A systematic literature review of the evidence on
benchmarks for cataract surgery waiting time

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ABSTRACT • RÉSUMÉ

Background: This review offered critical input to the work of Canadian federal–provincial–territorial Deputy
Ministers of Health on establishing evidence-based benchmarks for waiting times (WTs) for cataract
surgery. The study purpose was to synthesize the evidence regarding the relations among patient
characteristics,WT, and health outcomes for patients on waiting lists for cataract surgery.

Methods: A systematic literature review was conducted using the Cochrane methodology.

Results: Seventeen studies were considered. The studies varied in their quality, study design, sample
characteristics, and outcome measures. Because of the heterogeneity in studies, a qualitative analysis was
used. Key findings were: individuals with cataracts are at an increased risk of falls, hip fractures, and motor
vehicle crashes, the absence of pre-existing eye disease, and better baseline visual acuity and visual function
are associated with better outcomes, and average WTs of 6–12 months are associated with a decline in
visual acuity in patients while waiting.

Interpretation: Although the evidence does not indicate a precise benchmark, it does support
timely access to surgery for individuals undergoing cataract surgery. In December 2005, health
ministers set a goal to provide cataract surgery within 16 weeks for patients at high risk.

Contexte: Cette étude jette un regard critique sur le travail des sous-ministres de la santé aux niveaux
fédéral, provincial et territorial visant à établir des normes factuelles de délai d’attente (DA) pour la
chirurgie de la cataracte. L’étude avait pour objet de faire la synthèse des données relatives entre les
caractéristiques des patients, les DA et les résultats pour les patients inscrits.

Méthodes: Examen systématique de la littérature suivant la méthodologie de Cochrane.

Résultats: Dix-sept études ont été examinées. Elles variaient quant à la qualité, au plan de l’étude, aux
caractères des échantillons et aux mesures qui en ont résulté. Vu l’hétérogénéité des études, on en a fait
une analyse qualitative. Les principaux résultats furent : les personnes atteintes de cataracte courent plus
de risque de chutes, de fractures de la hanche et de collisions automobiles, l’absence de maladie oculaire
préexistante, une meilleure acuité visuelle de base et une meilleure fonction visuelle sont associées à de
meilleurs résultats, et les moyennes de DA de 6 à 12 mois sont associées à une baisse d’acuité visuelle chez
les patients en attente.

Interprétation: Bien qu’elles n’indiquent pas de norme précise, les données soutiennent que les
personnes qui ont besoin de chirurgie de la cataracte doivent y avoir accès au moment opportun.
En décembre 2005, les ministres de la santé ont fixé à un maximum de 16 semaines le
délai d’attente d’une chirurgie de la cataracte pour les patients à risque élevé.

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In Canada, timely access to scheduled surgery continues to be a serious problem and is seen as a major unmet health need. This was recognized with the 2004 meeting of Canada’s First Ministers, at which concrete steps were announced to address long waiting times (WTs). National high-priority areas were designated, and funds were made available from the Canadian Institutes of Health Research to synthesize the literature and provide guidance for the formulation of evidence-based benchmarks for medically acceptable WTs for sight restoration (as well as cancer, heart, diagnostic imaging, and joint replacement) by December 31, 2005. Multi-year targets would be established to achieve benchmarks in each jurisdiction by December 31, 2007.

The most common cause of surgically remediable poor vision in older adults is cataract. Fortunately, surgical removal predictably improves visual function (VF) and visual acuity (VA) but is not always available in a timely fashion. This raises the question of how long patients should or could wait for cataract surgery. Given that sight loss from cataract is not precipitous or associated with death or highly countable outcome events, the formulation of WT benchmarks is complicated, and other factors related to WT must be considered.

The goal of this systematic review was to synthesize the evidence regarding the relations among patient characteristics, WT, and health outcomes for patients on waiting lists for cataract surgery. This review offered critical input to the work of Canadian federal–provincial–territorial Deputy Ministers of Health on establishing evidence-based benchmarks for medically acceptable WTs for cataract surgery.

Benchmarks in other countries have generally been based on consensus with clinical input, but there is little published literature on the rationale and evidence used in their formulation. Our review focused on the 3 following objectives:

1. To synthesize the evidence regarding the relations among WT and patient characteristics, the potential benefit of surgery, financial and nonfinancial costs, and health outcomes.
2. To conclude whether there is sufficient evidence to formulate benchmark WTs for cataract surgery.
3. To suggest and inform priorities for future research on the development of benchmark WTs.

