centre on Aboriginal Health suggests that Canada is behind other countries in addressing Indigenous vision health issues (National Eye Health Education Program, 2004).

Canada currently has some programs addressing Indigenous vision issues, including one strategy in British Columbia: the Indigenous children's screening initiative, which is a part of the wider universal vision screening program for preschool and kindergarten aged children in B.C. This program is committed to closing the health gap between the Indigenous and general population. The Canadian National Institute for the Blind also has three innovative and noteworthy programs, including one focused on using culturally appropriate participatory action to overcome barriers to vision care and rehabilitation; the development of culturally relevant visual acuity charts; and a teleophthalmology pilot for diabetic patients living in rural and remote communities in B.C. (Atkinson, 2010). Equitable access to eye care services and the continued development of culturally sensitive programs and is critical for the prevention of Indigenous vision issues.

CONCLUSION

There are a number of concluding points about the optometry profession in Canada:

- Optometry is a large and growing profession that struggled for recognition in the 20th century but is now widely recognized and respected—and has progressively increased its scope of practice to better meet the needs of the Canadian population.
- Within each province and territory, a regulatory board (populated by optometrists) exists to protect the public through the licensing and registration of optometrists.
- Optometrists now have pharmaceutical prescribing authority in every province and territory across the country.
- Optometrists are widely distributed, located in large cities as well as small towns and rural areas.
- Previously a male-dominated profession in Canada, 53% of the current optometrist workforce is female.
- Provincial coverage of optometric services is limited in the Central and Western provinces as well as Nova Scotia, especially for those without private insurance coverage. It is very limited or non-existent in Newfoundland and Labrador, New Brunswick, Prince Edward Island and the territories.

ACRONYMS

| | |
|-------|---|
| ACOE | Accreditation Council on Optometric Education |
| CACO | Canadian Assessment of Competence in Optometry |
| CAO | Canadian Association of Optometrists |
| CEO | Canadian Examiners in Optometry |
| FORAC | Federation of Optometric Regulatory Authorities of Canada |
| OD | Doctors of Optometry |
| WCO | World Council of Optometry |

ADDITIONAL RESOURCES

CANADA

CAO Canadian Association of Optometrists
<http://opto.ca/>

CEO Canadian Examiners in Optometry
<http://www.ceo-eco.org/>

BRITISH COLUMBIA

BCAO British Columbia Association of Optometrists
<https://bc.doctorsofoptometry.ca/>

ALBERTA

AAO Alberta Association of Optometrists
<http://www.optometrists.ab.ca/>

SASKATCHEWAN

SAO Saskatchewan Association of Optometrists
<http://optometrists.sk.ca/HOME>

MANITOBA

MAO Manitoba Association of Optometrists
<http://optometrists.mb.ca>

ONTARIO

OAO Ontario Association of Optometrists
optom.on.ca/OAO/

QUÉBEC

Association des Optométristes du Québec
<http://www.aonet.qc.ca/>

NEW BRUNSWICK

NBAO New Brunswick Association of Optometrists
<http://www.nbao.ca/>

NOVA SCOTIA

NSAO Nova Scotia Association of Optometrists
<https://www.nsoptometrists.ca/>

PRINCE EDWARD ISLAND

PEIAO Prince Edward Island Association of Optometrists
www.peioptometrists.ca

NEWFOUNDLAND AND LABRADOR

NLAO Newfoundland and Labrador Association of Optometrists
<https://nlao.org/>

REFERENCES

Association of Schools and Colleges of Optometry. OAT. Retrieved from <http://www.ada.org/en/oat>.

Accreditation Council on Optometric Education (ACOE). (2014). *Accredited professional optometric degree programs*. Retrieved from http://www.aoa.org/Documents/students/od_program_directory_11_19_2014.pdf.

Atkinson, D. (2010). Aboriginal preschool vision screening in BC: Closing the health gap. *Canadian Journal of Optometry*, 72(4), 17–22.

Bellan, L., Buske, L., Wang, S., & Buys, Y. (2013). The landscape of ophthalmologists in Canada: Present and future. *Canadian Journal of Ophthalmology*, 48(3), 160–166

British Columbia Association of Optometrists. *Optometry as a career*. Retrieved from <http://www.optometrists.bc.ca/code/navigate.aspx?ld=77>.

Canadian Association of Optometrists. *Becoming an optometrist*. Retrieved from <http://opto.ca/optometry-in-canada/becoming-an-optometrist/>.

Canadian Association of Optometrists. *Optometric Bridging Program*. Retrieved from <http://opto.ca/optometry-in-canada/practicing-in-canada/>.

Canadian Association of Optometrists. (2014). *An overview of provincial health coverage for optometric care in 2014*. Retrieved from <http://opto.ca/wp-content/uploads/0/Prov-Health-Coverage-EN-Feb-2014.pdf>.

Canadian Association of Optometrists. (2014). *Topical and oral (T and O) drug prescriptive authority for optometrists in Canada*. Retrieved from <http://opto.ca/wp-content/uploads/0/TandO-chart-for-Canadian-provinces-Jan-13-2014.pdf>.

Canadian Examiners in Optometry (CEO). *Canadian assessment of competence in optometry*. Retrieved from <http://www.ceo-eco.org/index.php?src=gendocs&ref=CACO&category=Main>.

Canadian Examiners in Optometry. *Understanding competence*. Retrieved from <http://www.ceo-eco.org/index.php?src=gendocs&ref=Understanding%20Competence>.

