THE IMPACT OF THE COVID-19 PANDEMIC ON VISION HEALTH IN CANADA 2021

A Report Commissioned by the Canadian Council of the Blind and Fighting Blindness Canada

Keith D. Gordon, Ph.D. M.Sc. (Epid.),

Senior Research Officer

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REPORT CARD PART 1

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4. Glossary

Acronym	Full Name
AMD	Age-related macular degeneration
Anti-VEGF	Anti-vascular endothelial growth factor
BCVA	Best-corrected visual acuity
CAO	Canadian Association of Optometrists
CCB	Canadian Council of the Blind
CIHI	Canadian Institute for Health Information
CNV	Choroidal neovascularization
COS	Canadian Ophthalmological Society
CRVO	Central retinal vein occlusion
DME	Diabetic macular edema
DR	Diabetic retinopathy
FBC	Fighting Blindness Canada
MIGS	Micro-invasive glaucoma surgery
NHEX	National Health Expenditure Database
NOC	Notice of Compliance
PHAC	Public Health Agency of Canada
PM	Pathologic myopia
RD	Retinal detachment
RVO	Retinal vein occlusion
VL	Vision loss

5. Background

In December of 2020, the Canadian Council of the Blind (CCB) commissioned Deloitte Access Economics to undertake an analysis of the prevalence and cost of vision loss (VL) and blindness in 2019. The CCB worked to deliver this report in partnership with Fighting Blindness Canada (FBC), the Canadian Association of Optometrists (CAO), and the Canadian Ophthalmological Society (COS). The landmark report was published in May 2021[1] and presented costs based on the latest available evidence. It also highlighted the significant impact that VL and blindness have on individuals, their families, the government, and more broadly on Canadian society. The following are some of the key findings of this report:

- There are an estimated 1.2 million Canadians living with VL, representing 3.2% of the total population. 4.1% of this group is comprised of individuals who are blind.
- More than 8.0 million Canadians are living with an eye disease that may lead to blindness, including the following top four diseases:
  - 2.5 million Canadians are living with age-related macular degeneration (AMD).
  - 3.7 million Canadians are living with cataracts.
  - 1.0 million Canadians are living with diabetic retinopathy (DR).
  - 728,000 Canadians are living with glaucoma.
- The total cost of VL in Canada in 2019 was $32.9 billion. This consists of a total financial cost of $15.6 billion and a lost well-being cost of $17.4 billion.
  - Direct health system costs amounted to $9.5 billion.
  - Productivity losses amounted to $4.3 billion.
- Based on trends in population growth and aging, the cost of VL in Canada was projected to grow from $32.9 billion in 2019 to $56.0 billion (in 2019 dollars) in 2050.
- The direct health system cost of falls due to VL was estimated to be $105.3 million in 2019.

[1]Deloitte Access Economics. The Cost of Vision Loss and Blindness in Canada (report commissioned by the Canadian Council of the Blind), May 2021. Available at: https://www.fightingblindness.ca/wp-content/uploads/2021/05/Deloitte-Final-Acc-of-VL-and-Blindness-in-Canada-May-2021.pdf Accessed July 1st, 2022.

A subsequent addendum to this report released in October 2021 described the impact of the COVID-19 pandemic on vision health in Canada. The following is a short list of the key findings of this report:

- 2.9 million fewer visits were made to optometrists in 2020 compared to 2019.
- 143,000 eye surgeries were missed or delayed in 2020.
- 69,800 fewer anti-VEGF injections for AMD and DR occurred in 2020.
- 1,437 people experienced VL due to delayed eye examinations and treatments in 2020.
- Wait times for cataract surgery increased by 31 days in 2020.
- It is expected to take two years to clear the additional backlog of cataract surgeries caused by the pandemic.
- It is estimated that an additional $129 million per year will be required to clear the backlog in cataract surgeries between 2021 and 2023.

At the same time as this study was being done, a very similar study was conducted in the United Kingdom.[2] A comparison of the key findings of the two studies (**Table 1**) shows that on most metrics, the U.K. and Canadian results were consistent with the difference in population between the two countries. The one marked difference was the reduction in the number of anti-VEGF injections. In Canada, there were 69,800 fewer anti-VEGF injections in 2020 compared with 2019 (26,100 fewer patients), while in the U.K. the reduction in anti-VEGF injections was substantially less than that in Canada (14,993 fewer patients compared with 26,100) in spite of the fact that the U.K. population is about twice that of Canada's. The main reason for this appears to be the fact that the U.K. was able to lay out the importance of anti-VEGF injections through the Royal College of Ophthalmologists' guidance,[3] thereby excluding it from lockdown protocols.

[2]Deloitte Access Economics and Specsavers Optical Group Limited. The economic impact of coronavirus (COVID-19) on sight loss and blindness in the UK. August 2021. Available at: file:///C:/Users/kgord/Documents/CCB/2022/Report%20Card/Report%20Card%20Report/deloitte-au-economics-specsavers-economic-impact-covid-140921.pdf Accessed August 18th, 2022.

[3]Royal College of Ophthalmologists. Guidance on restarting medical retina services. Available at: https://www.rcophth.ac.uk/resources-listing/guidance-on-restarting-medical-retina-services/ Accessed August 16th, 2022.

Table 1. Impact of the COVID-19 pandemic: Canada vs. U.K.

Topic	U.K. Report	Canadian Report
Population	67.2 million	38.0 million
Lost vision	2,986 individuals	1,437 individuals
Reduction in eye examinations	4.3 million fewer	2.9 million fewer
Reduction in eye surgeries	235,000 fewer	143,000 fewer
Reduction in number of patients receiving anti-VEGF injections (AMD + DME)	14,993 fewer	26,100 fewer
Years to clear backlog	3 years (all services)	2 years (cataract surgeries)

In April 2020, the CCB released the results of a survey it had undertaken on the impact of the COVID-19 pandemic on people living with VL.[4] It revealed a community living with severe mental stress because of the pandemic.

The present study aims to update previous data for 2021 on the current state of vision health in Canada and to assess the current impact of the pandemic on people living with VL and on the overall vision health of Canadians. Quantitative data from various Canadian sources will be combined with quantitative and qualitative data from a new survey of Canadians living with VL conducted in July 2022. In addition, interviews will be conducted with ophthalmologists, optometrists, and vision care stakeholder organizations to determine whether the quantitative data is supported by their lived experience.

It is hoped that the current study will enable an assessment as to whether the situation has changed since the worst stage of the pandemic and

[4]Gordon K. The Impact of the COVID-19 Pandemic on Canadians Who Are Blind, Deaf-Blind, and Partially-Sighted (2020). Available at: https://ccbnational.net/shaggy/wp-content/uploads/2020/05/COVID-19-Survey-Report-Final-wb.pdf Accessed July 1st, 2022.

whether measures undertaken by governments have improved the situation for those living with VL and for all Canadians.

6. Executive Summary

The overall finding of this study is that while vision healthcare did return to higher levels of service in 2021 compared to 2020, as of 2022 those services have still not returned to pre-pandemic levels. It is clear that despite substantial commitments from governments across Canada to provide capacity to clear the backlog of people needing treatment, a substantial backlog of services still exists. This study reviewed a number of key aspects of vision health that had been affected by the pandemic in 2020 to determine whether the situation had returned to pre-pandemic levels, providing a rating for how we have fared on each issue. This assessment is provided in the report card below (**Table 2**).

It is important to stress that the backlog has led to severe and in some cases irreversible outcomes for certain Canadians living with VL. The COVID-19 addendum report found that 1,437 individuals lost vision as a result of the pandemic in 2020. While we do not currently have comparative numbers for 2021, the fact that the number of ophthalmic surgeries, the wait times for cataract surgeries, the number of ophthalmic pharmaceutical claims, and the number of anti-VEGF injections have not returned to pre-pandemic levels all leads to the conclusion that Canadians continued to lose vision in 2021, and that the number in 2021 is lower than the previous year. This is an anecdote that was repeated by many of the optometrists and ophthalmologists interviewed for this study: patients continue to have poorer health outcomes as a result of the pandemic, with some losing vision as a result. Unfortunately, this means that Canadians with VL continue to be underserved, and that their health and visual outcomes are suffering as a result. As one ophthalmologist interviewed for this report put it:

"In Canada, there is no reason to go blind from a preventable condition."

Unfortunately, the pandemic has led to just that: Canadians going blind or losing vision despite the fact that we have the medicine and resources to treat them. In the years that follow — whether they be considered "post" pandemic or are given some other moniker — it is crucial that we design systems and policies that correct this dangerous trend.

Table 2. A vision health report card for Canada

Issue	How do we rate?
Surgery cancellations caused by the pandemic	Canada is recovering from the impact of the pandemic on surgery cancellation but has not yet achieved the pre-pandemic surgical volume. This also means that the backlog continues to increase.
Missed anti-VEGF injections	The number of anti-VEGF injections in 2021 was significantly lower than expected but this may be due in part to extended treatment regimens and people impacted by the lack of optometry visits in 2020 not being diagnosed.
Reduction in use of glaucoma medications	The number of prescriptions for glaucoma medications in 2021 is still below 2019 levels. People may be losing vision unnecessarily because of reluctance to have their prescriptions filled or visiting their eye doctor to be diagnosed.
Number of missed optometric eye examinations	The number of optometric visits increased in 2021 compared with 2020 but remains below 2019 levels. This puts people at risk of vision loss due to the potential of late diagnosis and treatment.
Funding for vision research	The level of funding for vision research in 2021 is unchanged compared with 2019. Canada is failing badly on this issue.
Wait times for cataract surgery	Wait times continue to be high. Wait times for cataract surgery have improved compared with 2020 but have not recovered to pre-pandemic levels, thereby increasing the backlog.
Ophthalmic drug approvals	The time to provincial reimbursement following Health Canada approval for some important medications is too long and is resulting in people being unable to afford sight-saving medications.

	There is also sometimes lack of equity in access to medicines, depending on the province you live in.
A national vision health strategy	A private member's bill to have the federal government establish a national vision health strategy has been introduced into Parliament and achieved first reading.
A vision desk at the Public Health Agency of Canada	There has been no progress on this issue.
Impact of the pandemic on people living with VL	Overall, people living with VL are doing better than they were at the start of the pandemic. People are going outside of their homes. Stress levels are lower, as is the feeling of loneliness and feeling overwhelmed. However, there are still a significant number of people with VL experiencing pandemic-related stress and loss of well-being. Additionally, we know that some people lost vision as a result of the pandemic and related delays. These individuals require resources and support as they navigate the complexities of living with VL.
Performance of governments with respect to the pandemic	All governments must be rated poorly on how they have responded to the needs of people living with VL during the pandemic. They have failed to prioritize vaccination for this vulnerable community. Many government websites are not fully accessible to people with VL. Government funding has been useful for those in financial need who have lost income.

7. Recovery from the Impact of the Pandemic

7.1 Ophthalmic day surgery

7.1.1 Overview

The current study found that the number of day surgeries had increased by 25% in 2021 compared with 2020. However, this number was still 20% below 2019, indicating a persistent gap in surgery capacity. It is estimated that there were 108,000 fewer eye surgeries performed in Canada in 2021 compared to 2019.

By type of surgery:

- The number of cataract surgeries in 2021 was 16% below the same period in 2019.
- The number of glaucoma surgeries in 2021 was 35% below the same period in 2019.
- The number of retina surgeries in 2021 was 22% below the same period in 2019.
- The number of refractive surgeries in 2021 was 52% below the same period in 2019.

Ophthalmologists interviewed for this study reported that, despite the various governments having provided additional funding to take care of the surgical backlog, this was not possible due to staff shortages. Many nursing and allied staff were either sick due to COVID or were experiencing severe burnout that required them to take time off. The net result is that surgical volumes in 2021 did not reach pre-pandemic levels and the surgical backlog continued to grow.