**Methods**

**Search strategy**

We conducted a comprehensive search of 9 multidisciplinary bibliographic databases, including MEDLINE, EMBASE, Cochrane Library, EconLit, and Social Sciences Abstracts, to locate peer-reviewed literature from 1985 to 2005 suitable for inclusion in this review. Reference lists from included studies were also checked for potentially relevant articles. Detailed search strategies are available from the authors.

**Selection of eligible studies**

A screening tool with inclusion and exclusion criteria was developed to identify relevant abstracts. The inclusion criteria comprised a focus on adults (18+ years) who had cataracts or who were on the waiting list for or had scheduled cataract surgery, and studies that addressed at least one of the following research questions:

1. What is the relation among WT, the potential to benefit from surgery, and health outcomes following cataract surgery?
2. What is the relation between WT and the health status of patients while waiting for surgery?
3. What factors interact with preoperative health status and length of waiting to influence patient benefit?
4. What is the relation between WT and the cost of waiting?
5. What is the relation between pre- and post-operative health status and outcomes for cataract surgery?
6. What is the association of cataracts with the risk of adverse events?

The screening tool was tested and refined through an iterative process of 3 pilot tests, each with 2 raters testing a subset of 25 abstracts. The selection of eligible studies involved a 2-step process (Fig. 1). First, 2 raters independently screened all titles and abstracts. Second, 2 raters screened the full text of articles that passed the first screen. Consensus on disagreements was reached between the 2 raters and a third rater, if necessary.

**Quality assessment checklist**

A 27-item quality assessment checklist was adapted from the Downs and Black checklist, which assesses quality of reporting, internal validity, external validity, and power. Items are scored from 0 to 1, with a partial score of 0.5 given in some instances. Items that are not applicable to a paper are not included in the score. Additional items included the reporting of a WT definition, clinical significance, study limitations, the validity of the authors’ conclusions, and the overall clarity and presentation of the paper. The revised checklist was piloted on 5 papers with 3 raters. To account for missing values resulting from nonapplicable items, a quality index (QI) was calculated by taking the average value of the applicable items and multiplying by 27 to give a total score ranging from 0 (worse) to 27 (better). The checklist also
includes a global score, a rating of the overall scientific quality of the paper on a 7-point scale from 1 (extensive flaws) to 7 (minimal flaws).

**Rating process**
Two raters (Barbara Conner-Spady and Lindsay McLaren) independently rated each paper using the quality assessment checklist. The final QI and global scores for each paper were the average of the 2 raters. The Pearson correlation coefficient was used to assess the relation between the QI and the global score.

**Data extraction and synthesis**
Two reviewers (Barbara Conner-Spady and Lindsay McLaren) independently extracted the data using a data extraction form (Fig. 2). Our approach to the synthesis was qualitative rather than quantitative. A meta-analysis was not conducted because of the heterogeneity in study design and population, measurement of WT, and health outcomes. The screening tool, quality assessment checklist, and data extraction forms are available from the authors on request.

**RESULTS**

**Results of literature searches**
A total of 1884 abstracts and titles were screened; of these, 118 full-text articles were reviewed (Fig. 1). The inter-rater κ was 0.75. Seventeen studies, 5 cross-sectional and 12 prospective, met the inclusion criteria. Six were multiple reports of 2 larger studies. Table 1 presents key data elements of studies with WT data (research questions 1–4), and Table 2 presents studies related to research questions 5 and 6. The most common outcome measures were the VF-14, a measure of VF scaled from 0 (worse) to 100 (better), and best-corrected visual acuity (BCVA).

The study quality varied (median QI 20.9; range 12.6–24.0; IQR 18.7–22.6) (median global score 5.0; range 3–7; IQR 4.3–6.0). The correlation between the QI and global score was moderately strong (r = 0.78). Study limitations included small samples, no adjustment for relevant covariates, poor documentation of the measurement and source of WT data, lack of inclusion of the WT from referral to surgical consultation, and an insufficient length of wait to assess the effects of waiting on health outcomes. Seven of the eight studies that measured WT used the interval from placement on the waiting list to surgery, and one assessed the WT from referral to surgery. None stated explicitly at what point the patient was placed on the waiting list.