Canadian Examiners in Optometry. (2009). *Guide to the Canadian standard assessment in optometry*. Retrieved from http://docs.ceo-eco.org/dm/cache/documents/CSAOdocs/CSAO_Guide_English.pdf.

Canadian Institute for Health Information. (2012). *Canada's health care providers: Provincial profiles – 2012*. Retrieved from <https://secure.cihi.ca/estore/productFamily.htm?pf=PFC2500&lang=en&media=0>.

Canadian Medical Association. (2009). *Numbers of physician providers*. Retrieved from http://www.cma.ca/multimedia/CMA/Content/Images/Inside_cma/Statistics/02SpecAge.pdf.

Canadian Ophthalmological Society. *What is ophthalmology?* Retrieved from <http://www.cos-sco.ca/vision-health-information/what-is-ophthalmology/>.

College of Optometrists of Alberta. (2014). *What is an optometrist?* Retrieved from <http://www.collegeofoptometrists.ab.ca/links-optometrist.asp>.

College of Optometry of Ontario. (2014). *Scope of practice and authorized acts*. Retrieved from <http://www.collegeoptom.on.ca/index.php/members/professional-practice/scope-of-practice>.

College of Optometrists of Ontario. (2014). *Patient FAQ*. Retrieved from <http://www.collegeoptom.on.ca/index.php/public/patient-faqs>.

College of Optometry of Ontario. (2014). *About the college*. Retrieved from <http://www.collegeoptom.on.ca/index.php/about-us>.

Chris, P. (2010). *Diabetes and Aboriginal vision health*. *Canadian Journal of Optometry*, 72(4). Retrieved from http://www.nccah-ccnsa.ca/docs/nccah%20partner%20documents/Canadian%20Journal%20of%20Optometry_pages56deletled_JulAug.pdf.

Doctors of Optometry Canada. (2014). *Doctors of Optometry Canada*. Retrieved from <http://doctorsofoptometry.ca/>

Dyck, R. (2010). *Epidemiology of diabetes mellitus among First Nations and non-First Nations adults*. *Canadian Medical Association Journal*, 182(3).

École d'Optométrie. (2013). *Année préparatoire au doctorat en optométrie*. Retrieved from <http://www.opto.umontreal.ca/etudes/anneePreparatoire.html>.

Government of Alberta. (2014). *Albertans to have better access to eye care*. Government of Yukon, personal communication, March 27, 2015.

Hirsch, M., & Wick, R. (1968). *The optometric profession*. Philadelphia, PA: Chilton Book Company.

HPRAC. (2010). *Report to the Minister of Health and Long-Term Care on interprofessional collaboration among eye care health professionals*. Retrieved from <http://site.ebrary.com/lib/oculottawa/docDetail.action?docID=10425750&p00=history%20optometry>.

- Jin, Y., & Trope, G. E. (2011). Eye care utilization in Canada: Disparity in the publicly funded health care system. *Canadian Journal of Ophthalmology*, 46(2), 133–138. Retrieved from www.scopus.com.
- Macaulay A, C. (2009). Improving Aboriginal health: How can health care professional contribute? *Canadian Family Physician*, 55(4), 334–336. Retrieved from <http://www.cfp.ca/content/55/4/334.full>.
- Ministry of Health and Long-Term Care. (2011). *New regulation under the Optometry Act, 1991*. Retrieved from http://www.health.gov.on.ca/en/pro/programs/drugs/opdp_eo/notices/exec_office_20110406.pdf.
- Muzzin, L.J., Brown, G.P., & Hornosty, R.W. (1994). Consequences of feminization of a profession: The case of Canadian pharmacy. *Women and Health*, 21(2–3), 39–56.
- National Eye Health Education Program. (2004). *American Indian and Alaska Native Diabetic Eye Disease Communication Plan*. U.S Department of Health and Human Services: National Eye Institute.
- Office of the Fairness Commissioners. (2007), *Study of registration practices of the College of Optometrists of Ontario*, parag. 2.a, 06/2011. Retrieved from http://docs.fairnesscommissioner.ca/docs/optometrists.htm#h1_2.
- Opticians Association of Canada. (2014). *FAQ*. Retrieved from <http://www.opticians.ca/page.asp?id=6#DifferencebwOs>.
- Service Canada. (2013). *Optometrists*. Retrieved from http://www.servicecanada.gc.ca/eng/qc/job_futures/statistics/3121.shtml.
- University of Waterloo. *Vision science graduate studies*. Retrieved from <https://uwaterloo.ca/optometry-vision-science/vision-science-graduate-studies>.
- University of Waterloo School of Optometry and Vision Science. *Admission requirements*. Retrieved from <https://uwaterloo.ca/optometry-vision-science/future-optometry-students/admission-requirements>.
- University of Waterloo International Optometric Bridging Program. *International Optometric Bridging Program*. Retrieved from <http://uwaterloo.ca/international-optometric-bridging-program/>.
- University of Waterloo School of Optometry and Vision Sciences. *Selection process*. Retrieved from <https://uwaterloo.ca/optometry-vision-science/future-optometry-students/admission-requirements/selection-process>.
- World Council of Optometry. *Who is an optometrist?* Retrieved from <http://www.worldoptometry.org/en/about-wco/who-is-an-optometrist/index.cfm>.
- World Council of Optometry. *A global competency-based model of scope of practice in optometry*. Retrieved from http://www.worldoptometry.org/filemanager/root/site_assets/governance_documents/global_competencies_model.pdf.
- Young, T. K. (2000). Type 2 diabetes mellitus in Canada's First Nations: Status of an epidemic in progress. *Canadian Medical Association Journal*, 163(5).