Author's response to reviews

Title: The Impact of Statins on Health Services Utilization and Mortality in Older Adults Discharged from Hospital with Cardiovascular Disease: a cohort study.

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Version: 2 Date: 1 June 2009

Author's response to reviews: see over
May 05, 2009

Editorial Office, BMC Health Services Research

To the Editorial Office,

I am enclosing my revised manuscript entitled ‘The Impact of Statins on Health Services Utilization and Mortality in Older Adults with Cardiovascular for consideration for publication in the BMC Health Services Research journal.

I have addressed the comments in the body of the revised manuscript and I am including a point-by-point response to the comments in this letter.

1. **Comments from D.L. McLernon**
   Major Compulsory Revisions
   1. The reviewer raises the question regarding the time at which statins are prescribed to the new initiators after diagnosis of IHD. The data was examined to determine at what point statins were dispensed to new initiators after discharge. There were 52.7% of patients received their first statin prescription within 30 days of discharge, 19.5% of patients received their first prescription for a statin within 90 days of discharge, 17.4% within 365 days, and 10.4% received the first statin prescription 365 days after diagnosis.

   We recognized that those receiving a statin closer to discharge may have different outcomes than those receiving a statin at a later date. When analyzing the data, we also undertook a stratified analysis according to time after discharge that the first statin prescription was dispensed. Seniors receiving their first statin prescription at least 6 months or later after diagnosis actually had slightly, but not statistically significantly, better outcomes than seniors receiving their first prescription closer to discharge, more than likely due to a survival bias. While this analysis is included in detail in my thesis dissertation, it would require many additions to the present manuscript and the length of the submission would be extended considerably. This is currently the basis for another manuscript in preparation.

   While time-dependent covariate analysis may be attractive, it is beyond the scope of the dissertation to re-undertake analysis at this time. I have added the timeframe of
when patients received their first prescription for a statin to the manuscript on Page 9 of the manuscript.

Minor Essential Revisions
1. See #1, Major Compulsory Revisions.

2. On Page 5, second last sentence, the reviewer is correct. The confusing line has been omitted from the manuscript.

3. The variables that were incorporated into the propensity score have been added as Table 1, and referred to on Page 7. Other variables added to the model to predict the outcomes of interest have been clarified on page 8.

4. This has been added and is referred to in the manuscript on page 7.

2. Comments from P. Lockhart

Major Compulsory Revisions

Page 4, Paragraph 3
I have addressed this comment in the manuscript and I have altered the paragraph to reflect the comments from the reviewer.

Page 5, Paragraph 3
The Nova Scotia Seniors Pharmacare Program covers approximately 85% of the Nova Scotia Seniors population (data on file at the Population Health Research Unit, Dalhousie University). The NSSPP is the insurer of last resort, and those seniors with private of other drug insurance must first utilize their private insurance before meeting the eligibility requirements of the program (www.gov.ns.ca/health/Pharmacare/seniors_pharmacare/seniors_pharmacare.asp). This information has been updated in the manuscript.

Page 5, Paragraph 3
I agree that the recruitment strategy of selecting all patients discharged from hospital may yield different results than if patients were recruited from primary care. The purpose of this study was to determine if older adults who received statins after discharge from hospital would have better health outcomes (less use of health services and decreased mortality) compared to those who did not receive statins. In the primary care arena, where patients have less acute disease, the outcomes may certainly be less evident. While this is also an important consideration, it was decided to take a more narrow approach to this study.

Page 5 Paragraph 3/Page 10 Paragraph 3
As pointed out by the reviewer, the duration of follow up is an important variable. As indicated on page 6, first paragraph, all patients were followed for at least one year after discharge. Table 1 also shows that there was a slight difference in follow up between
the two groups, 2.7 ± 1.1 years of follow up in those receiving statins after discharge versus 2.1 ± 1.2 years of follow up in those not receiving statins after discharge. This difference is due to the difference in mortality between the two groups as in-house data at the Population Health Research Unit, Dalhousie University shows an out-migration in both of these patient groups of < 3%.

Page 6, Paragraph 1
The term ‘physician services’ refers to any visit to a physician, or nurse practitioner working under a physician, in Nova Scotia. This includes visits to general practitioners or specialists in any primary care area including general office visits, clinic visits or emergency appointments.

Page 6, Paragraph 2
While some information regarding statin discontinuation is available through the database after making inferences based on refill data and days of supply, this is a complex analysis and was beyond the scope of this thesis. It indeed would be a very interesting area to examine with respect to this medication and many other medications used in chronic diseases. A small point of discussion is included on page 14, paragraph 1.

Page 7, Paragraph 3
This section has been revised to better reflect the statistics utilized in this manuscript. The manuscript has been revised on page 7, paragraph 4 and page 9, paragraph 2. Reference #44 has been changed to better reflect the rationale for the methodology.

Sincerely,

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