Ophthalmologists emphasized the fact that vision care is a complex and team-oriented service that extends well beyond the primary surgeon. From scrub techs to nurses to administrative staff, many individuals play a crucial role in the delivery of vision care. Since many of them were unable to work continuously during the pandemic, it became — and in some cases continues to be — very difficult to address Canada's surgical backlog. This difficulty is despite enormous efforts from vision care providers and their staff to work extra hours, locate new efficiencies, collaborate in new and innovative ways, streamline wait lists, and more, all while putting themselves at risk. Despite

these commendable efforts, it has still been difficult to get surgeries back on track, and in most cases impossible to reach pre-pandemic numbers.

Moving forward, it will be essential to ensure that our ophthalmological services are organized and resourced in such a way that they can withstand disruptions, including the possibility of future pandemics. As one ophthalmologist put it, "our healthcare system has to be dynamic and changing."

7.1.2 Analysis

The addendum to the Cost of Vision Loss and Blindness report published in October 2021[2] reported that there were 36% fewer ophthalmic day surgeries in the period of April to December 2020 compared with the same period in 2019. This report estimated that there were 143,000 fewer ophthalmic procedures performed in the period April to December 2020 compared with the same period in 2019.

The current report assessed the extent to which the number of day surgeries had returned to pre-pandemic levels by comparing the period of April to December 2021 with the same periods in 2020 and 2019.

The results (**Table 3**) show that there was a 26% increase in cataract surgeries in 2021 compared with 2020 but that this was fewer than those performed in the same time period in 2019. A similar pattern was observed for glaucoma surgeries, where the number of surgeries increased by 18% in 2021 compared with 2020 but was still 35% below the number in 2019. The number of refractive procedures (disorders of refraction and accommodation) increased by only 9% in 2021. The net result was that there were 52% fewer refractive procedures performed in 2021 compared with 2019. The number of retinal procedures increased by 26% in 2021 compared with 2020 but was still 22% below the 2019 number. In total, there was a 25% increase in the number of day surgeries performed in 2021 compared with 2020 but the total number of day surgeries was 20% below that of 2019.

In 2019, there were 541,115 ophthalmic same-day procedures performed in Canada.[5] This means that there were a total of 108,223 fewer ophthalmic surgeries performed in Canada in 2021 compared with 2019. In March 2022, the federal government announced that an additional $2 billion would be available to the provinces to reduce the surgical backlog[6] and in July 2021 the Government of Ontario announced $324 million in additional funding to overcome the surgical backlog due to the COVID-19 pandemic.[7] As mentioned above, staff shortages are a major reason why surgical volumes have not returned to pre-pandemic levels.

Staff shortages have in fact been identified by some provinces as a reason for the inability to overcome the backlog and the Government of British Columbia, for example, has invested an additional $250 million a year to hire about 750 more hospital staff.[8]

The optometrists and ophthalmologists who were interviewed made it clear that additional funding is only one part of the solution. To translate that funding into real-world improvements — to "put the funding to work," so to speak — a more comprehensive and holistic approach is required, one that not only takes into account nursing and related staff shortages, but also a shortage of ophthalmologists, the need for additional research funding, the need for more public awareness of the importance of vision care and regular

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[5]Fraser Institute. Waiting Your Turn: Wait Times for Healthcare in Canada, 2020 Report (2020). Available at: https://www.fraserinstitute.org/sites/default/files/waiting-your-turn-2020.pdf Accessed August 14th, 2022.

[6]Department of Finance Canada. News Release. Canada commits $2 billion in additional healthcare funding to clear backlogs and support hundreds of thousands of additional surgeries. Available at: https://www.canada.ca/en/department-finance/news/2022/03/canada-commits-2-billion-in-additional-health-care-funding-to-clear-surgery-and-diagnostics-backlogs.html Accessed August 29th, 2022.

[7]Gray J. *The Globe and Mail.* July 28, 2021. Ontario to spend $324-million to handle surgery backlog left by COVID-19 pandemic.
Available at: https://www.theglobeandmail.com/canada/article-ontario-to-spend-324-million-to-handle-surgery-backlog-left-by-covid/ Accessed August 30th, 2022.

[8]Hendry L. CBC News. Anxious patients await surgery, but the COVID-19 backlog won't be 'easily overcome in the next year.' Available at:
https://www.cbc.ca/news/canada/montreal/surgery-backlog-quebec-covid-19-1.5901826
Accessed August 30th, 2022.

eye exams, and more. Ultimately, financial investment needs to be combined with planning and implementation.

Interviews also made it apparent that hospitals and private clinics responded differently during COVID-19. Private clinics focused exclusively on eye care were able to respond in a more flexible manner, designing new triage systems and opening for extra hours to see additional patients. While the value of this flexibility is clear, it is also the case that hospital settings benefit from on-site resources such as imaging devices and experts in related fields. Rather than focusing on one type of setting and ignoring the other, we should instead find new ways of connecting the two and collaborating across spaces, sharing resources and knowledge where necessary. And in planning for the future, policymakers and health experts should find ways to borrow the best of what both private and hospital settings have to offer.

Table 3. Number of day surgeries performed April to December 2019

	Apr – Dec 2019	**Apr – Dec 2020**	**Change 2020/ 2019**	**Apr – Dec 2021**	**Change 2021/ 2020**	**Change 2021/ 2019**
Cataract, aphakia, or lens dislocation	165,479	109,854	-34%	138,629	+26%	-16%
Glaucoma	17,063	9,444	-45%	11,123	+18%	-35%
Disorders of refraction and accommodation	8,182	5,220	-38%	3,930	+9%	-52%
Retinal disorders	8,393	5,220	-38%	6,557	+26%	-22%
Other	5,003	3,096	-38%	3,471	+12%	-30%
Total	**204,120**	**131,212**	**-36%**	**163,710**	**+25%**	**-20%**

Source: CIHI special data request. Note: procedures-related data was only available for Ontario, Alberta, Nova Scotia, Prince Edward Island, and Manitoba. Consequently, the total provided in the table is lower than the number of services performed across Canada.

7.2 Pharmaceutical claims

7.2.1 Overview

Pharmaceutical claims were used as a proxy for timely treatment in order to understand whether people were obtaining necessary treatment at this stage of the pandemic.

Total ophthalmic pharmaceutical claims were 11.7% fewer than would have been expected if growth had continued at the pre-pandemic rate. It appears that restrictions to ophthalmologist services during the pandemic, coupled with patient hesitancy to see specialists and receive treatments, has continued through 2021 and has led to a decline in the number of pharmaceutical claims.

Claims for anti-glaucoma preparations were 9.1% fewer than expected, a finding that is concerning. This decline may have resulted in people losing vision if the reason for this is that patients are not having their prescriptions refilled.

Anti-VEGF claims for 2021 were 67,000 fewer than expected. It is not clear at this time whether the decline is due to pandemic-related missed appointments or whether other factors, such as extended treatment regimens, may have been a factor.

The optometrists and ophthalmologists who were interviewed for this report largely felt that this data reflects their own experiences prescribing medicine during the pandemic. In relation to the use of anti-VEGF, however, there were mixed responses. While some believed that treat-and-extend practices may have intensified during the pandemic, contributing to a decline in pharmaceutical claims, others felt that the paradigm of extended treatment was already well-established before 2020.

It is also the case that supply chain issues have likely played a role in the decline. One interviewee in particular noted issues related to glaucoma medications, which disrupted service. Others mentioned difficulties receiving masks and other medical supplies in a timely fashion. In the midst of other

complexities, supply chain disruptions may very well have been a complicating factor.

7.2.2 Analysis

The addendum to the Cost of Vision Loss and Blindness in Canada reported that the COVID-19 pandemic had led to a decline in the number of pharmaceutical claims in 2020 compared to the same period in 2019. This was interpreted as being caused by the closure of clinics and non-essential services. In order to assess whether this decline had continued through 2021, a similar approach to that used in the previous report was used to assess the expected claims in 2021. This was done by using the average quarterly growth pre-pandemic (April 2017 to December 2019) and applying this against the 2020 expected claims. The results are shown in **Table 4**. Total ophthalmic pharmaceutical claims were 11.7% fewer than expected if growth had continued at the pre-pandemic rate. It appears that restrictions to ophthalmologist services during the pandemic, coupled with patient hesitancy to see specialists and receive treatments, has again led to a decline in the number of pharmaceutical claims.

Claims for anti-glaucoma preparations were 9.1% fewer than expected, a finding which is of concern since this decline may have resulted in people losing vision from not having their prescriptions refilled.

For the second year in a row, anti-VEGF claims were fewer than expected. In 2020 the anti-VEGF claims were 69,500 fewer than expected. This number is almost the same again in 2021, with anti-VEGF claims for 2021 being 67,000 fewer than expected. This is of particular concern as it appears that people were not accessing sight-saving injections that they needed during the second year of the pandemic. Frontline medical professionals attributed this decline to the reduction in the number of people being diagnosed by optometrists due to a decrease in optometry visits in 2020 and patients' hesitancy with respect to attending treatment clinics due to COVID-19.

Table 4. Claims for all ophthalmic preparations January to December 2021[9]

	Avg. quarterly growth	Expected claims in 2020	Expected claims in 2021	Actual claims in 2021	Difference in claims (actual vs. expected)	Difference in claims (actual vs. expected) (%)
Eye tonics and vitamins	+0.7%	25.5	26.3	22.7	-3.6	-13.6
Miotics and anti-glaucoma preparations	+1.2%	4,754.5	4,991.6	4,536.0	-455.6	-9.1
Ocular anti-neovascularization products	+2.8%	530.0	592.4	525.2	-67.2	-13.1
Ophthalmic non-steroidal anti-inflammatories	+0.7%	260.5	267.9	246.7	-21.2	-7.9
Ophthalmic anti-infectives	-0.1%	1,046.2	1,047.4	727.5	-319.9	-30.5
Ophthalmic anti-inflammatory/anti-infective combinations	+0.9%	398.0	412.6	330.0	-82.6	-20.0
Ophthalmic corticosteroids	+0.3%	1,095.4	1,108.6	1,071.5	-37.1	-3.3
Total ophthalmic preparations		**8,110.1**	**8,446.8**	**7,459.6**	**-987.2**	**-11.7**

[9] CCB analysis of IQVIA Pharmastat database.

7.3 Vision care

7.3.1 Overview

Using vision care expenditures from the National Health Expenditure (NHEX) Database as a proxy for the number of optometrist visits in 2021, it was estimated that the number of optometrist visits increased by 3.2% overall in 2021 compared with 2020. Using this number, it is estimated that the total number of optometrist visits missed in 2021 compared to 2019 was 1.8 million.

A recent poll conducted on behalf of FBC reported that about two thirds of Canadians have not had an eye examination within the past year. Two similar polls conducted in Alberta and Ontario reported that one in three Albertans and Ontarians had not had an eye examination within the past three years. It is essential that individuals maintain regular eye exams, especially in light of the missed appointments during the pandemic.

During interviews, vision care providers stressed the importance of routine eye examinations and regular optometric care, especially as a means of detecting complications before they lead to VL. The decline in optometric visits during the pandemic was likely fuelled by a variety of factors, including the initial lockdowns in 2020, patients being fearful of crowds and indoor settings, asymptomatic patients not prioritizing eye care, and the job action in Ontario that began in September of 2021. According to one optometrist, the initial stages of the pandemic were especially disruptive because they interrupted healthy schedules and patterns for many patients, which in some cases led to missed appointments, delayed care, and potentially VL. In the optometrist's words, "It's about the breaking of patterns, which has a kind of knock-on or domino effect."

The various factors have combined to create a situation where it is difficult for Canadian patients to access timely and appropriate vision care. According to one ophthalmologist, "I have never seen access to care worse than it is now."