**Relation among WT, surgical benefit, and health outcomes**
Two studies randomly allocated patients to expedited vs. routine surgery. Adjusting for baseline variables, risk of falling, and comorbidity, Harwood et al. found a statistically significant reduction in the risk of recurrent falls, in the overall rate of falls, and in the fracture risk. A study limitation was the patient self-report of falls. However, a reasonable attempt was made to

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**Fig. 1**—Flowchart of the process of article selection for inclusion in the systematic review.

**Fig. 2**—List of extracted data elements.
### Table 1—Characteristics of studies that address the relation between waiting time and health status and (or) the cost of waiting

<table>
<thead>
<tr>
<th>Ref no.</th>
<th>Purpose</th>
<th>Sample source</th>
<th>Sample size</th>
<th>Methods and assessment times</th>
<th>Outcome variables</th>
<th>Other key variables</th>
<th>WT results</th>
<th>Main findings</th>
<th>Key limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>To examine impact of waiting on postop BCVA (1st and 2nd)</td>
<td>Pts on WL, Canada, Denmark, Spain</td>
<td>3 countries</td>
<td>Randomization, interview</td>
<td>BCVA (at listing and 10 wk postop)</td>
<td>Age, sex, socio-economic status, VF-14, preop comorbidity, anxiety</td>
<td>Mean WT 73.44 d (79.26)</td>
<td>1. Little anxiety. Glare and blurry vision greatest difficulties reported. 2. WT unrelated to improvement in BCVA. Better preop VA and VF-14 predictor of better postop VA (and VF-14).</td>
<td>No adjustment for preop status in WT regression analysis. Average WT at interview 2.5 mo.</td>
</tr>
<tr>
<td>9</td>
<td>To describe the pt’s emotional well-being and ability to cope with prep to exam</td>
<td>Pts on WL, 98 (45%); 92 Canada</td>
<td>50%</td>
<td>Random sample, telephone interview</td>
<td>BA1, BCVA, VF-14 (VF-14), CSS, IAS, pt’s concern about length of wait, surgery delay initiated by pt</td>
<td>Age, sex, socio-economic status, comorbidity, cataract surgery</td>
<td>Mean WT 24 wk</td>
<td>1. No effect of WT on anxiety (BA1). 2. BA1 higher than community sample norms.</td>
<td>No adjustment for comorbidity or prep status in WT regression analysis. Average WT at interview 2.5 mo.</td>
</tr>
<tr>
<td>10</td>
<td>To examine experience of waiting for pt, especially anxiety</td>
<td>Pts on WL with no set date for surgery, Canada</td>
<td>50%</td>
<td>Random allocation: 1 expedited surgery (large WT 1 mo) 2 routine (mean WT within 13 mo)</td>
<td>Random allocation: 1 expedited surgery (large WT 1 mo) 2 routine (mean WT within 13 mo)</td>
<td>Age, history of falls, risk factors for falls, cataract surgery, depression, physical activity, FES, Barthel Index, LHS, EQ-5D</td>
<td>Expended group median 27 d; range 1–212 d</td>
<td>With adjustment for potential confounders: 1. No difference in the reduction in the risk of a 1st fall over 1 y 2. 24% reduction in the risk of a 1st fall. Hazard rate 0.60, p=0.04 3. 34% reduction in the overall risk of falling. RR 0.66, p=0.03 4. Reduction in the fracture risk, RR 0.33, p=0.04 5. Pts with BCVA worse than 0.30 changed from 31% at baseline to 37% at 6 m. 6. 6 mo post randomization. Group operated on vs. control group had significant benefits in BCVA, CS, VF-14, stereotypes, EQ-5D, and other outcome measures.</td>
<td>No adjustment for preop status in WT regression analysis. Adjusted only for concern for wait and pt-delayed surgery. Low response rate. Small sample size. 22% of WP recorded falls not verifiable.</td>
</tr>
<tr>
<td>8</td>
<td>To assess cataract surgery for outcomes (2nd)</td>
<td>Pts on WL for surgery, UK</td>
<td>208: 105 (expended), 103 (control)</td>
<td>Random allocation: 1 expedited surgery (large WT 6 wk) 2 control (routine WT 7–12 mo)</td>
<td>4 VF tests (binocular logMAR distance, VA, binocular logMAR near acuity, stereopsis, binocular CS)</td>
<td>Age, sex</td>
<td>Expended group had surgery within 6 wk of randomization; routine group 7–12 mo post randomization</td>
<td>1. With adjustment for baseline values, statistically significant (p&lt;0.05) but clinically small differences in 4 VF tests between expedited and control groups. 2. Significant difference (p=0.02) in 8 VF outcomes between 2 groups.</td>
<td>Not clear whether prep assessment took place immediately after listing or while on WL. No information on nonresponders.</td>
</tr>
</tbody>
</table>
To compare visual outcomes, WT was unrelated to the improvement for baseline differences. Six months after randomization, with adjustments made in VF, VA, and contrast sensitivity in binocular vision in comes, including BCVA and the VF-14. In a second fits compared with the control group in most of the outcome differences in the risk ratio of fractures supported the results related to falls. Six months after randomization, the group that had undergone surgery had significant benefits compared with the control group in most of the outcomes, including BCVA and the VF-14. In a second study, Laidlaw et al. reported significant improvements in VF, VA, and contrast sensitivity in binocular vision in an expedited group compared with a routine group 6 months after randomization, with adjustments made for baseline differences.

