OPTOMETRISTS

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Suggested Citation:
McMorris, E., & Optometrists. In I.Bourgeault (Ed.), (2023). *Introduction to Health Occupations in Canada.* (p. 279–294) Ottawa: Canadian Health Workforce Partners, Inc.

Optometrists

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 (Canadian Association of Optometrists (CAO) 2022).

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, injuries and dry eye. Optometrists are also able to prescribe drugs for the treatment of various eye conditions.

As primary health-care practitioners, Canadian 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.

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, 2022). 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, 2017).

History[1]

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

1 The history was informed heavily by Lucto et Emergo: The Story of the CAO and Optometry in Canada by Susan Swedberg-Kohli, 2011.

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.

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 (FORAC 2021). This accreditation status grants graduates from these schools eligibility to practise 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 levels. 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.

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, 2022). 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.

Prerequisites

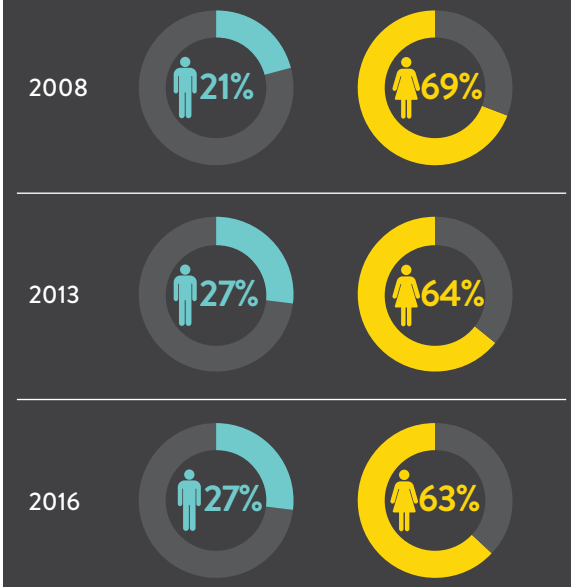
Applicants must complete many prerequisite courses prior to acceptance, including courses in the arts, biology, chemistry, mathematics and physics (University of Waterloo School of Optometry and Vision Science). Applicants to the University of Waterloo are also required to complete the Optometry Admissions 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 2022). Students are then selected based on their academic record and admissions interview. A total of 46 students are accepted to the program every year.

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.

Figure 1: Number of first-year students enrolled in the University of Waterloo School of Optometric and Vision Sciences by gender, 2008–2016



Source: University of Waterloo School of Optometry and Vision Science

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%.

The costs of an optometry education

Canadian schools

The cost of the four-year Doctor of Optometry degree is close to $100,000 which can be financed through student loans or personal bank loans.

American schools

Because American optometry schools are accredited by the Accreditation Council on Optometric Education (ACOE), students graduating from these schools can work in Canada. 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. The costs of studying optometry in the United States is significantly more expensive, closer to $250,000 for the four-year program (CAO, 2022).

Scope of Practise

According to the CAO (2021), optometry's scope of practise 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.

Core competencies

The Optometry Examining Board of Canada (OEBC, formerly 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.

There are nine areas of optometry practise:

1. Communication
2. Professionalism
3. Patient-Centred Care
4. Assessment
5. Diagnosis and Planning
6. Patient Management
7. Collaborative Practise
8. Scholarship
9. Practise Management

(Cane et al., 2018) (Figure 2).

Figure 2: Core competencies for Canadian optometrists

Source: CEO, 2015

The Competency-based Model of Scopes of Practise

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 Practise 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 practise of optometrists internationally (World Council of Optometry, 2005). 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, 2005)

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

4. Ocular Therapeutic Services	Use of pharmaceutical agents and other procedures to manage ocular conditions/disease.
3. Ocular Diagnostic Services	Investigation, examination and evaluation of the eye and adnexa, and associated systemic factors, to detect, diagnose and manage disease.
2. Visual Function Services	Investigation, examination, measurement, diagnosis and correction/management of defects of the visual system.
1. Optical Technology Services	Management and dispensing of ophthalmic lenses, ophthalmic frames and other ophthalmic devices that correct defects of the visual system.

The Model has been used to add uniformity to optometric education and scopes of practise internationally. The Model was reviewed and revised in 2015.

TABLE 2: Topical and oral prescriptive authority for optometrists in Canada

	Medications to treat:			
Province	**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

Source: Canadian Association of Optometry, 2021
Legend: T Topical drugs
O Oral drugs

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 practise 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). If qualified, applicants are required to write the Internationally Graduated Optometrist Evaluating Exam (IGOEE) administered by the Touchstone Institute.

