Author's response to reviews

Title: Time series analysis of age related cataract hospitalizations and phacoemulsification

Authors:

Alan M Leong (alan.leong@utoronto.ca)
Eric J Crighton (eric.crighton@sw.ca)
Rahim Moineddin (rahim.moineddin@utoronto.ca)
Muhammad Mamdani (muhammad.mamdani@ices.on.ca)
Ross EG Upshur (ross.upshur@sw.ca)

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Author’s response to reviews: see over
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Dr. Peter Newmark  
Editor-in-Chief  
*BMC*

**Re: Time series analysis of age related cataract hospitalizations and phacoemulsification (MS: 7923984483821532)**

Dear Dr. Newmark,

Thank you for the peer review of our work. We appreciate the opportunity to revise and resubmit our manuscript for further consideration for publication in *BMC Ophthalmology*. We would like to thank our reviewers, Drs. Jari Haukka and Catherine McCarty, for their helpful comments.

We have addressed the reviewers’ comments in the form of a revised manuscript. In addition, we have detailed the revisions on a point-by-point basis below.

**Response to comments by Dr. Jari Haukka**

We would like to thank Dr. Haukka for his statement that our study effectively makes use of a large database. In response to the reviewer’s general comment that the basic aim of the study is unclear, we would note that our study objectives are outlined at the end of the Introduction section (see pg. 4 of the manuscript).

The reviewer further asks, "Why would it be interesting to model seasonal variation of cataract operations?" We believe that by modelling the seasonal usage patterns of cataract services using time series methodology, we are able to illustrate the seasonal component hospitalization for inpatient and outpatient cataract surgeries, the significance of which has bearing on health care services (see Introduction, pg. 3, "...the efficacy of current treatments, coupled with the cost of health care, support the need for a thorough understanding of the patterns of cataract surgery in order to improve delivery of eye care services").

We agree with the reviewer that more research and analysis is required to more fully understand this issue. As noted in the Conclusion of our manuscript, we believe that the findings of our descriptive study demonstrate the importance for further in-depth study and also opens up several lines of inquiry that this research may follow.

In addition to Dr. Haukka’s general comments, we have addressed his four major suggestions on our manuscript as follows:

**Major Compulsory Revisions**

1. In our study, the prevalence of cataract operations have been age-adjusted during the follow up period in our initial analysis.

2. The reviewer recommends that differences in geographical areas should be included to account for area variation. Our study is done at the provincial level, encompassing the whole of the province of Ontario. We will reserve such a geographical analysis for future study, as this is beyond the scope of our current study.
3. We agree completely with Dr. Haukka that more explanatory variables should be included in the study, if possible. A statement to this effect reflecting this limitation in our study has been added to the Discussion (see pg. 7, “The current study is descriptive in nature and thereby does not fully address potential explanatory factors for the hospitalization patterns”). Also, we have mentioned in the Background section of our paper, the purpose of our study was not to explain factors affecting the seasonality of cataract surgery in Ontario, but rather simply to offer a description of the trends and seasonality present. Perhaps the reviewer would be glad to know that we would hope to address this issue in a follow-up study.

4. We acknowledge that the absence of the ethical statement was an oversight, and has since been added (see Methods, pg. 5, “Ethical approval for this study was obtained from the Sunnybrook & Women’s College Health Sciences Centre Research Ethics Board”). The study is an analysis of the data obtained from the Canadian Institute for Health Information (CIHI) Discharge Abstract Database, in which all patient identifiers were scrambled to maintain strict confidentiality.

Minor Essential Revisions: none
Discretionary Revisions: none

Response to comments by Dr. Catherine McCarty

We are pleased that Dr. McCarty found our paper to be helpful in describing the delivery of cataract surgical services in Ontario, and “an article of importance in its field”. We thank her for the insightful review of our manuscript, and for the suggested revisions, which we have addressed as follows:

Major Compulsory Revisions

1. We appreciate the reviewer in posing this question. First of all, for clarification, the rates were calculated by taking monthly hospitalization or phacoemulsification procedure totals which were divided by the monthly population totals and multiplied by 100,000. The objective of the study was to measure the number of procedures rather than persons, and the data assumes that each event represents one person. An individual is unlikely to undergo more than one surgery for cataract at the same time, or within the same month, assuming the patient has cataracts in both eyes. Therefore, the rates are not affected by the possibility that an individual may potentially undergo two procedures, yet may be counted in the denominator once only. Despite this fact, we have addressed this point as a limitation of our study in the Discussion section (see pgs. 7-8).

2. A point is raised about whether the magnitude of the moving average could affect descriptions of seasonality. For our study, we used monthly moving averages of order 13 (see Methods, pg. 5, “The data was detrended using moving averages of order 13 prior to conducting spectral analysis”). The size of the moving average does not affect the seasonality of cataracts, and therefore, does not alter our results.

Minor Essential Revisions: none
Discretionary Revisions

1. The reviewer has suggested that we should add further descriptive information on eye care delivery in Ontario to further benefit readers. We have added a few sentences on this issue in the text (see Background, pg. 3). With regards to the use of the Canadian public health care system, the entire Canadian population is covered under a universal health care system, and our study included 14 million Ontarians eligible for Ontario Health Insurance Plan (OHIP) coverage (see Methods, pg. 4). The Canadian health care system administers and covers the costs of all cataract procedures.

For the interest of the reviewer, the median wait time for cataract surgery in Ontario was found to be 15 weeks in 2003-2004 (Access to Health Care Services in Ontario: ICES Atlas, 2005).

Closing

Once again, we thank the reviewers, Drs. Haukka and McCarty for their helpful reviews of our manuscript. We believe that we have addressed their comments, and the revisions have improved the strength and quality of the study. We look forward to an editorial decision on our revised manuscript at your earliest convenience.

Sincerely yours,

Alan Leong, Eric Crighton, Rahim Moineddin, Muhammad Mamdani, and Ross Upshur
Sunnybrook and Women’s College Health Sciences Centre
University of Toronto