7.3.2 Analysis

The addendum to the Cost of Vision Loss and Blindness in Canada reported that there were 3 million fewer visits to optometrists in 2020 compared with 2019. It was estimated that optometrists' offices had been totally closed for 2.2 months on average, starting in April 2020 and gradually opening over the remainder of 2020 and throughout 2021. While there is no available data

on the number of optometrist visits in 2021, the NHEX Database[10] can be used as a proxy to assess the level of return to pre-pandemic levels. The cost of vision care was estimated at $5.5 billion in 2019, prior to the pandemic. This cost showed a decline of 10.2% in 2020, and a subsequent increase of 3.7% in 2021. While the growth in 2021 does indicate a turnaround relative to 2020, the overall cost of vision care had not returned to pre-pandemic levels. It can therefore be assumed that there were still a significant number of missed appointments in 2021 compared with 2020. Using the percentage changes in costs of vision care, one can estimate that there were still 1.8 million fewer visits to optometrists in 2021 compared with 2019. It should be acknowledged that some of this continuation of missed appointments was due to continuing lockdowns in some parts of the country as well as a restriction of services conducted by Optometrists in Ontario, whereby some optometrists did not see patients aged 65 or older or patients aged 19 or younger during the period September 1st, 2021, till November 23rd, 2021.[11] The exact impact of these actions on the total number of patient visits in 2021 has not been estimated.

One of the optometrists interviewed for this report described his experience as follows:

"Our clinic experienced a significant increase in traffic in 2021. As the general population started to regain some form of normalcy, we noticed patients that were trying to wait out COVID-19 decided they couldn't delay their eye examinations any further. In addition to patients that were already due for exams in 2021, this made for a noticeable increase in patient traffic."

In a survey of 1,001 Canadians conducted by Ipsos on behalf of FBC[12] in June 2021, only 35% of respondents reported having had an eye examination within the previous year (**Figure 1** and **Table 5**). This compared with 42% of respondents in a similar survey conducted in 2019.

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[10]Canadian Institute for Health Information (CIHI) 2019f, National Health Expenditure Trends – Series A. Available at: https://www.cihi.ca/en/national-health-expenditure-trends#data-tables Accessed July 1st, 2022.
[11]*Toronto Star*. Eye exams back on Tuesday as Ontario and optometrists agree to talks. November 22, 2021. Available at: https://www.thestar.com/politics/provincial/2021/11/22/eye-exams-back-on-tuesday-as-ontario-and-optometrists-agree-to-talks.html Accessed July 1st, 2022.
[12]Ipsos Canada. Eye Care Omni study. June 2021. Available at: https://www.fightingblindness.ca/news/covid-19-impacts-canadians-diagnosed-with-eye-disease/ Accessed August 16th, 2022.

Figure 1. Time of last eye examination 2021 and 2019

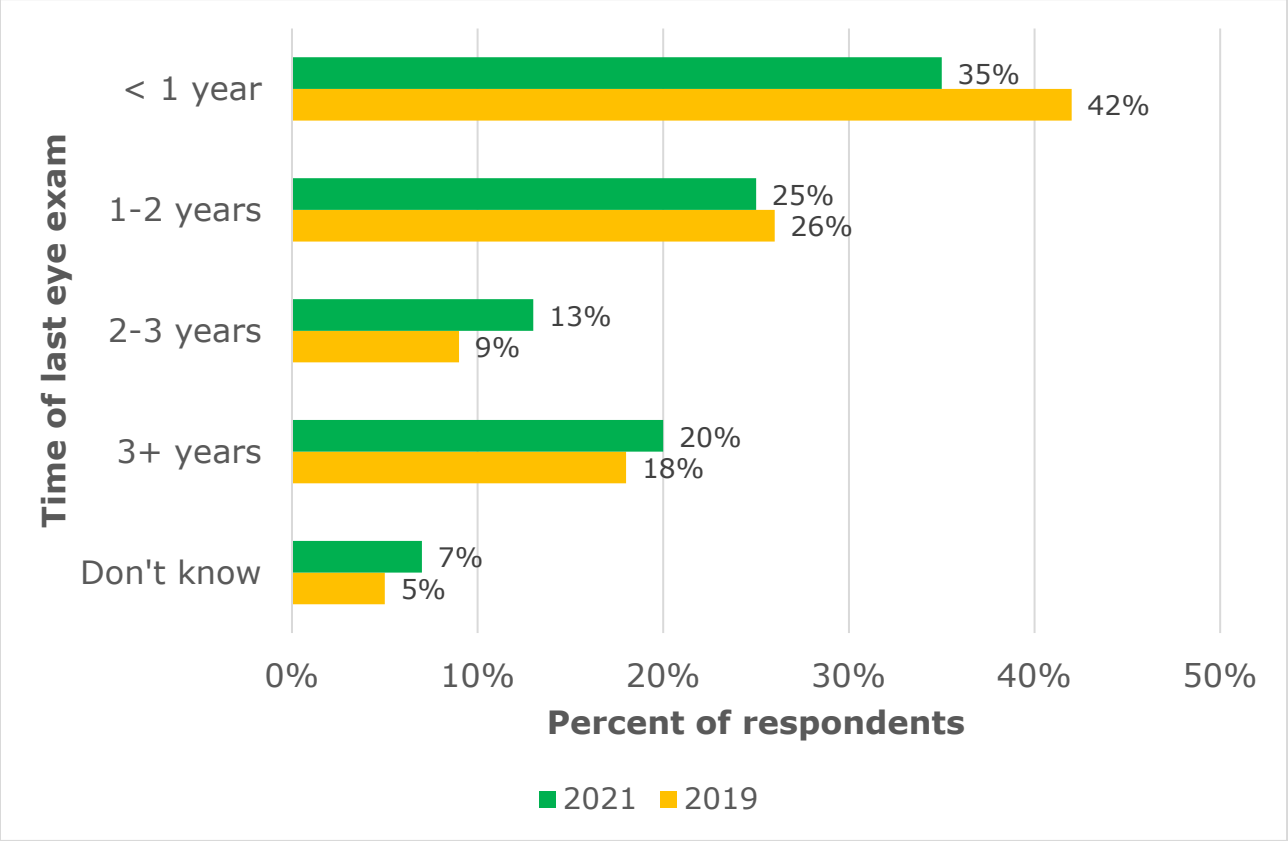

Table 5. Time of last eye examination 2021 and 2019

	Percentage of respondents	
Time of last eye exam	**2019 Survey**	**2021 Survey**
Don’t know	5%	7%
3+ years	18%	20%
2-3 years	9%	13%
1-2 years	26%	25%
< 1 year	42%	35%

Two similar polls conducted in Alberta[13] and Ontario[14] in early 2022 on behalf of Specsavers reported that almost one in three Albertans hadn't had an eye exam in over three years, and that one third of Ontarians also had not had an eye exam in over three years.

These three polls confirm the need for people to return to their optometrists as soon as possible to have a complete eye examination. This is essential in order to ensure early diagnosis and treatment for any underlying eye disease.

7.4 Medical research

7.4.1 Overview

The total cost of medical research in 2021 was estimated at $21.3 million, essentially unchanged from 2019. Compared with other medical specialties, vision research is woefully underfunded and the situation has not improved in 2021.

7.4.2 Analysis

The Cost of Vision Loss and Blindness in Canada in 2019 report[15] valued the total medical research costs related to VL at $20.9 million. In order to estimate whether there had been any significant change in funding in the two years since this data was collected, the total funds spent on medical research related to VL were assessed for 2021 using the same methodology as the 2019 report. To achieve this, the grants database published by the Canadian Research Information System (2022)[16] was searched for the same keywords used in the 2019 report,[17] to which was added the grants awarded

[13]Research Company. Poll conducted in Alberta on behalf of Specsavers. 2022. Available at: https://www.specsavers.ca/news-and-information/specsavers-investing-25-million-to-help-albertans-safeguard-their-vision Accessed August 16th, 2022.
[14]Research Company. Poll conducted in Ontario on behalf of Specsavers. 2022. Available at: https://www.specsavers.ca/news-and-information/specsavers-invests-50-million-to-help-Ontarians-safeguard-their-vision Accessed August 16th, 2022.

[15]Deloitte Access Economics. The Cost of Vision Loss and Blindness in Canada (report commissioned by the Canadian Council of the Blind), May 2021. Available at: https://www.fightingblindness.ca/wp-content/uploads/2021/05/Deloitte-Final-Acc-of-VL-and-Blindness-in-Canada-May-2021.pdf Accessed July 1st, 2022.
[16]Government of Canada (2022), CIHR Canadian Research Information System. Available at: https://webapps.cihr-irsc.gc.ca/cris/search Accessed April 1st, 2022.
[17]List of search terms include: low vision, vision loss, visual impairment, vision impairment, blindness, blindness and deafness, blind deaf disorder, blind deaf disorders, hearing and vision loss, retinal disease, retinal diseases, sensory disease, sensory disorder, ophthalmology, retina, iris, cornea, pupil, sclera, conjunctiva, macula, lens, optic nerve,

in 2021 by FBC,[18] the Glaucoma Research Society of Canada,[19] and the Quebec Vision Health Research Network.[20]

The total cost of medical research in 2021 was estimated at $21.3 million, essentially unchanged from 2019.

7.5 Wait times for cataract surgery

7.5.1 Overview

Data from the Canadian Institute for Health Information (CIHI) was used to analyze wait times for cataract surgery over the period of April 2020 to September 2021. This data shows that the percentage of people being treated within the Canadian benchmark time frame of 112 days dropped from 75% in 2019 to 56% in 2020 and then increased to 66% in 2021. An evaluation of 90th percentile wait times (the time it takes for 90% of people to have cataract surgery) revealed a similar pattern — a shortening of wait times, from 310 days in 2020 to 255 days in 2021 — but wait times did not return to pre-pandemic levels of 219 days.

7.5.2 Analysis

In the recent study on the impact of the COVID-19 pandemic on the prevalence and cost of VL in Canada, Deloitte Access Economics reported that the average wait time for cataract surgery increased by 32 days between November 2019 and November 2020.[21] As hospital surgical schedules returned to normal, it was felt important to determine whether wait times had alleviated to any extent.

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fovea, eye, macular degeneration, age-related macular degeneration, glaucoma, cataract, diabetic retinopathy, diabetic macular edema, proliferative diabetic retinopathy, refractive error, strabismus, keratoconus, uveitis, presbyopia, photo receptor, photoreceptor, retinal ganglion cell, visual cortex, inherited retinal degeneration, retinitis pigmentosa, and ocular imaging.

[18]Fighting Blindness Canada. Audited financial statements December 2021. Available at: https://www.fightingblindness.ca/wp-content/uploads/2022/06/FBC-FS-2021-Audited-Financial-Statement-signed.pdf Accessed April 1st, 2022.
[19]Glaucoma Research Society of Canada. Audited financial statements December 2021. Available at: https://www.glaucomaresearch.ca/wp-content/uploads/2022/05/GRSC-Financial-Statement-Jun-1-Dec-31-2021.pdf Accessed April 1st, 2022.
[20]Lavastre V, coordonnatrice Réseau de recherche en santé de la vision (RRSV) / Vision Health Research Network (VHRN), personal communication, April 2022.
[21]Deloitte Access Economics. Addendum to the Cost of Vision Loss and Blindness in Canada. The Impact of COVID-19. August 2021. Available at: https://www.fightingblindness.ca/wp-content/uploads/2021/10/Deloitte-COVID-Addendum-Acc-10-13-21.pdf Accessed August 12th, 2022.

Six-month increment data from CIHI[22][23] was used to analyze wait times for cataract surgery over the period of April 2020 to September 2021. This data shows that the percentage of people being treated within the Canadian benchmark time frame of 112 days dropped substantially in the period April to September 2020 and then increased again to near pre-pandemic levels in the next six months (**Figure 2** and **Table 6**). Looking at similar data over a five-year time frame (**Figure 3** and **Table 7**), one can see that over the period of 2017 to 2019 the percentage of people treated within the benchmark time frame was steady at 75 to 76%. This dropped to 56% in 2020 and was up again to 66% in 2021 but had still not reached pre-pandemic levels. When the number of people receiving treatment within the 112-day benchmark time frame is analyzed by province (**Figure 4** and **Table 8**), most provinces fall within 60 to 76% of the benchmark time frame achievement, with the exceptions being Newfoundland and Labrador (42% of benchmark), Prince Edward Island (30% of benchmark), and Manitoba (39% of benchmark).

