Reviewer's report

Title: Modelling alcohol consumption as a distribution and determining the impact of the distribution on estimated alcohol-attributable harms

Version: 2 Date: 6 December 2011

Reviewer: Tanja Srebotnjak

Reviewer's report:

The paper addresses the question of what functional form(s) to use when modelling alcohol consumption for the purpose of calculating alcohol attributable health impacts as part of the burden of disease study.

The subject is relevant to PHM and the paper is very well written, coherent and comprehensive. The manuscript is of interest to those working in this field and disease burden assessment.

Major Compulsory Revisions:
None.

Minor Essential Revisions:
None.

Discretionary Revisions:

The authors may want to include a sentence on the feasibility of the assumption of zero consumption for calculation of attributable risk as a public health goal. Nor may it be desirable given that alcohol has also been linked to protective properties such as for ischemic heart disease.

Could the authors explain the negative PAFs for diabetes?

The abstracts concludes that Gamma is best without saying why Weibull was not. This seems to overlook the more or less rational decision by the authors to prefer the Gamma over the Weibull not because of better fit (both had very similar results) but because of its additional flexibility for upshifting and the relationship between its mean and standard deviation as well as the mean and the empirical mean.

It appears that R version 11 is cited in bibliography but version 13 cited in text.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests:

I declare that I have no competing interests.