

Background

- As of 2021, an estimated 3.7 million Canadians are living with cataracts¹
- Cataracts are a progressive condition that affects one’s vision due to clouding of the eye’s natural lens, and if left untreated, can result in blindness²
- Timely access to cataract surgery is perceived to be a serious unmet health issue in Canada, with delayed surgery leading to patient, clinical, public health, and health policy consequences³
- The objective of this study was to collate and review published evidence to assess patient impact and economic burden of cataract surgery wait times in Canada

Methods

Search Strategy

- A targeted literature review was conducted using PubMed® database to identify studies published between January 1, 2007 and December 10, 2021
- This was supplemented by a grey literature search to identify additional data among white papers
- Search terms included cataract surgery, wait times, patient burden, quality of life, economic, costs, Canada, and COVID-19

Eligibility Criteria

- Intervention: Any Canadian national or provincial data related to patients waiting for cataract surgery
- Outcomes: Patient impact or economic burden of delayed cataract surgery
- Articles were restricted to English-language publications and Canada specific data, but were not restricted by type of study or report

Results - Overview

- 6 unique sources were included in this study
 - 4 publications and 2 white papers
 - All 6 reported patient impacts and 2 reported economic burden

Results

Patient Impact of Prolonged Waiting

- All 6 sources reported the patient impact related to prolonged waiting for cataract surgery in Canada, including:

- **Decline in visual acuity**^{3-5,7}
- **Reduced quality of life**^{1,3,7}
- **Greater risk of the following outcomes (Table 1):**

Table 1. Increased consequences of waiting for cataract surgery, supported by study findings

Outcome	Main Study Findings
Vision loss ^{1,3,6,7}	Increased wait times for eye examinations and treatments/surgeries due to COVID-19 resulted in an estimated 1,437 Canadians losing vision in 2020 ⁷
Falls ^{1,3-5,7}	3.34% reduction in overall rate of falling for group waiting median 27 days for cataract surgery vs 337 days, relative risk=0.66, p=0.03 ⁴
Fractures ^{1,3,4,7}	Reduction in fracture risk for group waiting median 27 days for cataract surgery vs 337 days, relative risk=0.33, p=0.04 ⁴
Motor vehicle accidents ^{4,5}	Crash rate increased by 75% for those who delayed or did not receive cataract surgery vs 27% for those who received timely surgery, absolute rate reduction associated with cataract surgery=4.74 crashes per million miles of travel ⁴
Depression ^{3,5,6}	Greater percentage of patients with ≤6/18 acuity in their surgical eye waiting longer for surgery met criteria for depression, 32% vs 22%, p=0.01 ⁶

- One prospective observational study⁵ administered questionnaires among 2 cohorts (39% vs 29% of patients waited >6 months for cataract surgery in 1999 vs 2006, respectively), with significantly worse results among the 1999 cohort for the following questionnaires:
 - Visual Function-14 (VF-14), reporting higher self-reported difficulty with visual tasks (p<0.001) and greater dissatisfaction with vision (p<0.001)
 - 5-item Cataract Symptom Scale, reporting more cataract-related symptoms (p<0.001)
- Another cohort study⁶ showed that patients waiting longer for cataract surgery had lower acuity in their surgical eye (≤6/18) with worse VF-14 scores(p<0.001) and higher likelihood of depression before surgery(p=0.01)

References and Disclosures

1. Gordon et al (2021) The cost of vision loss and blindness in Canada. Canadian Council of the Blind. 2. Quillen DA (1999) American family physician 60(1):99-108. 3. Gimbel et al (2011) Curr Opin Ophthalmol 22:28-30. 4. Conner-Spady et al (2007) Can J Ophthalmol 42:543-551. 5. Boisjoly et al (2009) Can J Ophthalmol 45:135-139. 6. Freeman et al (2009) Can J Ophthalmol 44:171-176. 7. Deloitte (2021) Addendum to the cost of vision loss and blindness in Canada: the impact of COVID-19. Canadian Council of the Blind.

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Results

Economic Burden of Prolonged Waiting

- The Canadian Council of the Blind (2021)^{1,7} reported the impact of the COVID-19 pandemic on vision loss associated with longer wait times:
 - An estimated 109,000 cataract eye surgeries were missed or delayed in 2020 (34% decline compared to 2019), resulting in increased risk of vision loss and an average annual cost to the healthcare system of \$27,250 CAD per person (\$15.2 million CAD total)
 - Projected for mid-2021 to 2023, costs of vision loss due to additional wait times of ophthalmic surgeries (most specifically cataract surgery) will be \$520.2 million CAD annually in Canada (estimated total of \$1.3 billion CAD) (Table 2)
 - Includes costs to loss of well-being/quality of life (\$442.2 million CAD/year) and direct healthcare system costs (\$78 million CAD/year)

Table 2. Estimated impact on annual cost of vision loss, 2021 to 2023

Measure	Annual cost (\$ m CAD)
Delayed identification of eye disease	23.9
Reduced interventions provided	15.2
Impact of increased wait times	520.2
Total	559.4

m: million;
CAD: Canadian dollar

- Average costs incurred by someone with vision loss due to prolonged waiting is \$54 CAD/day until they receive surgery
 - Only includes healthcare costs associated with increased wait times, e.g. falls; excludes productivity, economic efficiency costs
- Expected to take 2 years and \$129 million CAD/year to clear the additional backlog of cataract surgeries caused by the pandemic

Discussion and Conclusions

- Prolonged waiting for cataract surgery can have negative consequences, ranging from progressive vision loss and decline in patient quality of life to increased costs to patients, the healthcare system, and society
- The COVID-19 pandemic has created additional burden of longer cataract surgery wait times in Canada, leading to further adverse consequences
- There remains an urgent need to reduce wait times to ensure timely treatment access for individuals undergoing cataract surgery in Canada
- To overcome the backlog of cataract surgeries, one report emphasizes the essential need for more funding to be allocated from Canada’s provincial governments towards additional resources and operating room time⁷