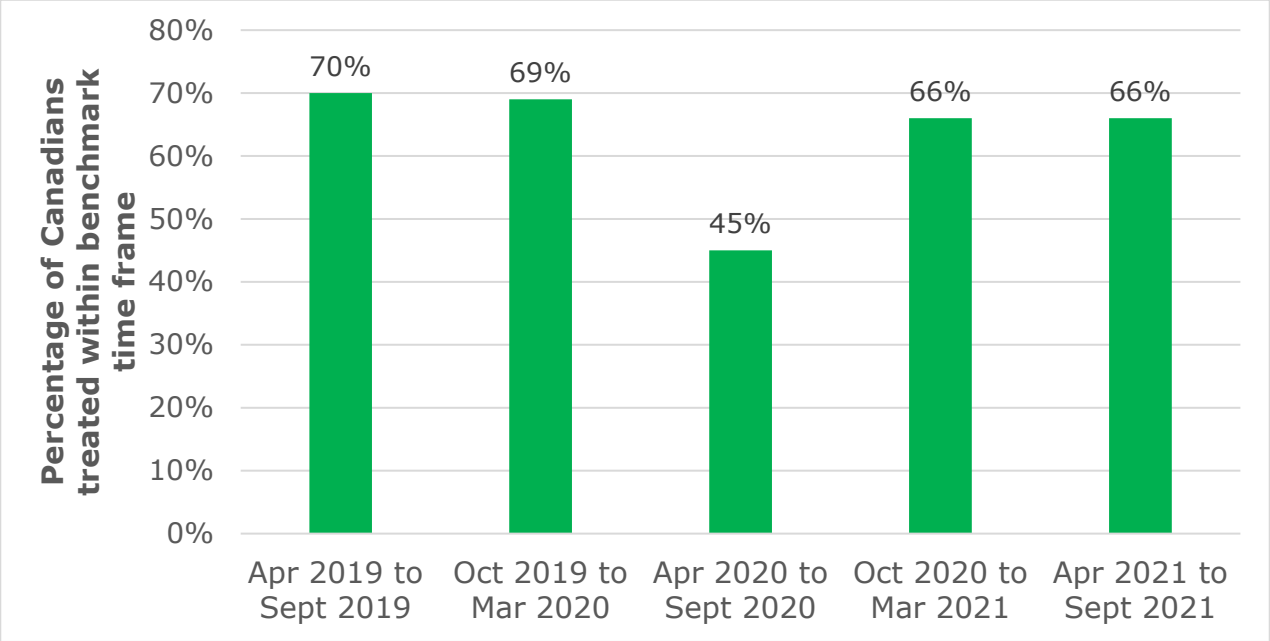
When the wait-time data is analyzed in terms of the number of days to achieve 90% of people being treated (90th percentile), a similar pattern is shown (**Figure 5** and **Table 9**), with pre-pandemic 90th percentiles being in the range of 211 to 219 days. This number increased to 310 days in 2020 and was down to 255 days in 2021, not yet back to pre-pandemic levels.

Figure 2. Percentage of Canadians undergoing cataract surgery within benchmark time frame by six-month time

22

23

Table 6. Percentage of Canadians undergoing cataract surgery within benchmark time frame by six-month time period



Six-month time period	Percentage of Canadians treated within benchmark time frame
Apr 2019 to Sept 2019	70%
Oct 2019 to Mar 2020	69%
Apr 2020 to Sept 2020	45%
Oct 2020 to Mar 2021	66%
Apr 2021 to Sept 2021	66%

Figure 3. Percentage of Canadians undergoing cataract surgery within benchmark time frame by year 2017 to 2021

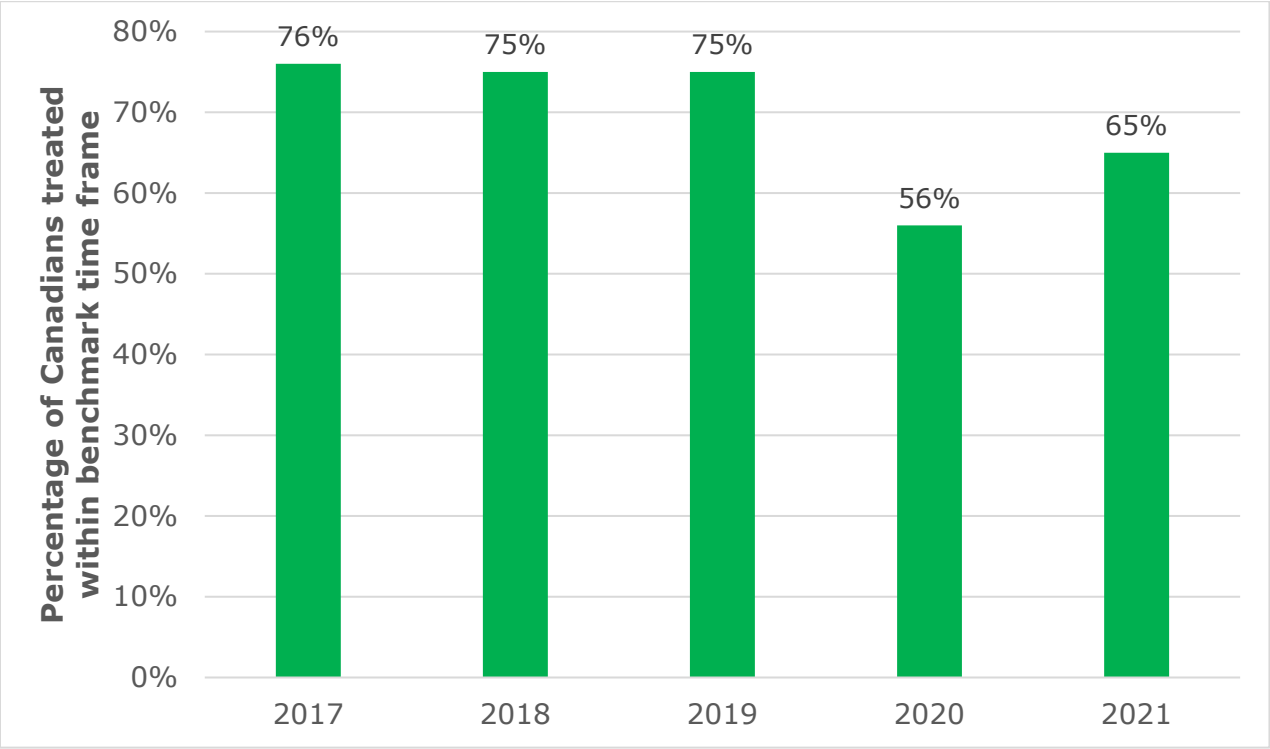


Table 7. Percentage of Canadians undergoing cataract surgery within benchmark time frame by year 2017 to 2021

Year	Percentage of Canadians treated within benchmark time frame
2017	76%
2018	75%
2019	75%
2020	56%
2021	65%

Figure 4. Percentage of Canadians treated within benchmark time frame by province (April to September 2021)

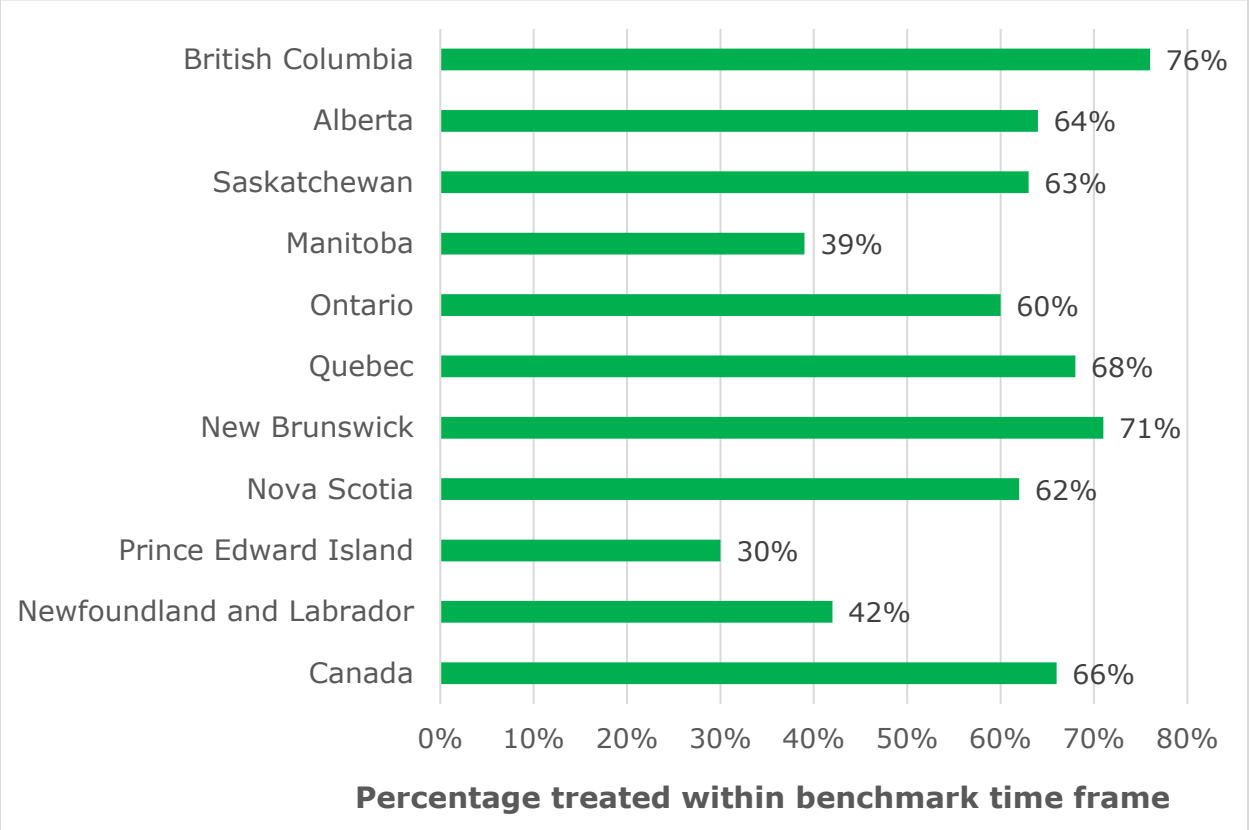


Table 8. Percentage of Canadians treated within benchmark time frame by province (April to September 2021)

	Percentage treated within benchmark time frame
Canada	66%
Newfoundland and Labrador	42%
Prince Edward Island	30%
Nova Scotia	62%
New Brunswick	71%

Quebec	68%
Ontario	60%
Manitoba	39%
Saskatchewan	63%
Alberta	64%
British Columbia	76%

Figure 5. 90th percentile (number of days for 90% of cataract patients to receive treatment)

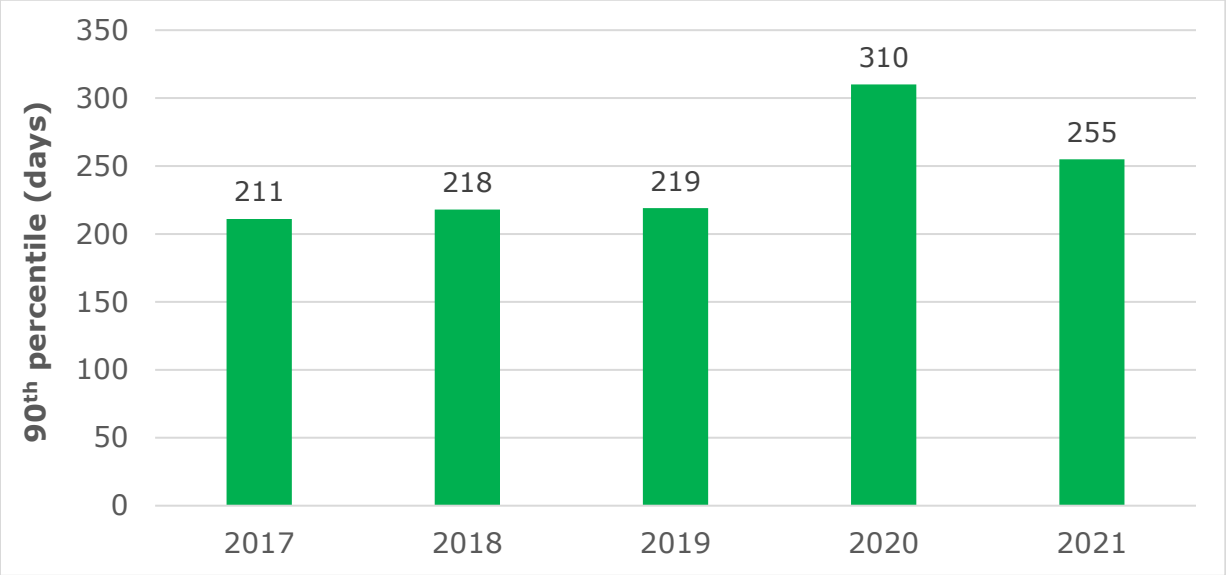


Table 9. 90th percentile (number of days for 90% of cataract patients to receive treatment)

Year	90th percentile (days)
2017	211
2018	218

2019	219
2020	310
2021	255

7.6 Overcoming the surgical backlog

A study conducted in 2021 by Felfeli et al[24] projected that the overall backlog in Ontario would continue to grow and that a 34% increase in all resources would be required to overcome the backlog by March 2023 and return to pre-pandemic levels. A subsequent study by Jin et al[25] estimated that 92,150 ophthalmic surgeries were delayed in Ontario due to COVID-19 in 2020 alone. 90% of the delayed surgeries were cataract surgeries and 4% were retinal detachment (RD) surgeries. This study estimated that it would take from 36 to 248 weeks to clear the surgical backlog with the addition of additional resources ranging from 70% to 10%, respectively.

As discussed above, the shortage of financial resources is not the only issue restricting the growth in surgical volume. It is essential for hospitals and governments to address shortages in ophthalmologists, nursing, and allied

[22]Canadian Institute for Health Information. Wait times for priority procedures in Canada. May 2022. Available at: https://www.cihi.ca/en/wait-times-for-priority-procedures-in-canada#:~:text=Benchmark%20wait%20times%20are%20182,112%20days%20for%20cataract%20surgery Accessed August 12th, 2022.
[23]Canadian Institute for Health Information. *Wait Times for Priority Procedures in Canada — Data Tables*. Ottawa, ON: CIHI; 2022.
[24]Felfeli T, Ximenes R, Naimark DMJ, Hooper PL, Campbell RJ, El-Defrawy SR, Sander B. The ophthalmic surgical backlog associated with the COVID-19 pandemic: a population-based and microsimulation modelling study. CMAJ Open. 2021 Nov 23;9(4):E1063-E1072. doi: 10.9778/cmajo.20210145. PMID: 34815262; PMCID: PMC8612655.
[25]Jin Y, CanizaresM, El-Defrawy S, Buys YM. Predicted backlog in ophthalmic surgeries associated with COVID-19 pandemic in Ontario in 2020: a time series modelling analysis, *Canadian Journal of Ophthalmology/Journal canadien d'ophtalmologie* (2022), doi: https://doi.org/10.1016/j.jcjo.2022.06.020

staff. It is also important for governments and policymakers to commit to the kind of planning and development — including public awareness campaigns, for example — that will allow financial investments to be fully realized within clinical settings.

7.7 Ophthalmic drug approvals

7.7.1 Overview

Prevention of VL requires timely reimbursement of new vision-saving medications by the provinces. In order to assess whether this is currently the case, the time for reimbursement approval of all ophthalmic drugs approved by Health Canada between 2018 and 2022 was assessed. As of August 2022, three of these drugs were not approved for reimbursement in any province — with the time for reimbursement since Notice of Compliance (NOC) from Health Canada ranging from 3 months to 44 months. Luxturna, a new innovative gene therapy, was approved in October 2020 by Health Canada, and it has been in access negotiations for over 21 months as of August 2022.

For two other treatments, there is a lack of consistency across the provinces for Canadians to access these medications. Beovu is approved for reimbursement in five provinces — with the time to reimbursement ranging from 21 months to 23 months. Vyzulta is approved for reimbursement in all provinces except Quebec — with the times to reimbursement ranging from 8 months to 24 months. Although it has been 44 months since Vyzulta was granted NOC, it is still not listed for reimbursement in Quebec.

The variance in approvals across Canada means that there is different access to ophthalmic medicines across Canada.

7.7.2 Analysis

Six ophthalmic drugs were approved by Health Canada between 2015 and 2022 — Vyzulta (latanoprostene bunod), which is indicated for the reduction of intraocular pressure in patients with open-angle glaucoma or ocular hypertension; Oxervate (cenegermin), which is indicated for neurotrophic keratitis; Beovu (brolucizumab injection), which is indicated for the treatment of neovascular (wet) age-related macular degeneration (AMD); Luxturna (voretigene neparvovec), which is indicated for the treatment of adult and pediatric patients with VL due to inherited retinal dystrophy caused by confirmed biallelic RPE65 mutations; Vabysmo (faricimab), which is indicated for the treatment of neovascular (wet) AMD; and Ozurdex, which is

indicated for the treatment of macular edema following central retinal vein occlusion (CRVO), the treatment of non-infectious uveitis affecting the posterior segment of the eye, and the treatment of diabetic macular edema (DME) in patients who are pseudophakic. Vyzulta received NOC on February 27th, 2018;[26] Oxervate received NOC on February 8th, 2019; Beovu received NOC on March 12th, 2020; Luxturna received NOC on October 13th, 2020; and Vabysmo received NOC on May 27th, 2022; and Ozurdex (dexamethasone intravitreal implant) received NOC on April 16th, 2015. As of August 11th, 2022, Beovu is listed on reimbursement formularies in Alberta, Saskatchewan, Ontario, New Brunswick, Nova Scotia, and the Northwest Territories. Oxervate, Luxturna, Vabysmo, and Ozurdex are not listed for reimbursement in any province.[27] Vyzulta is listed for reimbursement in all provinces except Quebec.

Table 10 shows that in the five provinces in which Beovu is reimbursed, reimbursement took a minimum of 21 months. In the case of Vyzulta, which is now reimbursed in all provinces except Quebec, reimbursement time ranged from 8 months in Prince Edward Island to 24 months in the three territories. **Table 11** shows the length of time the three drugs not currently reimbursed have been under review in all provinces.

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[26]Health Canada. Register of Innovative Drugs. Available at: https://www.canada.ca/content/dam/hc-sc/documents/services/drugs-health-products/drug-products/applications-submissions/register-innovative-drugs/reg-innov-dr-eng.pdf Accessed August 11th, 2022.

[27]Provincial and territorial formularies. Available at:
https://pharmacareformularysearch.gov.bc.ca/Search.xhtml
https://idbl.ab.bluecross.ca/idbl/load.do
https://formulary.drugplan.ehealthsask.ca/SearchFormulary/BG/455680
https://web22.gov.mb.ca/eFormulary/
https://www.formulary.health.gov.on.ca/formulary/
https://www.ramq.gouv.qc.ca/en/citizens/prescription-drug-insurance/find-out-whether-a-drug-covered
https://www2.gnb.ca/content/dam/gnb/Departments/h-s/pdf/en/NBDrugPlan/NewBrunswickDrugPlansFormulary.pdf
https://www.princeedwardisland.ca/sites/default/files/publications/pei_pharmacare_formulary.pdf
https://novascotia.ca/dhw/pharmacare/documents/formulary.pdf
https://www.health.gov.nl.ca/health/nlpdp/fmlsearch.asp
https://www.gov.nu.ca/sites/default/files/gn_drug_formulary_binder_1_final_dec_2021.pdf
https://www.hss.gov.nt.ca/professionals/sites/professionals/files/resources/nwt-health-centre-formulary.pdf
https://ihs.gov.yk.ca/drugs/f?p=161:9000 Accessed August 11th, 2022.

Table 10. Reimbursement times for Beovu and Vyzulta by province

	Beovu		Vyzulta	
Date NOC received	**March 2020**		**December 2018**	
	Date of reimbursement	**Time to reimbursement**	**Date of reimbursement**	**Time to reimbursement**
British Columbia	Not reimbursed	>29 months	Oct 2020	22 months
Alberta	Feb 2022	23 months	Mar 2020	15 months
Saskatchewan	Mar 2022	24 months	Feb 2020	14 months
Manitoba	Not reimbursed	>29 months	Mar 2020	15 months
Ontario	Dec 2021	21 months	Dec 2019	12 months
Quebec	Not reimbursed	>29 months	Not reimbursed	>44 months
New Brunswick	Dec 2021	21 months	Apr 2020	16 months
Prince Edward Island	Not reimbursed	>29 months	Aug 2019	8 months
Nova Scotia	February 2022	23 months	Sept 2020	21 months
Newfoundland and Labrador	Not reimbursed	>29 months	Sept 2020	21 months
Yukon	Not reimbursed	>29 months	Dec 2020	24 months
Northwest Territories	February 2022	23 months	Dec 2020	24 months

Nunavut	Not reimbursed	>29 months	Dec 2020	24 months

Table 11. Time since Notice of Compliance (NOC) for ophthalmic drugs not yet reimbursed in any province

	Oxervate		Luxturna		Vabysmo		Ozurdex	
All provinces	**Date NOC received**	**Time since NOC received**	**Date NOC received**	**Time since NOC received**	**Date NOC received**	**Time since NOC received**	**Date NOC received**	**Time since NOC received**
	February 2019	42 months	October 2020	22 months	May 2022	3 months	April 2015	7 years, 4 months

8. Emerging Issues That Will Impact Vision Health

8.1 Overview

As we emerge from the pandemic, it is going to be essential to provide additional human resources to help clear the backlog. Vision health professionals are currently stretched and under stress. This study analyzes the workforce issues affecting ophthalmologists, optometrists, nursing staff, and vision rehabilitation professionals. A survey conducted by Statistics Canada in 2021 reported that 25 to 40% of healthcare workers were considering leaving their place of employment or changing their jobs. This is of concern as the healthcare system struggles to overcome the impact of the pandemic.

While projections of ophthalmologists conducted pre-pandemic seem to indicate that overall, there are enough ophthalmologists to meet the demand, the impact of the pandemic has made it hard to meet this standard, as many ophthalmologists decide to take early retirement due to the increased stress associated with the pandemic. This is concerning as more than one in five ophthalmologists are currently over the age of 65, and almost half are over 50.

Ophthalmologists interviewed for this study reported shortages in nursing and allied staff, so that even if additional operating room time was provided

to overcome the surgical backlog, in many cases the time could not be used, as the necessary staff was not available. Shortages of nursing and allied staff were also reported as a problem in ophthalmologists' offices and clinics.

According to one ophthalmologist, staff burnout is a major factor, and overall morale over the course of the pandemic suffered significantly. Staff were not only working extra hours during the pandemic, but working those hours under demanding, uncertain, and even dangerous conditions. These individuals should be commended for their selfless and tireless work, and wherever possible, new measures and safeguards should be put in place to provide them with support.

Vision rehabilitation professionals are challenged by having to pivot in the way they deliver many of their services. It is not yet clear whether the workforce requirements can be met if the new methods of delivery persist in the long term.

8.1.1 Biosimilars

Health Canada defines biosimilars as follows[28]: str

While there are a number of non-ophthalmic biosimilar drugs approved by Health Canada for sale in Canada, there is currently only one ophthalmic biosimilar drug (Byooviz) approved by Health Canada for marketing in Canada. It is essential that ophthalmologists provide ongoing surveillance as the products get more general use in the marketplace, in order to ensure their ongoing safety and efficacy.