In the only study that examined the effect of WT on visual outcomes, WT was unrelated to the improvement in BCVA after surgery. However, the average WT was only 2.5 months.

### Relation between waiting time and health status while waiting

Three studies reported a deterioration in BCVA, ranging from 0.05–0.27 logMAR during waits averaging 6 to 13 months. All mean BCVA values at the second measurement were below the BCVA needed for driving (0.30 logMAR in the better eye). Harwood et al. also reported deterioration in the VF-14 from randomization to 6 months after randomization for patients in the control group. The studies varied in the assessment times and the study quality. None of the studies discussed whether the surgeon was blinded to the BCVA measurements. Two of the studies did not adjust their findings for ocular comorbidity or other potential confounders.
Table 2—Characteristics of studies that address the relation between cataract and risk of adverse events, and health status before and after cataract surgery

<table>
<thead>
<tr>
<th>Ref no.</th>
<th>Purpose</th>
<th>Sample source</th>
<th>Sample size: baseline n (%)</th>
<th>Follow-up n (%)</th>
<th>Assessment times</th>
<th>Outcome measures</th>
<th>Other key variables</th>
<th>Main findings</th>
<th>Key limitations (quality assessment criteria)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>To ascertain whether cataract surgery reduced falls (1st and 2nd)</td>
<td>Consecutive, UK</td>
<td>97 (87%); 76</td>
<td>All listing and every 2 mo for 6 mo postop every 2 mo for 2 yr to record falls</td>
<td>Self-reported falls</td>
<td>Environmental risk factors related to falls, age, falls in preceding year, medication, nociuresis, VA, mental test score, use of mobility appliance</td>
<td>Preop; VA, BCVA; self-reported health, CS, glare, ocular morbidity, visual fields</td>
<td>Greater odds of falling before than after surgery: OR = 0.08, 95% CI 0.0092 to 0.80, use of mobility appliance was a predictor of a postop fall; OR = 8.45, 95% CI 1.57 to 45.06</td>
<td>Small sample and a lack of clarity in the reporting of the analysis (18)</td>
</tr>
<tr>
<td>16</td>
<td>To examine the relation between posterior cataract and risk of fracture</td>
<td>Population survey, Australia</td>
<td>3654 (82%); 1949 (full data)</td>
<td>Baseline (retrospective) over past 12 mo (2 or more falls vs. 1 fall or no falls)</td>
<td>Self-reported falls</td>
<td>Worse presenting visual impairment in the better eye was strongly associated with 2 or more falls vs. 1 fall or no falls</td>
<td>Presenting VA, BCVA; self-reported health, CS, glare, ocular morbidity, visual fields</td>
<td>Did not adjust for some variables shown previously to have an association with falls: cognitive function, gait, balance, depth perception Potential recall and selection bias (21)</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>To explore the associations between diabetes and risk of fracture</td>
<td>Population survey, Australia</td>
<td>3654 (82%)</td>
<td>Baseline, 2 y, 5 y</td>
<td>Fractures: self-report, radiology, discharge summary reports</td>
<td>Age, sex, BMI, health status, history of stroke or Parkinson’s disease, history of falls, medication, smoking, physical activity, walking difficulties, and use of a cane or stick</td>
<td>Presenting VA and BCVA</td>
<td>Adjusting for age, sex, and BMI, the diabetic retinopathy adjusted RR = 5.4, 95% CI 2.7–10.9, long duration of diabetes (RR = 3.3, 95% CI 1.3–8.2), treatment with insulin (RR = 5.9, 95% CI 2.6–13.5), high blood glucose ≥ 7 (RR = 2.9, 95% CI 1.4–5.9), and the presence of central cataract in the worse eye (RR = 2.5, 95% CI 1.3–4.7) were associated with a fracture risk at 2 yr follow-up</td>
<td>May not have addressed all relevant confounders; sample size at 2 yr follow-up was not stated (17)</td>
</tr>
<tr>
<td>18</td>
<td>To examine the association between visual impairment and hip fracture (follow-up to Table 1)</td>
<td>Population survey, Australia</td>
<td>3654; 2368 (5 y)</td>
<td>Baseline, 2 y, 5 y</td>
<td>Hip fracture: self-report, radiology, discharge summary reports</td>
<td>Age, sex, medications, medical history, self-rating of health, BMI</td>
<td>Presenting VA and BCVA; CS, visual fields, ocular morbidity, self-rating of health</td>
<td>Adjusting for confounders, posterior subcapsular cataract in either eye was the only eye disease associated with hip fracture at 2 y follow-up, after adjusting for age, sex, BMI, health status, medications, BCVA, and Parkinson’s disease (adjusted hazard ratio = 5.0, 95% CI 1.1–23.0); BCVA also a predictor (more strongly associated than presenting VA)</td>
<td>May not have assessed all relevant confounders; loss to follow-up; 5 y follow-up not reported (23)</td>
</tr>
<tr>
<td>19</td>
<td>To determine which preop characteristics predict little or no improvement in visual outcomes following cataract surgery (1st and 2nd)</td>
<td>Systematic review (database), Canada</td>
<td>1329 eyes (1062 [10]; 851 eyes)</td>
<td>Preop; 3 mo postop</td>
<td>BCVA</td>
<td>Age, sex, first or second order cataract, visual morbidity, indication for surgery</td>
<td>Presenting VA and BCVA; CS; visual fields, ocular morbidity, self-rating of health</td>
<td>Adjusting for covariates, worse preop BCVA, corneal scarring, age-related macular degeneration, other types of macular degeneration, and proliferative diabetic retinopathy in the operated eye increased the risk of having a poor postop BCVA (p = 0.05)</td>
<td>Reporting not clear what predictors were used of all the variables assessed VFA and HRQL not reported Not clear if eyes or patients were assessed (19)</td>
</tr>
<tr>
<td>20</td>
<td>To determine the role of cataract surgery in driving (1st)</td>
<td>Consecutive, US</td>
<td>279 with cataract, 105 without cataract</td>
<td>Baseline</td>
<td>Crash data over the prior 5 yr (state records)</td>
<td>Age, sex, race, general health, cognitive status, depression, presenting VA, CS, visual field sensitivity, driving habits</td>
<td>Presenting VA and BCVA, CS, visual fields, ocular morbidity, self-rating of health</td>
<td>Drivers with cataracts were 2.5× more likely to have a history of at-fault crash involvement in the prior 5 yr (RR = 2.5, 95% CI 1.00–6.14). These associations remained after adjustment for the confounding effects of advanced age, poor general health, impaired cognitive status, or depression</td>
<td>Retrospective crash data (21)</td>
</tr>
<tr>
<td>21</td>
<td>To identify what type of visual impairment mediates the increased crash risk of older drivers with cataract (1st) (follow-up to Table 18)</td>
<td>Consecutive, US</td>
<td>272 with cataract, 103 without cataract</td>
<td>Baseline</td>
<td>Crash data over the prior 5 yr (state records)</td>
<td>Age, sex, race, general health, cognitive status, driving habits, presenting VA, glare, CS</td>
<td>Adjusting for preop BCVA and number of coexisting eye diseases, p = 0.05</td>
<td>Drives with cataracts were 2.5× more likely to have a history of at-fault crash involvement in the prior 5 yr (RR = 2.5, 95% CI 1.00–6.14). These associations remained after adjustment for the confounding effects of advanced age, poor general health, impaired cognitive status, or depression</td>
<td>Retrospective crash data (24)</td>
</tr>
<tr>
<td>22</td>
<td>To determine the impact of cataract surgery on the crash risk after surgery compared with those with cataract who have elected not to have surgery (1st) (follow-up to Table 19)</td>
<td>Consecutive, US</td>
<td>277; 174 with surgery, 103 without surgery</td>
<td>Preop yearly × 2</td>
<td>Crash rate/p ...</td>
<td>Age, sex, education, general health, medications, cognitive status, driving habits, presenting VA, glare, CS, crash data prior to surgery</td>
<td>Those who had cataract surgery had half the crash rate 4–6 y following surgery compared with those who did not have surgery The crash rate for those having surgery increased by 27% compared with 75% for those who did not have surgery</td>
<td>The absolute rate reduction associated with cataract surgery was 4.74 crashes per million miles of travel (22)</td>
<td></td>
</tr>
</tbody>
</table>
To examine Systematic, prospective follow-up study, 18 with adjustment for confounders, posterior subcapsular cataract in either eye was the only eye disease associated with hip fracture at a 2-year follow-up.

