

Approaches to Reduce or Eliminate the Risks of Sight Tests in Alberta: A Jurisdictional Review

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Abstract

This research report is motivated by two independent case reports featuring individuals living in Alberta, Canada who experienced permanent vision loss as a result of inadequate standards of practice surrounding sight tests. Sight tests are usually performed by opticians and are conducted independently of a comprehensive eye exam. A description of the two case reports and a discussion of the potential dangers of sight tests provide evidence of the public health risks associated with sight tests. To investigate potential approaches to reduce or eliminate the risks of sight tests in Alberta, we conducted a jurisdictional review examining the laws and standards of practice governing sight tests in Canada, the United States, New Zealand, and the United Kingdom. Based on this jurisdictional review, the outright prohibition of sight tests in Alberta may be the best approach to protect the public interest and reduce cases of avoidable vision loss. As seen in other Canadian provinces, alternative approaches to reduce the risk of sight tests may involve 1) developing and enforcing restrictions regarding the performance of sight tests or 2) developing clearly defined scenarios in which opticians can collaborate with authorized prescribers to deliver safe sight tests.

KEYWORDS:

Vision test, Sight test, Risk, Eye, Alberta, Public Health

INTRODUCTION

Sight tests involve the use of automated refraction equipment to determine a patient's prescription for glasses. Sight tests are usually performed by opticians and are conducted independently of a comprehensive eye exam. While performing sight tests, opticians measure a patient's refractive error, but do not assess an individual's binocular vision status or eye health status.¹ In contrast, during a comprehensive eye exam, an optometrist or ophthalmologist assesses a patient's refractive status, binocular vision status and eye health status.

Since opticians do not assess an individual's binocular vision status or eye health status during a sight test, there are potential risks associated with receiving them:

- 1) When performing sight tests, opticians do not diagnose or detect diseases and other conditions of the eye which, if left undiagnosed and untreated, may result in irreversible damage or permanent vision loss. According to a 2014 study, over a quarter of patients (26.1 %) aged 19-64 presenting in an optometrists' clinic with solely refractive-based symptoms were also diagnosed with an asymptomatic ocular condition.² This study highlights the prevalence of asymptomatic eye diseases and underscores the risk associated with uncoupling refractive care and ocular health assessment.
- 2) Patients who receive a sight test may be unaware of the difference between a sight test and a comprehensive eye exam and may incorrectly assume they have received a comprehensive eye

health assessment.³ A recent study points towards a general lack of public knowledge regarding eye care professionals. The study found that less than 25% of focus group participants could correctly explain the difference between optometrists, ophthalmologists, and opticians.⁴ If the public is unaware of the difference between eye-care professionals, it is also likely they are unaware of the differing levels of care provided by each profession.

- 3) If an ophthalmologist or optometrist uses the result of a sight test alone to issue a patient's prescription (without examination of the patient's binocular status), the patient may experience eyestrain, headaches, or double vision. Prescriptions should only be issued following examination of the results of all tests performed during a comprehensive eye exam.

CASE REPORTS

The following case reports feature two individuals living in Alberta, Canada and provide evidence of the risks of sight tests.

The first case involves a 59-year-old female who had been making regular visits to an optician from 2012 to 2016. During this period, the optician performed several refractions on the patient and sent the results to an off-site ophthalmologist who issued a spectacle prescription after each sight test. With each visit to the optician, the patient received progressively stronger spectacle prescriptions but experienced continually deteriorating vision. This spurred the patient to see an optometrist in December 2016. Notably, this was the patient's first comprehensive eye exam in many years. The optometrist diagnosed the patient with longstanding chronic angle closure glaucoma, and although an on-call ophthalmologist performed emergency surgery, the patient suffered permanent vision loss from the delay in diagnosis.

The second case report involves a young girl who, at the age of three, received a sight test from an optician. At the time, the girl's mother was unaware of the difference between a sight test and a comprehensive eye exam, and the optician did not inform her of this important distinction. Therefore, the mother assumed that she had done her due diligence in getting her daughter's eyes checked. Approximately four years later, after receiving several additional sight tests, the girl received a comprehensive eye exam from an optometrist, only to be diagnosed with anisometropic refractive amblyopia, or lazy eye. The optometrist partnered with an ophthalmologist to devise an appropriate treatment plan for the girl, which required the girl to wear glasses full-time and a patch over her healthy eye. However, due to the late diagnosis, the treatment was only partially effective. The young girl never regained 20/20 vision and suffered permanent vision loss in one eye.

Given these two case reports, it is important to consider the current laws and Standards of Practice surrounding sight tests in Alberta. Schedule 16 of Alberta's Health Professions Act grants opticians registered under the Alberta College and Association of Opticians (ACAO) the legal authority to perform refractions (sight tests) and identify the need for corrective lenses. Refracting opticians in Alberta can administer sight tests and, following approval by an authorized prescriber, dispense corrective lenses.⁵ Importantly, the ACAO's Standards of Practice permit any individual, regardless of age, medical history, or date of last comprehensive eye exam to receive a sight test. With regard to optometry, the Alberta College of Optometrists (ACO) Clinical Practice Guidelines for Telehealth state that optometrists should not issue or authorize an optical prescription generated from a remote refraction.⁶ With regard to ophthalmology, the College of Physicians and Surgeons of Alberta's (CPSA) telemedicine Standards of Practice state that "a regulated member must not issue or sign a prescription, by electronic or other means, unless the regulated member obtains a medical history and conducts an appropriate examination of the patient adequate to establish a diagnosis and identify underlying conditions".⁷ The case reports described above demonstrate that the laws and Standards of Practice surrounding optician-performed sight tests in Alberta may not be adequate to protect the public's best interest. To investigate approaches to reduce the risks of sight tests in Alberta, we examined sight-testing regulations and standards of practice in other jurisdictions.

JURISDICTIONAL REVIEW

The following section summarizes a jurisdictional review that examined the laws governing sight tests in Canada, the United States, New Zealand, and the United Kingdom. These jurisdictions were selected as they regulate the practice of opticianry and are comparable in terms of standard of living. Therefore, it should be easier to implement practices from these jurisdictions than those from jurisdictions with substantially different standards of living.

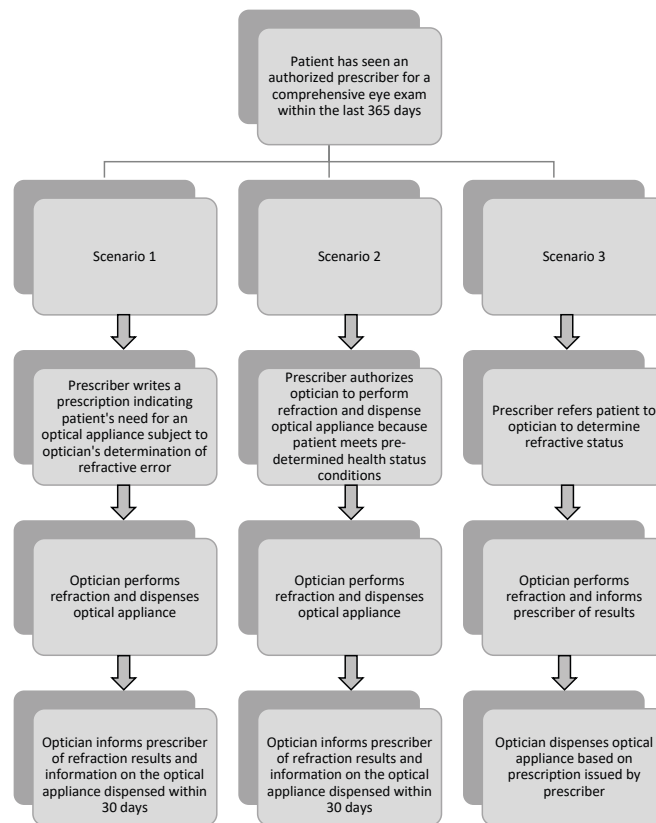
Canada

As shown in Table 1, Alberta, British Columbia (B.C.), and Ontario are currently the only provinces in Canada where opticians are permitted to perform sight tests.