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 practise optometry in Canada. For international optometrists wishing to practise in Québec, the Ordre des optométristes du Québec provides help with bridging education and experience (CAO).

Recent changes to the scope of practise: Drug prescriptions

The scope of practise 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 practise 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.

Regulation

Separate regulatory bodies in each province and territory are responsible for the regulation of the optometry profession (see Table 3). 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 practise (College of Optometry of Ontario, 2014). Colleges are directed by a board of appointed optometrists and sometimes representatives from the general public.

TABLE 3: Optometry regulatory bodies in Canada

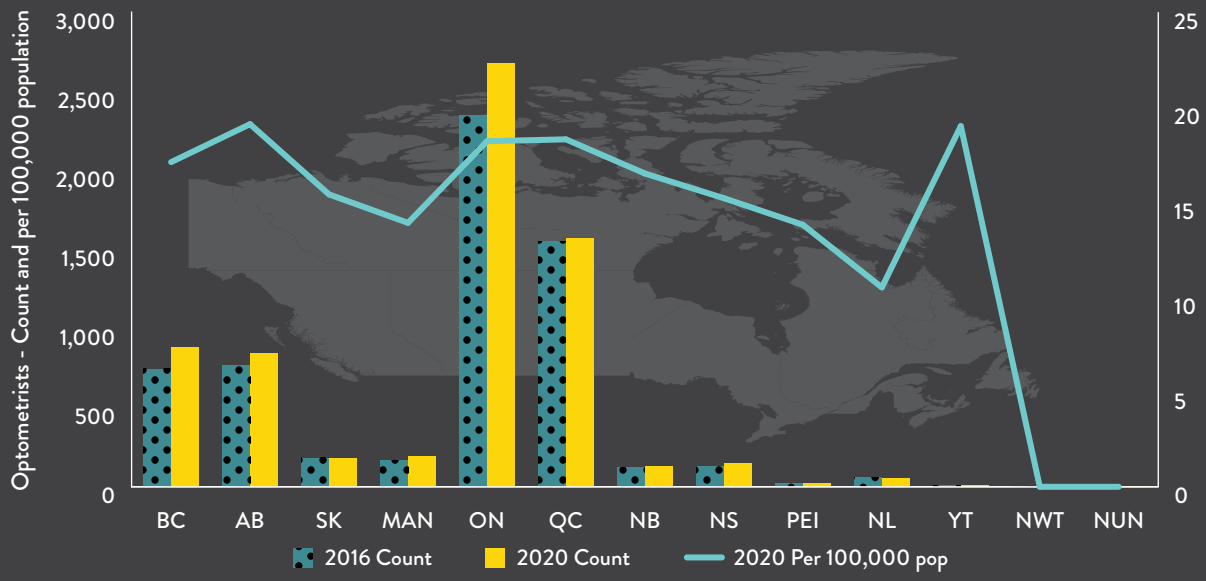
Province/ territory	Regulatory Body	Year of First Regulation	Current Legislation
BC	College of Optometrists of British Columbia	1921	*Health Professions Act*
AB	Alberta College of Optometrists	1921	*Health Professions Act*
SK	Saskatchewan Association of Optometrists	1909	*The Optometry Act, 1985*
MB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

Demographics

Number of optometrists in Canada

In 2020 there was a total of 6707 optometrists in Canada, an increase of 10% since 2016. Figure 3 reveals that Ontario and Quebec have the largest number but the province with the highest per population ratio is Alberta.

Figure 3: Optometrists—count and per population rates in Canadian provinces and territories, 2016 and 2020



Source: Canadian Institute for Health Information, 2022, Health Workforce Database.

Gender of optometrists

Figure 4 depicts the percentage of women in the profession of optometry by province. Two trends are notable. First, there are more women in the professions in each province in 2020 than in 2016. Second, the highest proportion of women are in Quebec, PEI and New Brunswick.

