Reviewer's report

Title: The effect of modifiable risk factors on geographic mortality differentials: a modelling study

Version: 1 Date: 17 May 2011

Reviewer: Shaun Scholes

Reviewer's report:

1. Table 1 should include the totals by age-group. You also mention the AusDiab survey comprises both a household interview and biomedical examination at a testing site. A note needs to be added to clarify: who are these 11,237 respondents: those with information on all 3 risk factors? Presumably not all those having a household interview agree to being examined? More detail is needed.

2. You rightly mention the limitations of using a CVD risk score to measure all-cause mortality. And you present statistical results showing the SCORE index is a strong predictor of mortality. However you do not mention the rather short(ish) time period between the baseline survey and the follow-up to death (just some 5 years?). At this point I would expect to be told the number of actual deaths observed from the baseline survey to follow-up.

3. There is no mention of Inner Regional areas in the results presented in the abstract. Could you not just add a sentence about those areas even if it does mean saying no difference in APYL?

4. You say mortality rates are higher outside the major cities. Having the latest death rates by area would be informative.

5. My main point is that much more detail on the methodology is needed. I have read a number of scenario papers and a number of them provide an excellent and thorough documentation of their methods. Your hypothetical example does not provide sufficient detail of the methods used. Online journals enable authors to summarize their methods without space restrictions in a supplementary appendix. I would recommend the authors do the same here. Forgive me if there is one and I have not noticed it but there is no reference to one in the text.

6. Could you describe high risk SBP in ways that make clear what happens to a person with SBP=140. I am used to seeing high risk as SBP 140 or greater (i.e. >=140). You say "SBP greater than 140 mmHg" (implying >140). Do you really mean (>=140)?

7. Bootstrapping was used to construct CIs for the modelled estimates. Which modelled estimates? Just the Potential Years of Life?

8. Table 5 needs 95% CIs for the age-standardised prevalence rate ratios. These
are survey estimates and 95% CIs should be presented.

9. Table 6 needs 'No smoking' rather than w/o smoking

10. You say that a strength of the study is the use of measured rather than self-reported risk factors. 1 of the 3 risk factors, smoking, was self-reported.

11. It is a little surprising that you have made no reference to the WHO's work on comparative risk assessment which as I understand also models the impact of population shifts in risk factors on mortality risk and life expectancy.

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

Quality of written English: Acceptable

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