Unlike the ACAO, the College of Opticians of British Columbia (COBC) and the College of Opticians of Ontario (COO) have placed additional restrictions on the performance of sight tests. Table 2 summarizes the sight-testing restrictions enforced in B.C. and Ontario.

In addition to the sight-testing restrictions enforced in Ontario, the COO’s Standards of Practice define three scenarios in which opticians and authorized prescribers may work together to allow an optician to safely refract and dispense an optical appliance. These scenarios were developed after the Government of Ontario rescinded opticians’ authorization to independently refract in 2009. Figure 1 outlines each of the three scenarios.

Figure 1: The College of Opticians of Ontario’s three generic scenarios in which opticians can collaborate with authorized prescribers to safely refract and dispense an optical appliance.⁹



United States of America

In the United States of America, all 22 states that regulate the practice of opticianry have enacted legislation that either explicitly prohibits sight tests or excludes sight tests from an optician’s scope of practice (Table 3). The 28 states that do not regulate opticians were excluded from this analysis as they lack legislation defining the practice of opticianry and what it can or cannot include.

New Zealand

Dispensing opticians in New Zealand are prohibited from performing sight tests.¹⁰ The Optometrists and Dispensing Opticians Board in New Zealand defines the scope of practice for opticians to include interpreting and dispensing optical prescriptions and giving advice and instruction on optical devices.¹¹

United Kingdom

In the United Kingdom, Section 24 of the *Opticians Act 1989*, restricts the practice of sight testing to medical practitioners and registered optometrists.¹² Further, the General Optical Council, the United Kingdom's regulatory body for the practice of optometry and opticianry, released a statement emphasizing that “no part of the sight test can be delegated to a dispensing optician or contact lens optician, even under supervision”.¹³

DISCUSSION

Of the 34 jurisdictions examined, 31 prohibit opticians from performing sight tests. Therefore, based on this jurisdictional review, it can be concluded that the most common and potentially best approach to reduce the risks of sight tests in Alberta is to completely prohibit them. When it comes to protecting and preserving eye health, regular, comprehensive eye examinations are the gold standard as they prevent vision loss by screening for asymptomatic diseases.¹⁴

As seen in Table 1, Alberta, B.C., and Ontario, are the only three provinces in Canada where opticians are permitted to perform sight tests. Importantly, the COBC and COO, unlike the ACAO, have implemented sight-testing restrictions surrounding patient age, medical history, personal vision, understanding of a sight test, and date of last eye exam (Table 2). In addition, ACO recently advocated that the following conditions should also preclude an individual from receiving a sight test:

- 1) Under the age of 18 or over the age of 65
- 2) Not able to achieve a best corrected acuity of 6/12 (20/40) in either eye
- 3) Diabetes or any other medical condition that may affect visual acuity and cause large changes in refractive status from day to day
- 4) Family or personal history of eye disease
- 5) Personal history of eye trauma
- 6) Prescriptions over 5D spherical component
- 7) Prescription changes of more than 1D cylinder component from previous prescription
- 8) Binocular vision condition and/or prism component to prescription

Restrictions regarding an individual's age, medical history, or personal vision conditions are extremely important to ensure that those at higher risk for developing ocular diseases receive a comprehensive eye examination rather than a sight test. As such, the sight-testing restrictions enforced in B.C. and Ontario and suggested by the ACO provide an alternative approach to reduce the risks of sight tests in Alberta.