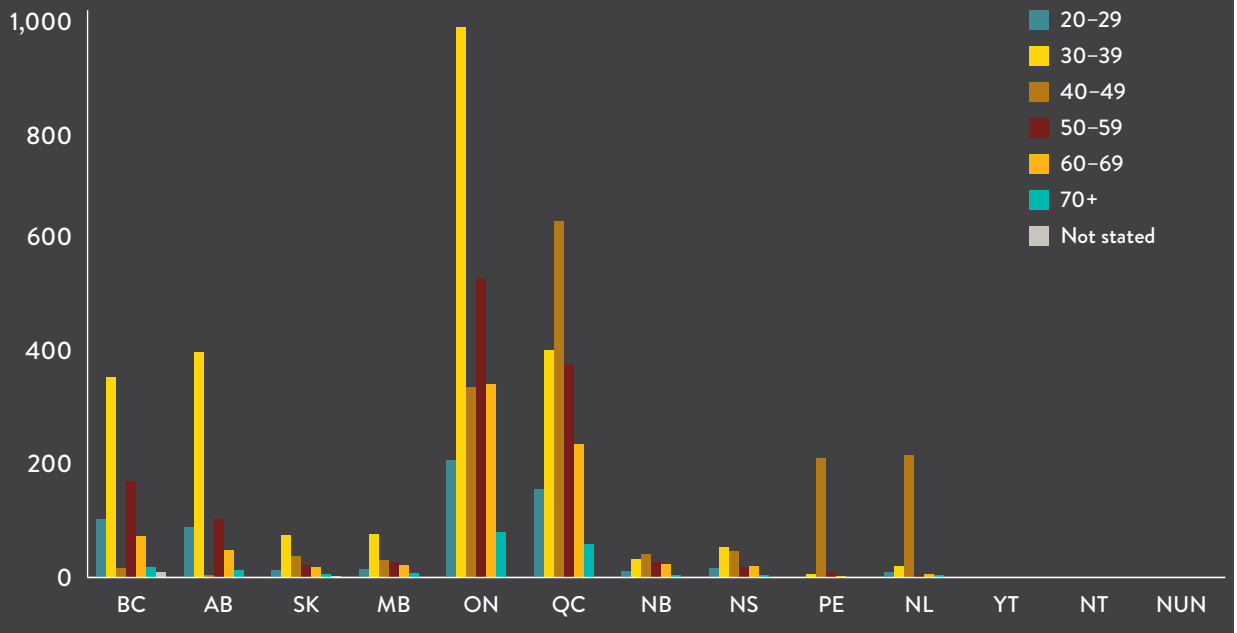
Figure 4: Proportion of optometrists that identify as women, by Canadian provinces and territories, 2016 and 2020

Source: Canadian Institute for Health Information, 2022, Health Workforce Database.

Age of optometrists

Figure 5 represents the age distribution of optometrists in 2021 across the provinces and territories.

Figure 5: Age distribution of optometrists across Canada, 2021



Source: CAO 2022

Indigenous Access to Eyehealth and Vision Care in Canada

In 2018, the CAO prepared a fact sheet on how Indigenous Canadians, particularly those living in rural and remote areas, experience several barriers to accessing vision care. They noted the impact of this lack of access in terms of high levels of astigmatism among Indigenous children, increased risk from diabetic retinopathy leading to vision loss and lack of access to rehabilitation services in their communities.

They called for barriers to care to be reduced and new models of in-community services to be developed with engagement of Indigenous communities. This would include establishing community-based and culturally appropriate prevention strategies, providing timely access to quality, vision care, enhance care components of Health Canada's Non-Insured Health Benefits Program. This fact sheet also called for a pan-Canadian Framework for Action coordinated by the Public Health Agency of Canada through a 'Vision Desk' and for greater funding for research on Indigenous peoples' eye health and models for access to care.

Growing eye health and vision care needs of Canadians

In a report commissioned by the CAO (Little, 2018), it called for the following strategies to meet the growing eye health and vision care needs of Canadians:

1. Enhance the use of ODs for primary eye care by:
    - optimizing the scope of practise of ODs across Canada to align with their education and training and national competencies
    - addressing barriers to access to eye health services, particularly for children and marginalized populations
2. Use ophthalmologists as much as possible for their unique expertise and competencies in secondary and tertiary care.
3. Assess ophthalmology postgraduate capacity to ensure the future supply of ophthalmologists is adequate to meet the specialized eye care needs of Canadians.
4. Align and enhance competencies, scope of practise and education of each of the eye health and vision care provider groups with emerging technologies, pharmaceuticals and procedures.
5. Enhance interdisciplinary eye health and vision care services and appropriate use of providers by:
    - developing joint national referral and consultation guidelines
    - educating each provider about other eye health and vision care providers' competencies and scopes of practise
    - implementing best practise and/or innovative collaborative models of care
6. Optimize the use of emerging technologies to improve:
    - access to safe, appropriate eye health and vision care services
    - interprofessional collaboration
    - accuracy and timeliness of diagnosis and treatment
    - access to eye health and vision care services in rural and remote areas
7. Promote timely access to services, especially in remote and underserved areas, by:
    - implementing geographical incentives for eye health and vision care providers
    - exploring innovative models of care that optimize the scope of practise of existing providers
    - including rural and remote clinical placements in educational curricula
8. Launch a vision health public awareness campaign targeting the general public, as well as underserved and at-risk populations including Indigenous people, children and seniors.
9. Enhance data collection to provide pan-Canadian workforce data and address other data limitations identified in this report to support eye health and vision care HHR planning.