8.1.2 Micro-invasive glaucoma surgery (MIGS)

Micro-invasive glaucoma surgery, also known as minimally-invasive glaucoma surgery (MIGS), constitutes a group of procedures used to treat mild to moderate glaucoma. The procedure is being used to an increasing extent by many ophthalmologists. As the number of ophthalmologists across Canada conducting MIGS increases, patients requiring this surgery find themselves in a difficult situation. Funding for MIGS devices is not provided directly by any province in Canada. The situation across the country is that

[28]Health Canada. Biosimilar biologic drugs in Canada: Fact Sheet. Available at: https://www.canada.ca/en/health-canada/services/drugs-health-products/biologics-radiopharmaceuticals-genetic-therapies/applications-submissions/guidance-documents/fact-sheet-biosimilars.html Accessed August 14th, 2022.

MIGSs are being performed only in those hospitals that have budgets available for these procedures.

8.2 Analysis

8.2.1 Vision health workforce projections

Since all of the major eye diseases with the potential to cause vision loss — cataracts, glaucoma, AMD, and DR — are associated with aging, it is of concern that the proportion of the Canadian population over the age of 65 is projected to increase substantially in the near future.[29] By 2030 (the year when the youngest baby boomers turn 65 years old), the proportion of the total population aged 65 and over is expected to increase to 21.4%. This is an increase from 17.2% in 2018. Providing the healthcare and rehabilitation services that the aging population will require will need the growth of the vision health workforce to keep pace with the growth in the older population segment.

The COVID-19 pandemic has put additional strains on the healthcare system as it struggles to overcome the backlog created by people not keeping appointments for diagnosis, treatment, or surgery during the heart of the pandemic. These strains will be discussed below as they apply to ophthalmologists, optometrists, nursing staff, and vision rehabilitation specialists.

8.2.2 Ophthalmologists

A recent projection of the Canadian ophthalmologist workforce[30] forecast that the number of ophthalmologists would increase at a rate that would not keep up with the growth of the population ≥65. While the ophthalmologist annual growth rate is projected to be 1.4% per year, the population over the age of 65 is projected to increase at an annual rate ranging from 1.6% to 2.7%. In the total population, the number of ophthalmologists per 100,000 is projected to show a slight increase from 3.5 per 100,000 in 2020 to 4.1 in 2068 in a medium growth scenario. While this looks reasonable on a total population basis, it becomes a challenge when one looks at the population

[29]Statistics Canada. Population Projections for Canada (2018 to 2068), Provinces and Territories (2018 to 2043). Available at: https://www150.statcan.gc.ca/n1/pub/91-520-x/2019001/sect02-eng.htm Accessed August 13th, 2022.
[30]Buys YM, Bellan L. Updated inventory and projections for Canada's ophthalmology workforce. Can J Ophthalmol. 2022 Jul 1:S0008-4182(22)00184-3. doi: 10.1016/j.jcjo.2022.06.008. Epub ahead of print. PMID: 35780860. Accessed August 13th, 2022.

over the age of 65. It is estimated that ophthalmologists provide 62% of services to the population over 65 years. By 2068 the number of ophthalmologists per 100,000 people over the age of 65 is projected to be 15.9 in a medium growth scenario, down from 19.4 in 2020. The ratio of ophthalmologists to patients aged ≥65 years, the predominant cohort treated by ophthalmologists, is projected to drop by between 4.9% and 27.7%, depending on the rate of growth of the population.

Another issue of concern is that the number of ophthalmologists over the age of 65 is currently 20.9%. One can therefore expect an increased rate of retirement of ophthalmologists in the short term.

These projections were all made prior to the pandemic. The additional stresses created by the pandemic have resulted in many healthcare workers indicating that they were planning to leave their job or change jobs. A survey conducted by Statistics Canada[31] from September to November 2021 reported that from 27.0 to 47.1% of physicians, depending on years of experience, were intending to leave their job or change jobs within the next three years (**Figure 6** and **Table 12**). While the survey was not specific for ophthalmologists, it can be expected that this relates equally to ophthalmologists. This tendency will undoubtedly impact the ability of Canadians to access ophthalmologists.

[31]Statistics Canada. Experiences of healthcare workers during the COVID-19 pandemic, September to November 2021. Available at: https://www150.statcan.gc.ca/n1/daily-quotidien/220603/dq220603a-eng.htm Accessed August 13th, 2022.

Figure 6. Healthcare workers' intentions to leave their job or change jobs in the next three years, among those not intending to retire, by experience and occupation, Canada, September to November 2021

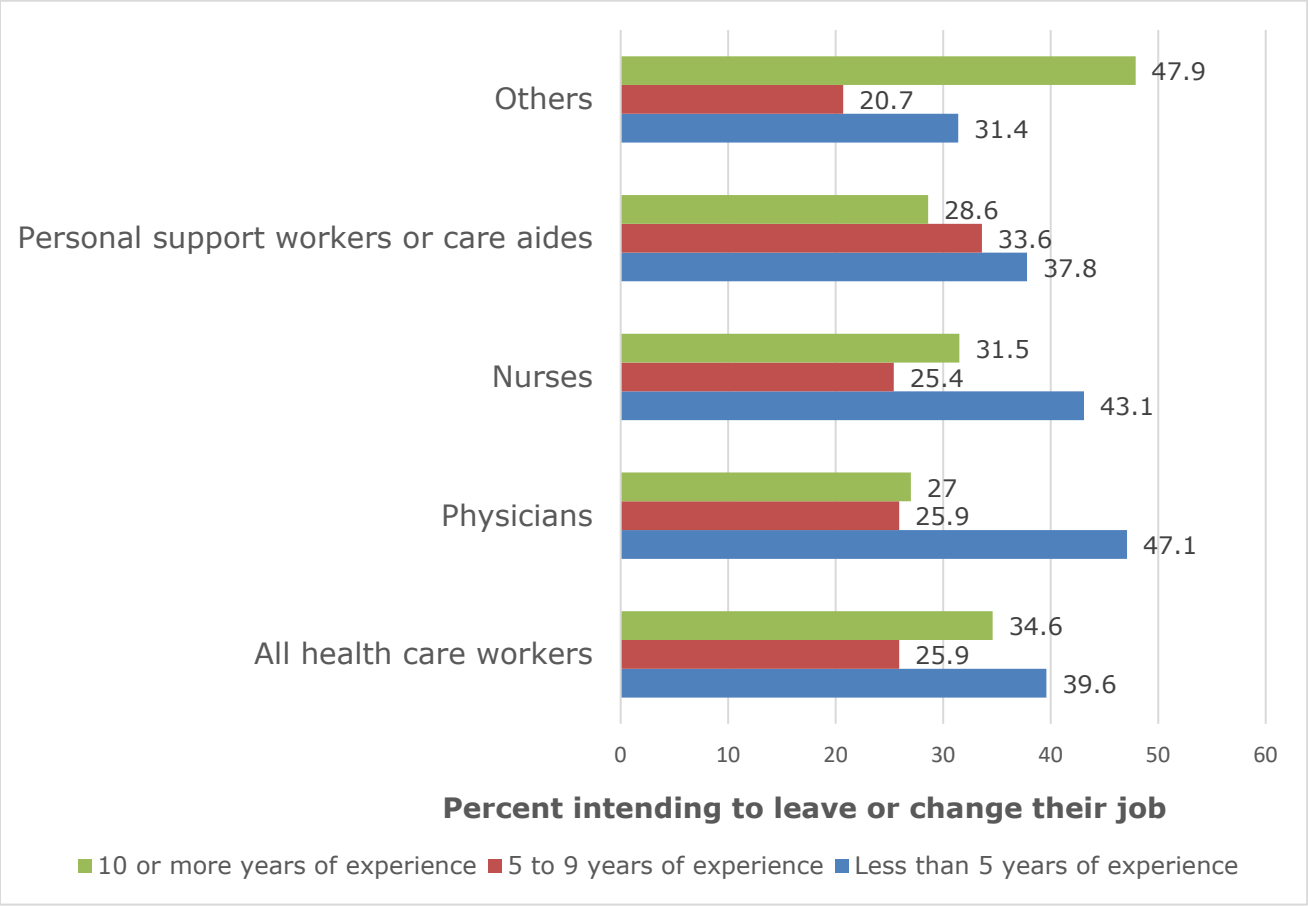

Table 12. Healthcare workers' intentions to leave their job or change jobs in the next three years, among those not intending to retire, by experience and occupation, Canada, September to November 2021

	Less than 5 years of experience	5 to 9 years of experience	10 or more years of experience
	Percent intending to leave or change job		
All healthcare workers	39.6	25.9	34.6
Physicians	47.1	25.9	27.0
Nurses	43.1	25.4	31.5
Personal support workers or care aides	37.8	33.6	28.6
Others	31.4	20.7	47.9

8.2.3 Optometrists

In 2021 there were 6,609 optometrists in Canada, according to the Cost of Vision Loss and Blindness in Canada report[15]. A study on the geographic distribution of optometrists in Canada[32] published in 2020 using 2017/2018 data concluded that on average there were 1.7 optometrists per 10,000 Canadians, a number which was in excess of the international benchmark for developed countries of one optometrist per 10,000.[33] This report went on to assess the availability of optometrists by region and found that, while the largest metropolitan regions had the highest number of optometrists per

[32]Shah T, Milosavljevic S, Bath B. Geographic availability to optometry services across Canada: mapping distribution, need and self-reported use. Shah et al. BMC Health Services Research (2020) 20:639 https://doi.org/10.1186/s12913-020-05499-6 Accessed August 13th, 2022.
[33]Holden B, Resnikoff S. The role of optometry in vision 2020. Community Eye Health 2002;15(43):33-36. Available at: http://www.ncbi.nlm.nih.gov/pubmed/17491876 Accessed August 13th, 2022.

10,000 population, there were many regions of Canada that were underserviced.

These assessments were conducted prior to the pandemic. The need for optometrists has increased dramatically due to the pandemic. The addendum to the Cost of Vision Loss and Blindness report published in August 2021[21] estimated that 2.9 million fewer visits were made to optometrists in 2020 compared to 2019. At the time of writing this report, it is not yet clear whether the optometric workforce is sufficient to overcome this huge backlog in optometric visits. To further compound the situation, the backlog was increased in Ontario over the period of September to November 2021 due to the withdrawal of government-insured optometric services by Ontario optometrists. It appears that it will be some time before the backlog can be taken care of.

8.2.4 Nurses

In the Statistics Canada survey discussed above (**Figure 6** and **Table 12**), 25 to 43% of nurses said that they were considering leaving their employment or changing their job. This is concerning as recovery from the pandemic is highly dependent on nursing staff availability, particularly with respect to ophthalmic surgery. Ophthalmologists interviewed for this study reported shortages in nursing staff, so that even if additional operating room time was provided to overcome the surgical backlog, in many cases the time could not be used, as nursing staff was not available. Shortages of nursing staff were also reported as a problem in ophthalmologists' offices and clinics.

8.2.5 Vision rehabilitation services

As with many other services, the provision of vision rehabilitation services has had to adapt to the realities of the pandemic. Services could no longer be provided within the homes of vision rehabilitation clients, and orientation and mobility instruction, while continuing, had to be delivered within the framework of social distancing requirements. Vision rehabilitation organizations pivoted to delivering many services remotely via meeting apps such as Zoom, for example, and adaptive technology instruction itself became a virtually delivered service. It appears that the standard of care is being maintained but it is not yet clear whether the workforce requirements can be met if the new methods of delivery persist in the long term.

8.2.6 Biosimilars

Over the past 15 years, anti-VEGF agents have become the mainstay of treatment for AMD, DR, and CRVO. Most of these drugs are now nearing the

end of their duration of patent protection and similar medications that meet certain standards can be introduced to the market without being in contravention of the originator's patent. These products, called biosimilars, are not generic drugs in the sense that they are exactly the same chemical compound. Being the product of a biological process, they are slightly different than the original drug, but are similar enough in their clinical effect to be ruled interchangeable if they are found to be comparable in clinical studies. The anti-VEGF agents are all biologic compounds and may therefore be subject to interchangeability by biosimilars.