Finally, the COO's interprofessional collaboration scenarios provide a third approach to reduce the risks of sight tests in Alberta (Figure 1). These three generic scenarios demonstrate that opticians can collaborate with prescribers in clearly defined scenarios to safely perform a sight test and dispense an optical appliance. Critically, each scenario requires the patient to have had a comprehensive eye examination by an optometrist or ophthalmologist within the last year. This requirement ensures that an eye-care professional trained in the detection of ocular diseases has been physically present to inspect the patient's eyes before an optician performs a sight test. If this requirement had been in place in Alberta, an optometrist or ophthalmologist would likely have detected the ocular conditions presented by the two individuals in the case studies, and the unfortunate outcomes in both cases may have been avoided. Notably, for the second case involving the young girl with amblyopia, it cannot be definitively stated that the unfortunate outcome would have been avoided had her condition been detected and the treatment plan initiated earlier. However, research shows that children with amblyopia regain more visual acuity with earlier treatment than with later treatment.¹⁵ Thus, defining interprofessional collaboration scenarios and integrating them into the ACAO's standards of practice offers another approach to ensure that patients receive safe care from refracting opticians in Alberta.

Our study may be limited by several factors. First, our paper offers a description of only two cases in which patients suffered unfortunate outcomes as a result of inadequate standards of practice surrounding sight tests. It is difficult to measure the scale of this issue in the province due to a lack of data surrounding the number of patients who experienced an unfortunate outcome related to sight tests. Second, our jurisdictional review did not include the 28 U.S. states or the three Canadian territories that do not regulate the practice of opticianry. Since the profession is unregulated in these jurisdictions, it was difficult to ascertain whether opticians in these jurisdictions commonly perform sight tests. For this reason, we had to limit the scope of our analysis to jurisdictions that regulate opticians.

CONCLUSION

In this report, we provided evidence of the public health risks associated with sight tests. Based on our jurisdictional review and the permanent vision loss experienced by the individuals in our two case reports, it can be concluded that the best approach to reduce the risks of sight tests in Alberta is to prohibit sight tests in their entirety. Drawing from the standards of practice implemented by the COBC and COO, alternative approaches may involve 1) ensuring that appropriate restrictions around the performance of sight tests are developed and enforced or 2) integrating interprofessional collaboration scenarios into standards of practice that clearly define how opticians can collaborate with authorized prescribers to safely refract and dispense an optical appliance. ●

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Table 1: Overview of the regulatory bodies and legislation governing opticians in Canada’s 10 provinces.

Jurisdiction	Regulatory Body	Governing Legislation	Can Opticians Perform Stand Alone Sight Tests?
Alberta	Alberta College and Association of Opticians	Opticians Profession Regulation 45/2011	Yes
British Columbia	College of Opticians of B.C	Opticians Regulation 118/2010	Yes
Saskatchewan	Saskatchewan College of Opticians	The Opticians Act, SS 2010, c O-5.1	No
Manitoba	The Opticians of Manitoba	The Opticians Act, CCSM c O60	No
Ontario	The College of Opticians of Ontario	Opticianry Act, SO 1991, c 34	Yes
Quebec	The Order of Opticians of Quebec	Dispensing Opticians Act, CQLR c O-6	No
Newfoundland and Labrador	The Dispensing Opticians Board of Newfoundland and Labrador	Dispensing Opticians Act, SNL 2005	No
New Brunswick	Opticians Association of New Brunswick	Opticians Act, SNB 2002, c 58	No
Nova Scotia	The Nova Scotia College of Dispensing Opticians	Dispensing Opticians Act, SNS 2005, c 39	No
Prince Edward Island	P.E.I Board of Dispensing Opticians	Dispensing Opticians Act, RSPEI 1988, c D-12	No

Note: Canada’s territories (Nunavut, Yukon, and Northwest Territories) were omitted from this analysis as opticians are not regulated in these jurisdictions.

Table 2: Summary of sight-testing restrictions outlined in B.C. and Ontario's optician Standards of Practice.^{8,9}

Type of Restriction	Description	
	B.C.	Ontario
Age	Sight tests are restricted for individuals under the age of 19 or over the age of 65	Sight tests are restricted for individuals under the age of 19 or over the age of 65
Medical History	Sight tests are restricted for individuals with a personal or family history of glaucoma, retinal detachment, macular degeneration, diabetes or hypertension	Sight tests are restricted for individuals with a personal history of glaucoma, strabismus, diabetes, cataracts, or age-related macular degeneration
Personal Vision	Sight tests are restricted for individuals with the following conditions: 1) Head/eye trauma within the last three months 2) Diplopia 3) Corrective lenses containing prisms 4) Refractive error exceeding plus or minus 6.00 dioptres in either eye 5) A change in refractive error exceeding plus or minus 1.00 dioptre in either eye within the last 6 months or a change exceeding plus or minus 2.00 dioptres since the date of the most recent assessment record 6) A best corrected visual acuity of less than 20/25 in either eye	Sight tests are restricted for the following individuals: 1) Those unable to achieve a best corrected visual acuity of 20/40 in each eye 2) An individual whose preliminary eye evaluation did not indicate good eye health
Patient Understanding	The optician must provide the patient with a written notice detailing the difference between a sight test and a comprehensive eye exam, and the patient must sign the notice to indicate their understanding	Individuals must review the Refraction Patient Information Material
Date of Last Eye Exam	Individuals under 40 must have had a comprehensive eye exam since turning 19. If over the age of 40, individuals must have had a comprehensive eye exam since turning 40	Sight tests are restricted for individuals who have not undergone a comprehensive eye examination within the last 365 days

Table 3: Overview of the legislation governing optician-performed sight tests in the 22 U.S. states that regulate the practice of opticianry.

Jurisdiction	Governing Legislation	Optician Performed Sight Tests
Alaska	Alaska Statutes 08-71	Prohibited under Section 230(4)
Arizona	Arizona Revised Statues 32-1696	Prohibited under Section A(6)
Arkansas	Arkansas Code 17-89	Prohibited under Section 104(c)(1)
California	California Business and Professions Code- 5.4	Prohibited under Section 2540
Connecticut	Connecticut General Statutes 381	Refraction excluded from definition of dispensing optician under Section 20-145
Florida	Florida Statutes XXXII – 484.013 Part I	Prohibited under Section 1(3)
Georgia	Official Code of Georgia Annotated 43-29	Prohibited under Section 14(b)
Hawaii	Hawaii Revised Statutes – 458	Refraction excluded from definition of dispensing optician under Section 1
Kentucky	Kentucky Revised Statutes 326	Prohibited under Section 326.060
Massachusetts	The Code of Massachusetts Regulations 235-2	Refraction excluded from definition of dispensing optician under Section 2.04
Nevada	Nevada Revised Statutes 637	Prohibited under section 637.200(3)
New Hampshire	New Hampshire Revised Statutes 327-A	Refraction excluded from definition of ophthalmic dispensing under Section 1(I)
New Jersey	New Jersey Revised Statutes 52-17	Prohibited under Section B-41.1
New York	New York Statute 8-144	Refraction excluded from definition of ophthalmic dispensing under Section 7121
North Carolina	North Carolina General Statues 90-17	Refraction excluded from definition of dispensing optician under Section 90-235
Ohio	Ohio Revised Code 4725	Refraction excluded from definition of optical dispensing under Section 4725.40(B)
Rhode Island	Rhode Island General Law 5-35.2	Prohibited under Section 1(5)
South Carolina	South Carolina Code of Laws 40-38	Refraction excluded from definition of optician under Section 40-38-20(1)
Tennessee	Tennessee Code 63-14	Prohibited under Section 102(1)
Vermont	Vermont Statutes Annotated 26-47	Prohibited under Section 2677(7)
Virginia	Virginia Code 54.1	Prohibited under Section 1508
Washington	Revised Code of Washington 18.34	Refraction excluded from definition of dispensing optician under Section 18.34.060

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