In 3 papers based on a U.S. study of driving mobility in older adults, Owsley and colleagues20–22 examined the relation between cataract and the risk of MVCs. Drivers with cataracts vs. drivers without cataracts were 2.5 times more likely to have a history of at-fault crash involvement in the prior 5 years, adjusted for age, driving exposure, and relevant comorbidities. In a follow-up study, those who had undergone cataract surgery had half the crash rate 4–6 years after surgery than those who elected not to have surgery.

Discussion

The overall purpose of the review was to synthesize the evidence on the relation among cataract surgery, health outcomes, and WT as a means of advising on benchmark WT for sight restoration surgery. The key findings were as follows:

1. individuals with cataracts are at an increased risk of falls, hip fractures due to falls, and MVCs;
2. with adjustment for relevant covariates, factors associated with better postoperative outcomes following cataract surgery were the absence of pre-existing eye disease, better baseline VA, and better VF scores; and,
3. WTs of 6 months to 1 year were linked to a decline in VA in patients waiting for cataract surgery.

The studies varied in their quality, study design, sample characteristics, and outcome measures. A limitation of observational studies is that there may be unknown and unmeasured variables that may explain some of the study findings. Patients entering the queue vary in their level of VA, VF, and health status at baseline. Therefore, the validity of conclusions may be questionable without an adjustment for these potential confounders. Other study limitations such as small sample, loss to follow-up, and a lack of clarity in reporting in some of the studies limit the strength and interpretability of the conclusions.

WT is a key variable in the assessment of the effect of...
delay on health outcomes. Its accurate measurement and reporting are essential to the interpretability of results. Although all of the studies with WT data assessed the time from listing to surgery, only 1 study included the time from referral to specialist consultation. The source of WT data was not always stated, and 1 study used patient self-report, which is only moderately correlated with actual WT. These limitations in the measurement of WT weaken the validity of WT data and have the potential of affecting the interpretability and comparability across studies of the effect of WT on health outcomes. Finally, the sample size must be sufficiently large and the WT long enough to detect change.

Research is needed on the burden of waiting (including physical, psychological, social, and financial); the rate of deterioration in VA and VF due to cataract; the factors that mediate the association of cataract with falls, fractures, and MVCs; and the optimal timing of referral to a specialist and of surgery. In addition, there is little research on the relation between fractures, visual status, and accessibility to ophthalmic care in the elderly. Finally, little is known of intervention strategies that are effective in managing patients while they wait for cataract surgery, such as providing patients with the certainty of a scheduled date, contacting patients and reassessing them at regular intervals, and crash risk and fall prevention strategies.

Beyond clinical evidence, factors to consider in formulating benchmarks include the availability of resources and patient, physician, and public acceptance of WT standards. Recent initiatives in Canada have focused on priority-setting based on urgency and have attempted to establish WT for cataract removal and other scheduled procedures. These guidelines are based largely on clinical consensus but also include input from the literature, existing standards, and patient, physician, and public perspectives on acceptable WT.

**INTERPRETATION**

In conclusion, although the evidence does not indicate a precise benchmark for cataract surgery, it does provide a measure of guidance. As visual impairment is one of many risk factors for falls, fractures, and MVCs in the elderly, and as VA is shown to deteriorate over time, the results support timely access to surgery for individuals with visual impairment due to cataract.

In short, the longer one waits for cataract surgery, the greater the degree of preoperative visual impairment, the greater the risk of falls, fractures, and MVCs, and the poorer the visual outcome. The results from this study were used to assist in the formulation of waiting time benchmarks for cataract surgery. In December 2005, health ministers set a goal to provide cataract surgery within 16 weeks for patients at high risk.

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**REFERENCES**


**Key words:** wait time, wait list, cataract surgery, systematic review, health policy