Insurance Coverage for Optometry Services

Medical health insurance coverage for optometric eye care differs considerably by province because the *Canada Health Act* does not include 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.

The impact of the COVID-19 pandemic on Optometry

According to the Canadian Association of Optometrists, the COVID-19 pandemic had a significant effect on optometry, particularly in the first few months when all clinics were ordered shut except for emergency cases. Once the shutdown order was lifted, optometry practises had to address significant operational challenges: A backlog of patients, scarcity or unavailability of PPE, physical distancing requirements, and challenges using diagnostic equipment such as the slit lamp given the close proximity it requires between clinician and patient.

The profession started looking much more closely at teleoptometry and artificial intelligence as potential modalities for providing some optometry services. However, billing challenges were particularly acute in the first few months. This can be of consequence in remote, rural and northern communities. An Abacus poll, commissioned by the Canadian Association of Optometrists in 2021, showed that approximately 8% of Canadians had challenges accessing primary vision care. The long-term challenges are just beginning to become apparent. Anecdotally, these challenges seem to be mostly regarding longer wait times in some regions, and staff shortages across the country.

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 practise 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, over half of the current optometrist workforce are those who identify as women.
- Provincial coverage of optometric services is variable across the provinces and territories and generally quite limited..

Additional Resources

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

Canadian Scope of Practise
An interactive scope of practise map including TPA, Steroid, Glaucoma, Procedures and Lab/Imaging from New Canadian Optometrists

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/

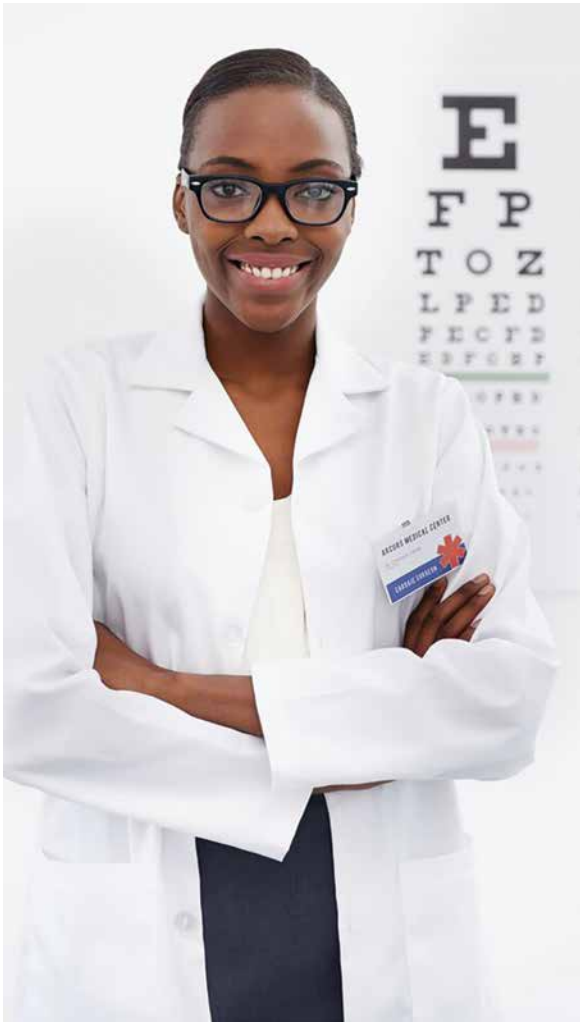
Québec
Association des Optométristes du Québec
http://www.aoqnet.qc.ca/

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://nleyedoctors.com/



Acknowledgements

Parts of this material are based on data and information provided by the Canadian Institute for Health Information. However, the analyses, conclusions, opinions and statements expressed herein are those of the author and not necessarily those of the Canadian Institute for Health Information.

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
IGOEE	Internationally Graduated Optometrist Evaluating Exam
OD	Doctors of Optometry
WCO	World Council of Optometry

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