Reviewer's report

Title: Forecasts of COPD mortality in Australia: 2006-2025

Version: 3 Date: 11 May 2011

Reviewer: bob hancox

Reviewer's report:

COPD is a major cause of mortality and morbidity and predicting the trends in mortality over the next two would provide very useful information. This study uses Australian mortality data since 1922 to model the likely time trends to 2025. The projected decline in deaths is very welcome, but the confidence intervals around this are wide. The models do not take into account changes in smoking, which may also limit the usefulness of the predictions. The modeling methods are complex and beyond my ability to assess.

Major compulsory revisions.
1. A simple non-technical description of the modeling methods would make this paper much more understandable for the majority of readers (including me).
2. The time trends in mortality before 1950 are not discussed. What accounts for these trends and how did they contribute to the models? Did the model fit these trends?
3. The lack of smoking prevalence in the model is a limitation. Do we know enough about the time lag between smoking and disease to assess whether the projected trends are consistent with Australian smoking data?
4. 4 basis functions were used to model the data, but only one was used to project mortality in the future - why? Also, the abstract suggests that 5 basis functions were fitted.

Minor essential revisions
1. The English & grammar need attention. A careful proof read should identify the errors.
2. The results section of the abstract repeats the methods.
3. Introduction There is an apparent contradiction between the second and third paragraph. Is COPD declining or increasing?
4. Please justify why you think that past mortality data going back to 1922 provide a "sound basis" for predicting future trends. Surely this depends on the persistence of smoking trends rather than historical mortality?
5. Results - how is the "observational error clear"? Presumably the increased variance with age is due to the smaller number of people in these age groups.
6. Discussion - suggesting that these data conflict with overseas studies is premature. You observed a peak mortality in women around 1997 with a
subsequent decline. It is not surprising that UK data to 1998, Canadian data to 1995, and USA data to 2000 have not shown a decline yet.

7. Discussion - was the peak in mortality around 1997 really a "sudden change"?

Discretionary revisions.

1. Using the words "men" and "women" rather than "males" and "females" would make the paper a bit nicer to read.
2. The methods & result in the abstract would be better be written in the past rather than the present tense.

**Level of interest:** An article of importance in its field

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

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests