Reviewer's report

Title: Impact of diabetes mellitus on life expectancy and health-adjusted life expectancy in Canada

Version: 1 Date: 13 September 2011

Reviewer: Solveig Cunningham

Reviewer's report:

This study examines the effect of diabetes on life expectancy and health-adjusted life expectancy in Canada by comparing the estimates of each in diabetic and non-diabetic populations. This is an interesting and useful undertaking, but there are methodological issues that are not sufficiently explained and may be of concern. Especially for the audience of this journal, the authors should be very clear about the procedures, the formulas, and the assumptions of each method used.

Major Compulsory Revisions

The writing is often hard to read, being unclear and wordy. Parts feel hastily written. Please edit further for clarity and succinctness.

There are several data sub-sections, but it’s unclear how each data source was used – organize this section to highlight the pieces of the formulas that you need to estimate and which of these pieces each data source is contributing.

My biggest concern is that the age groups used are very narrow, which I suspect leads to many age-sex-diabetes cells of the life table with 0s in them. I have just completed an analysis using diabetes status in life tables with a larger study from the US, and we had to combine more years of data and still use 10-year age groups and larger. When using survey-adjusted data it is easy to forget that there may be 1 or 2 cases in a cell even if it isn’t 0, so please do check and consider aggregating to larger age groups as needed, especially for the youngest ages, to ensure the robustness of their results.

The diabetes-deleted life expectancy is not well introduced and motivated at the beginning of the document. In the discussion, there is some comparison of the method used with other methods, but it was not clear to me whether the method used dealt with competing risks.

It is surprising that Table 1 only presents gender differences, as the paper is not otherwise about gender differences. I’m not sure this is the most pertinent information to present here.

Minor Essential Revisions

What’s the big picture of the findings – how does diabetes compare with other chronic diseases in reducing life expectancy?
There are a few cases of cross-over between life expectancy and healthy life-expectancy. This probably entails that there is a tension between longer life and prolonged unhealthy life. The authors should include a big-picture discussion of this issue (or their interpretation if they think something else is going on) and what it means for patients, for health care, for health professionals.

Life-years lived within an interval should be denoted as nLx, not Lx. to make it clear that it is specific to the defined interval.

In Table 2, there should be detailed footnotes explaining what each of the formulas is meant to indicate (ie. If I’m just skimming your tables without reading the table, I should still be able to know what (LE-HALE)/LE represents.

Discretionary Revisions
The authors suggest that future analysis should control for risk factors for diabetes but do not explain how. Is the idea that the life tables for those without diabetes would be stratified between those with hi and low risk?

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests