Reviewer’s report

Title: Increases in United States life expectancy through reductions in injury-related death

Version: 0 Date: 21 Mar 2017

Reviewer: Laura Dwyer-Lindgren

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Methods, Data:

1. It would be useful to describe what is contained in each injury category - most readers will be unfamiliar with the ICD codes.

2. Similarly, it would be helpful if you could describe what 'unit medical and work lost cost estimates' are and how they're derived. At minimum, it should be apparent what costs are being accounted for in the costs averted analysis.

Methods, Estimation Approach:

1. Page 6, lines 13-16 - it seems that you are subtracting the injury mortality rate from the all-cause mortality risk. This doesn't totally make sense: the injury mortality rate should be subtracted from the all-cause mortality rate, and then the corresponding mortality risk should be recalculated—i.e., the mx column of the life table should be modified to account for the reduction in injury mortality and then qx (and the remainder of the life table) recalculated.

2. Page 8, line 6 - similarly, deaths should be calculated by multiplying population by the counterfactual mortality rate (mx), not the counterfactual mortality risks (qx).

3. Page 8, line 20 - I think the calculation of costs averted implicitly assumes that the injuries leading to observed injury-related deaths do not occur at all, not just that the deaths do not occur (e.g., due to better trauma care, which would certainly incur some cost regardless of outcome). If that is the case, this should be stated explicitly.

Results

1. Figures 2 and 3 could be combined - if I'm understanding them correctly, the only difference is the scale and the addition of the three labeled points in figure 3.

2. It may be useful to clarify the purpose of carrying out your analysis separately by sex and by race. Along these lines, it may be useful to explore the impact of reducing injuries on
differences in life expectancy between males and females and among racial/ethnic groups - from table 1, it looks like the gap between males and females is reduced substantially, while the gap between non-Hispanic whites and non-Hispanic blacks as well as non-Hispanic whites and Hispanics is reduced by a smaller amount.

Discussion

1. Page 10, Line 53 - 'Accuracy' is a potentially misleading heading for this section. It's more a comparison to previous research than a true assessment of the accuracy of your results.

2. Page 13, line 16 - Why do you need to adjust using Medicare data? Are the problems you're concerned with above age 65 relevant below that age as well?

3. The limitations section should include some discussion of the limitations of your 'heuristic approach' as compared to the more complicated methodology cited on page 4, line 28 (reference 12).

Conclusions

1. The main analysis considers unintentional and violence-related injuries specifically and the conclusions section focuses primarily on motor vehicle traffic deaths and drug overdoses. Is there a reason for this disconnect? It seems like it should be possible to carry out the analysis on these causes specifically as well, which would better motivate these sections of the conclusions.

Level of interest

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

Quality of written English

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