Health Canada requires testing for efficacy and safety before a biosimilar drug is approved for sale. Efficacy testing involves clinical trials comparing the biosimilar with the original innovative drug. Testing for safety and purity is also required.[34] A study published in 2020[35] reported that there were 25 ophthalmic biosimilars under development. This number has reduced somewhat as companies have merged or abandoned the development of these products.[36]

While there are a number of biosimilars approved by Health Canada for non-ophthalmic indications, at the time of this writing (August 2022), there is only one Health Canada-approved ophthalmic biosimilar product — Byooviz (ranibizumab) — which was approved on March 8th, 2022, for the treatment of neovascular AMD, DME, macular edema secondary to retinal vein occlusion (RVO), choroidal neovascularization (CNV) secondary to pathologic myopia (PM), and CNV secondary to ocular conditions other than AMD. There are other biosimilars under development for ranibizumab as well as aflibercept and bevacizumab.

Although these products will have undergone testing for safety and efficacy in limited clinical trials, it will be important for ophthalmologists to provide ongoing surveillance as the products get more general use in the marketplace, in order to ensure their ongoing safety and efficacy.

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[34]American Academy of Ophthalmology. The use of biosimilars in ophthalmic practice 2022. Available at: https://www.aao.org/clinical-statement/use-of-biosimilars-in-ophthalmic-practice Accessed August 14th, 2022.

[35]Sharma A, Kumar N, Kuppermann BD, Bandello F, Loewenstein A. Understanding biosimilars and its regulatory aspects across the globe: an ophthalmology perspective. Br J Ophthalmol. 2020 Jan;104(1):2-7. doi: 10.1136/bjophthalmol-2019-314443. Epub 2019 Jul 17. PMID: 31315829.

[36]Taylor R. Biosimilars in ophthalmology. *EyeNet Magazine*. January 2021. Available at: https://www.aao.org/eyenet/article/biosimilars-in-ophthalmology Accessed August 14th, 2022.

Ophthalmologists are concerned that reimbursement policies may limit their ability to treat their patients with the product that they deem most appropriate and for this reason the COS has issued a position statement in which they express their concerns in this regard.[37]

8.2.7 Micro-invasive glaucoma surgery (MIGS)

MIGS constitutes a group of procedures used to treat mild to moderate glaucoma. The current, most common form of MIGS involves the implantation of a micro-stent or cannula device within the eye which facilitates drainage from the eye and thereby lowers intraocular pressure. A recent review of MIGS surgeries in ophthalmology[38] states that: "MIGS has the potential for a high safety profile, shortened surgical time, and lower complication rate relative to filtering or drainage device surgery, as well as high biocompatibility, shorter postoperative recovery, improved quality of life, and at least modest efficacy in lowering intraocular pressure (IOP) and topical medication burden."

As the number of ophthalmologists across Canada conducting MIGS increases, patients requiring this surgery find themselves in a difficult situation. Funding for MIGS devices is not provided directly by any province in Canada. Currently, only Ontario and Quebec have made recommendations for funding of MIGS devices, with Ontario recommending the funding of iStent in combination with cataract surgery for adults with mild to moderate glaucoma that cannot be well-controlled with pressure-lowering medications.[39] Quebec (INESSS) has recommended the funding of the XEN45 gel implant.[40] This is based upon extensive reviews of the literature in terms of safety and efficacy. However, these provinces have not yet

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[37]Canadian Ophthalmological Society. Position statement on biosimilars. July 2022. Available at: https://www.cosprc.ca/canadian-ophthalmological-society-cos-position-statement-on-biosimilars/ Accessed August 28th, 2022.

[38]Nichani P, Popovic MM, Schlenker MB, Park J, Ahmed IIK. Microinvasive glaucoma surgery: A review of 3476 eyes. SurvOphthalmol. 2021 Sep-Oct;66(5):714-742. doi: 10.1016/j.survophthal.2020.09.005. Epub 2020 Sep 28. PMID: 32998003.

[39]Ontario Health. iStent for adults with glaucoma. Final recommendation. July 2021. Available at: https://www.hqontario.ca/Evidence-to-Improve-Care/Health-Technology-Assessment/Reviews-And-Recommendations/iStent-for-Adults-With-Glaucoma Accessed September 11th, 2022.

[40]INESS. L'implant de gel XEN45 pour la chirurgie micro-invasive du glaucome (CMIG). December 2020. Available at: https://numerique.banq.qc.ca/patrimoine/details/52327/4201825 Accessed September 11th, 2022.

provided any specific funding for these devices to the hospitals. The situation across the country is that MIGSs are being performed only in those hospitals that have budgets available for these procedures. Access to MIGS is therefore limited in many jurisdictions. Even if a patient wants to pay for MIGS devices and has the means to do so, they are prohibited from doing so under the Canada Health Act, as MIGS is regarded as "medically necessary." The type of surgery that a patient has, therefore, is determined by whether the hospital where they will have their surgery is funding MIGS. In his Health Mandate Letter of December 2021,[41] Prime Minister Trudeau confirmed that his government was committed to ensuring that "all Canadians can get the care they need no matter where they live." Since the current MIGS situation does not provide access to care in all regions of the country, this untenable situation needs to be resolved as soon as possible.

9. The Impact of the COVID-19 Pandemic on People Living with Vision Loss

9.1 Overview

In June and July of 2022, a survey was conducted of 572 people living with VL across Canada in order to assess the impact of the pandemic on the VL community at this stage of the pandemic. The results are summarized below.

9.1.1 Access to information

Most people had accessed a government website, however there were still a significant number of people who had difficulty accessing the COVID-19 information on government websites.

9.1.2 Vaccination

The results of the survey reflect vaccination levels for people with VL against COVID-19 that were higher than those of the general population, despite the lack of support of the federal or provincial governments with respect to giving priority to the VL community.

[41]Prime Minister Justin Trudeau. Health Mandate Letter to Health Minister Duclos. 16th December 2021. Available at: https://pm.gc.ca/en/mandate-letters/2021/12/16/minister-health-mandate-letter Accessed August 16th, 2022.

9.1.3 Acquisition of, and testing for, COVID-19

Almost twice as many people with VL had tested positive for COVID-19 compared with the general population, with about four times the percentage of people hospitalized. It is unclear whether the reason for this is that the population who responded to this survey were older than the general population or whether their comorbidities made them more vulnerable than the general population. The VL community is a community at risk and should get priority vaccination or healthcare treatments in health crises.

At-home test kits are not accessible to people with VL, with many respondents indicating that they needed help to conduct at-home testing. Since over one third of people with VL live alone, it's essential that kits be developed that can be accessible to people with VL.

9.1.4 Leaving home and shopping

This survey showed that many more people were leaving home for a wide variety of reasons. This is extremely positive in terms of stress reduction and physical fitness; however, it does make the community more susceptible to COVID infection due to the inability to assess how close one is to someone who may be unmasked.

More people are leaving home to shop. In general, people seem to have managed to negotiate the issues associated with in-store shopping (partitions and social distancing).

A greater percent of people with VL are wearing masks when they leave home compared with the general population, and a significant percent of respondents said that they would continue to wear a mask when away from their home, particularly when they were indoors.

More people with VL are now shopping online due to a combination of greater availability and more accessible websites. However, there is still a need for more shopping websites to be accessible.

9.1.5 Healthcare issues

The main healthcare concern that people expressed in this survey was their ability to see a doctor or healthcare practitioner when they need one. Many people also said that they need someone to accompany them to a doctor or hospital. Doctors, hospitals, and other healthcare practitioners that have barred an accompanying person need to facilitate the accompaniment of their patients with VL as well as other disabilities.

9.1.6 Employment issues

One of the main issues with respect to employment that arose from this survey was the fact that many employers are not covering the cost of the accessible technology that their employees with VL need to work at home. Many people with VL are financially strapped at this time and cannot afford the extra cost associated with the acquisition of accessible technology.

9.1.7 Financial issues

Many people with VL were concerned about their inability to meet many financial payments at the start of the pandemic. About one third of those that showed a loss of income were able to access government assistance but about one in four of those that were concerned that they might not be able to pay for essentials did in fact experience difficulty making these payments. Like almost all Canadians, the COVID-19 pandemic has hit everyone hard financially, but the VL community in general has a lower income level than the general population. This needs to be taken into account in all potential financial interactions with people with VL. On the positive side, over 90% of respondents in this survey said they had the technology that enabled them to communicate electronically with their family and friends. This is good news at a time when Zoom and similar meeting technology have become our primary means of connecting at a distance.

9.1.8 Government performance

More respondents to this survey said that they were satisfied with the performance of the federal government with respect to communicating essential information to the VL community compared with provincial governments. However, the number of people dissatisfied with all levels of government is quite high and it’s essential that governments pay more attention to the special needs of people with VL, some of which are discussed in this report.

9.1.9 Stress, fears, and apprehensions

This is a good news story, in that the community of people with VL is less stressed than it was at the start of the pandemic, as reflected in their individual scores in this survey and by way of comparison of this survey with that of April 2020. However, there are still significant numbers of people expressing feelings of being overwhelmed and being under extreme stress. This fact needs to be at the forefront of everyone’s dealings with people living with VL, particularly those that live alone.

9.1.10 Managing the emotional impact of the pandemic

People with VL have developed a full range of coping skills that have seen them emerge from the pandemic with less fear and apprehension. The respondents to this survey described a wide variety of activities that helped them manage, with the largest groups writing about the value of physical and outdoor activity, as well as socialization and the role of family and friends.

9.2 Analysis

As mentioned in the introduction to this report, in April 2020, at the start of the COVID-19 pandemic in Canada, the CCB surveyed people who were blind, deaf-blind, or partially-sighted to assess the effect that the pandemic was having on their lives.[3] In June and July of 2022, a very similar survey was conducted in order to assess the impact of the pandemic on the VL community at this stage in the pandemic. This survey used many of the same questions that were asked in the 2020 survey in order to be able to make comparisons. In addition, questions were asked that were specific to the most recent phase of the pandemic. The results of this survey have been published in a separate report,[42] the key findings of which will be presented here.

9.2.1 Access to information

People acquired their information about the pandemic from a variety of media sources. Only 44% of those who had accessed a government website said that all government websites were fully accessible.

9.2.2 Vaccination

96.6% of respondents said that they had received at least one vaccination for COVID-19. This compares very favourably with that of all Canadians. (92.7% of Canadians over the age of 18 have received at least one vaccination.)[43] 95.2% of respondents had received two or more vaccinations (compared with 90.4% for Canadians aged 18 or older), with 86.3% of respondents having received at least one booster (compared with 59.3% for Canadians aged 18 or older).

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[42] Gordon KD. A Report Card on Vision Health in Canada. Part 2. The Impact of the Pandemic on Canadians Who Are Blind, Deaf-Blind, and Partially-Sighted 2022. In press.
[43]Government of Canada. COVID-19 vaccination in Canada. Available at: https://health-infobase.canada.ca/covid-19/vaccination-coverage/#a3 Accessed August 1st, 2022.

9.2.3 Acquisition of COVID-19

Almost twice as many respondents to this survey had tested positive for COVID-19 (21.8%) compared with the general Canadian population (10.6%).[44] 1.8% of respondents said that they had been hospitalized for COVID-19. This compares to 0.4% of the total Canadian population that have been hospitalized.[40] It is unclear whether this difference is because the survey sample was older than the general population or whether the comorbidities or some other factors make the survey population more vulnerable to the effects of COVID-19.

9.2.4 Testing for COVID-19

44.9% of respondents said they had been tested for COVID-19 outside their home and almost half of the respondents (49.3%) said that they had conducted a COVID-19 test at home, with 36.0% of respondents saying they required help to conduct a COVID-19 test at home, test kits being extremely difficult to be used by someone with VL.

9.2.5 Leaving home

Almost all respondents had left home for one reason or another during the pandemic. There was an increase in the number of people having left home in all categories compared with the 2020 survey, the largest increases being those people who left home to acquire prescriptions or other medications and those who left home to visit a doctor. People felt more confident going outdoors as the pandemic progressed, with most people indicating that they felt safe to go outside their homes as time went on, likely associated with the implementation of more robust health measures and the arrival of vaccines and booster shots.

9.2.6 Shopping for groceries and other essentials

People with VL have become more comfortable with going into public spaces as the pandemic has progressed. Half the respondents said that they were now doing their shopping themselves, an increase from the 2020 number of one third.

At the start of the pandemic, people with VL expressed discomfort in interacting with staff when shopping. In the 2022 survey, the percentage of

[44]Government of Canada. COVID-19 epidemiology update. Available at: https://health-infobase.canada.ca/covid-19/?stat=rate&measure=cases_total&map=pt#a2 Accessed August 1st, 2022.

respondents saying they were uncomfortable with interacting with store staff dropped to 13.5%. In general, people seem to have managed to negotiate the issues associated with in-store shopping (partitions and social distancing). Very few negative comments were received in this regard.

9.2.7 Wearing a mask when away from home

Only 3.2% of respondents said that they didn't wear a mask at least some of the time when away from home during the pandemic. The percent of respondents not currently wearing a mask at all when away from home has climbed to 27.1%.

9.2.8 Shopping online for groceries and supplies

More people are now shopping online as a result of the pandemic, with 20.9% of respondents saying that they started doing shopping online during the pandemic for the first time. Only 29.3% of respondents who were shopping online said that all websites were accessible (compared to 23.2% in the 2020 survey), while 64.3% said that only some were accessible.

9.2.9 Healthcare issues

The main healthcare issue concerning most respondents to the 2022 survey (67.4% of respondents) was that they may not be able to see their doctor if they became sick during the pandemic. 42.2% of respondents were concerned about being able to access transportation to get to a doctor or hospital and 40.3% of respondents were concerned about having someone accompanying them to the doctor or hospital.

26.8% of respondents said that they had had an important medical appointment or surgery cancelled due to the pandemic.

73.9% of respondents who had personal care workers (PCWs) come into their homes during the pandemic said that the PCWs were using personal protective equipment (PPE).

Respondents were asked if they had met with any healthcare providers either online or by telephone. Three quarters of respondents (75.4%) said that they had met with a healthcare provider either online or by telephone. For this population, telemedicine became a normal method of accessing healthcare during the pandemic.

9.2.10 Employment issues

Only 2.0% of respondents had been laid off from work. More than half the respondents required to work from home (53.1%) said their employer would not supply the necessary accessible technology they required to work from home. 54 respondents self-funded the accessible technology they needed to work from home. The amounts spent ranged from 40.7% of respondents spending between $100 and $999 all the way to 7.4% of respondents spending over $5,000.

9.2.11 Financial issues

One third of respondents who had experienced a loss of income as a result of the pandemic (33.5%) said they had been able to access government financial assistance. Approximately one in four respondents who had been concerned about their ability to keep up to date with their financial payments at the start of the pandemic did in fact experience difficulty making these payments.

9.2.12 Connecting with family and friends

Over 90% of respondents in the 2020 survey said they had the technology that enables them to communicate electronically with their family and friends. This is good news at a time when Zoom and similar meeting technology have become our primary means of connecting at a distance.

9.2.13 Government performance

More respondents to this survey said that they were satisfied with the performance of the federal government with respect to communicating essential information to the VL community compared with provincial governments. However, the number of people dissatisfied with all levels of government is quite high and it’s essential that governments pay more attention to the special needs of people with VL.

9.2.14 Stresses, fears, and apprehensions

59.3% of respondents who had felt overwhelmed at the start of the pandemic said that they no longer felt that way. Using a 10-point scale, respondents were asked to identify how stressed they felt at the start of the pandemic and in a subsequent question to identify how stressed they felt currently. 37.5% of respondents said they had felt a stress level of 7 or greater at the start of the pandemic. By comparison, only 15.8% of respondents are currently experiencing stress at a level of 7 or greater.

46.1% of respondents said that they were experiencing more than a moderate level of stress at the start of the pandemic, while only 22.9% of respondents were feeling more than moderate stress currently.

In an open-ended question, respondents were asked what their particular concerns were regarding the COVID-19 pandemic as it relates to their VL and general health. The responses were grouped into several categories. Despite the number of respondents who articulated no concerns, it is clear that most people are worried about the pandemic and its ongoing effects on their health. Many are concerned about their access to health services, with several identifying an increase in VL resulting from delays and barriers to eye care. Respondents were also disappointed by the lack of accessibility related to COVID-related health measures, such as masking and partitions, which have been identified as a the most common source of discomfort in other questions in this survey.

9.2.15 Managing the emotional impact of the pandemic

People with VL have developed a full range of coping skills that have seen them emerge from the pandemic with less fear and apprehension. The respondents to this survey described a wide variety of activities that helped them manage, with the largest groups writing about the value of physical and outdoor activity, as well as socialization and the role of family and friends.

10. A National Health Strategy for Canada

One of the key recommendations that was made in the Cost of Vision Loss and Blindness in Canada report was that the Government of Canada, in consultation with the VL community and its stakeholders, should develop and implement a national Vision Health Plan, with the goal of providing the best possible outcomes and quality of care and rehabilitation for Canadians who are blind or partially-sighted. It is pleasing to see that this recommendation is moving ahead. On June 14th, the Honourable Judy Sgro, P.C., M.P., tabled Bill C-284 in the House of Commons, calling on the government to develop a national eye care strategy. Bill C-284 will commit the government to a firm timetable of one year from the day of passage to produce a national strategy on how to support eye care and deal with VL. Bill C-284 is the first step in a longer process whereby the federal government will consult with the provinces and other key eye care and VL stakeholders to create a strategy. At the time of writing, stakeholder organizations are

consulting with Ms. Sgro to ensure that the Bill includes all the key issues of importance to all vision health stakeholders. The full text of Bill C-284 is available at the following link:

https://www.parl.ca/DocumentViewer/en/44-1/bill/C-284/first-reading

11. A Vision Desk at the Public Health Agency of Canada (PHAC)

Another key recommendation of the Cost of Vision Loss and Blindness report was that a Vision Desk be established within the Public Health Agency of Canada (PHAC). Vision issues are currently handled by departments within the PHAC that deal with other diseases and conditions. For effective planning of eye health in Canada, it's essential that vision issues be handled within a vision-specific department. No progress whatsoever has been made toward achieving this recommendation.

12. Acknowledgement

The Report Card on Vision Health in Canada was commissioned by the CCB and FBC. We would like to express our gratitude to those ophthalmologists, optometrists, and VL and vision health stakeholder organizations who generously gave of their time to be interviewed for this report.

13. Appreciation

This report was made possible by unconditional grants from a number of Canada's leading research-based pharmaceutical companies, corporate sponsors, and key members and stakeholders of the VL community. The CCB and FBC would like to express our appreciation for their generous support, without which this important initiative could not have been accomplished.

Logos pictured above: Alcon, Allergan, an AbbVie company; AGTC; Bayer; Canadian Council of the Blind; Fighting Blindness Canada; Novartis; Roche; and Specsavers.

14. Research Leads

Keith Gordon, Principal Investigator

Dr. Keith Gordon is the Senior Research Officer of the CCB. His research is dedicated to advancing advocacy for the VL community. Dr. Gordon was the principal investigator of four CCB studies: "The Impact of the COVID-19 Pandemic on Canadians Who Are Blind, Deaf-Blind, and Partially-Sighted" (April 2020); "The Cost of Vision Loss and Blindness in Canada" (March 2021); "The Impact of the COVID-19 Pandemic on Eye Health in Canada" (September 2021); and "Reforming Ontario's Assistive Devices Program" (February 2022). He also authored the CCB report "A Needs Report on Accessible Technology" (November 2019).

Dr. Gordon is past Vice President of Research of the Canadian National Institute for the Blind (CNIB) in Toronto, where he worked from 2007 to 2017, directing all research activities of the organization. Prior to that, he spent more than 30 years in the ophthalmic industry, where he was responsible for a wide range of research and scientific activities.

Dr. Gordon is past Research Director of Blind and Low Vision New Zealand and is currently Chair of the Board of BALANCE for Blind Adults. He's also an adjunct professor in the Department of Ophthalmology and Vision Sciences at the University of Toronto and an Honorary Teaching Fellow in the School of Optometry and Vision Science at the University of Auckland in Auckland, New Zealand.

Chad Andrews, Investigator

Dr. Chad Andrews is a researcher and policy analyst with a Ph.D. in cultural studies. As a consultant and advisor, he works with stakeholders in health science and policy to analyze and comprehend the physical, psychological, and socioeconomic impacts of disease and disability.

Collaborating with patients and patient groups, he has been involved in a number of burden of illness projects that study the personal and social dimensions of VL, including work that is now published in the *Canadian Journal of Diabetes* and the *Canadian Journal of Ophthalmology*. Dr. Andrews also teaches and publishes occasionally in the interdisciplinary spaces between literature, history, and policy.

Larissa Moniz, Investigator

Dr. Larissa Moniz joined FBC in December 2019. She has a Ph.D. in molecular and cancer biology from the University of Toronto and has continued her research in the U.K. at University College London. Dr. Moniz has worked in research and knowledge translation at a number of health charities, both in the U.K. and Canada, most recently at Prostate Cancer Canada.

At FBC, Dr. Moniz's team works to deliver on the mission of the organization, which is to fund research toward treatments to preserve and restore vision, to ensure that all Canadians have access to appropriate vision care, and to provide support and information to individuals living with VL.

Michael Baillargeon, Project Co-Lead

Michael Baillargeon is Senior Advisor to the CCB, managing advocacy, research, and special event initiatives, as well as government and stakeholder relations. Over the last 16 years, he has been an advisor to, and advocate for, the blind, deaf-blind, and partially-sighted community. Baillargeon has played a key role on a wide range of issues before the Council, including serving as publisher of *White Cane Week Magazine* and overseeing annual White Cane Week and Vision Month events, including the Vision Health Summit, Gala Dinner, and Experience Expo and Forum.

Baillargeon has grown the CCB research department, conducting studies in a number of areas important to the VL community, including accessible technology and assistive devices. He was co-lead on the CCB study "The Impact of the COVID-19 Pandemic on Canadians Who Are Blind, Deaf-Blind, and Partially-Sighted," published in April 2020, as well as "The Cost of Vision Loss and Blindness in Canada" and its COVID-19 Addendum, both of which were released by the CCB in 2021. More recently, Baillargeon represented the CCB working with stakeholder groups in reporting on, and recommending changes in, Ontario's Assistive Devices Program (ADP).

Through advocacy and research, Baillargeon is dedicated to building public awareness and improving the well-being and quality of life of those living with VL. He is proud of his efforts with the CCB to dismantle barriers to accessibility, and in working with others to prevent blindness and to provide those living the experience of VL the tools to change what it means to be blind.

Doug Earle, Project Co-Lead

Doug Earle joined FBC in December 2018 as President and CEO. Since then, he has been leading FBC though a transformation to accelerate research into all blinding eye diseases in order to discover treatments and cures for blindness, and to improve access to innovative gene and cell therapies and medications. Earle co-chaired the Canadian Vision 2020-21 Summits with Michael Baillargeon, consulting the community to identify its advocacy agenda in these symbolic years.

Over Earle's 30-year career, he has served in progressively more senior roles at five health charities, two hospitals, two universities, and TVOntario public television. He played instrumental roles in the advocacy that led to the Krever Commission of Inquiry on the Blood System in Canada and compensation for people living with HIV and hepatitis C through tainted blood and has worked with philanthropists to fund millions in medical research and other projects.

15. Endnotes

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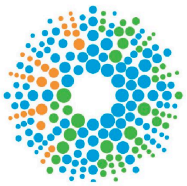
Commissioned by the Canadian Council of the Blind and Fighting Blindness Canada



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