Reviewer’s report

Title: Alcohol-impaired driving in US counties, 2002-2012

Version: 0 Date: 13 Aug 2017

Reviewer: Lance Waller

Reviewer’s report:

Comments for authors regarding Population Health Metrics manuscript POHM-D-17-00051 "Alcohol-Impaired Driving in US Counties, 2002-2012".

General Comments:

1. The Specific Comments: (Note: Page numbers start from the title page and line numbers reflect actual lines of text, not the lines in the margins).

1. Abstract, Conclusions, line 3: I suggest changing "a significant underestimate" to "an underestimate" to avoid confusion with statistical significance.

2. Page 4, Introduction, paragraph 1. This paragraph is somewhat confusing due to the dates of the reports. Would it be more appropriate to reverse the sentences to place the data in chronological order (2014, then 2015)?

3. Page 5, line -1. I assume the relative risks were calculated separately for each state separately (since the survey weights are state specific), is that the case?

4. Page 6, line 2. "previously validated small area modeling strategy". Perhaps "previously proposed" rather than "previously validated"? I'm not sure how to validate a modeling strategy as one would need to assess whether the assumptions for the previous study are also appropriate here.

5. Page 6, line -1. The conditional autoregressive random effects distribution applies to spatial random effects (the u_j's) and can be extended to the spatiotemporal random effects (the d_j,t's) but the temporal random effects (the w_t's) will need to follow a temporal autocorrelation distribution, perhaps an autoregressive distribution? This needs to be clarified.

6. Page 7, line 4. The American Community Survey reports small area values and margins of error. Were the margins of error used in the analyses or were the point estimates used without uncertainty?

7. Page 7, line 8. "Point estimates" to "Posterior point estimates".
8. Page 7, line -11. "approximately 1,703,955,652". Should this be "an estimated 1,703,955,652"? The number seems too precise to be an approximation.

9. Page 8. Can the authors add a map of the under age county estimates as well?

10. Page 9, line -7. As above, I suggest deleting "significant" to avoid confusion with statistical significance.

11. Page 10, paragraphs 2 and 3. These are interesting points but not directly related to the present analysis. Perhaps these should be placed elsewhere?

12. Page 11, line -7. "found no effect" Here, I suggest "found no significant effect".

13. Figures 2 and 3. Are the prevalence values on the same scale for Figures 2 and 3? Figure 2 suggests values between 0.02 and 0.16, while Figure 3 reports values between 0.00 and 0.05. This seems odd.

Level of interest
Please indicate how interesting you found the manuscript:

An article whose findings are important to those with closely related research interests

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?
If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests.

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal