Reviewer's report

Title: Estimating and validating disability-adjusted life years at the global level: a framework for cancer

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Reviewer: Jennifer Margaret Jelsma

Reviewer's report:

The authors are to be congratulated for producing a plausible estimation of the BoD attributed to cancer. This is important information which needs to be published. However, the paper itself is somewhat dense and difficult to read. I have the following suggestions.

1. Suggest splitting paper into two.

The paper is rather confusing as it presents a large amount of data, and wishes to achieve two goals, estimation of the BoD related to different types of cancer in different countries and to document the methodology used, including a simpler method of calculation. By presenting both in the current paper, the authors overwhelm the reader. It is suggested that the authors divide the paper into two, one of which explores the use of the two stage model (as opposed to the three stage) and describes the methodology in more detail, including the formulas used to calculate YLDs and YLLs. The other paper could usefully concentrate on the results and comparisons across different types of cancers and across countries.

In other words, I am suggesting that the authors present one paper on methodological issues, which would include sensitivity analysis and a paper on the BoD in the 184 countries which are referred to in the Introduction but whose Bod is not presented or discussed.

The first might be more appropriate for BMC Research Methodology, the second for BMC Medicine. This is a strong recommendation but an editorial decision and hence not a compulsory revision.

2. If the paper is not split, the objectives need to be made clearer - presenting the development of the BoD estimation methodology, sensitivity analysis, comparison of the estimation for 4 countries etc. (Unclear why the 184 countries are mentioned in the Abstract as these data are not presented or discussed at any stage.)

3. It would be useful to include the formulas used to calculate the DALYs, so that those not familiar with the methodology can appreciate the importance of correct estimation of incidence, duration, severity.

3. The Discussion and Conclusions should similarly be divided up into a critique of the methodology and clear recommendations as what parameters to use (e.g. 2 or 3 stage model) and whether to employ similar bases for calculations in future
studies. As a new global study might be planned, this information would be very valuable.

4. It would be interesting to compare the results of the DALY calculations with the Global BoD figures, although possibly outdated. There is also room to compare and contrast the individual country results in more detail than is currently presented.

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable

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

Declaration of competing interests:

I have no competing interests.