Author's response to reviews

Title: Estimating Alcohol-Related Premature Mortality in San Francisco: Use of Population-Attributable Fractions from the Global Burden of Disease Study

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Author's response to reviews: see over
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Philippa Harris, PhD
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Dear Dr Harris,

Thank you for orchestrating the prompt, thorough and helpful review of our manuscript. We have addressed most of the criticisms in the revised manuscript. As requested, the changes are highlighted with “tracked changes,” except for the revised tables, expanded references, and revised reference citations. Here is a point-by-point response to the concerns:

**Referee 1, Robert Anderson**

Dr Anderson suggested five revisions:

1) *Additional description of methods.* We agree; more detail was needed.
   a. The methods section now begins with two new paragraphs describing how YLLs were created. The description of how PAFs were applied has been clarified.
   b. A new citation to the GBD table of ICD-10 groupings has been added [ref 36], and it contains a link to the URL for the table.

2) *Generational persistence of ethnic drinking patterns?* Yes, ethnic drinking patterns may differ among first and subsequent generations of immigrants. We have added this observation to the fourth limitation.

3) *Comparing, not ranking.* The problem here is that YLLs attributed to “...alcohol use, if considered as a separate cause of premature mortality...” are dependent upon YLLs from GBD causes of death. We agree that “compare” is generally preferable to “rank.” We like the suggested locution (for males, method 1), “YLL attributable to alcohol use exceeds that for ischemic heart disease,” and have attempted to employ similar wording throughout.

4) *Comparisons among ethnicities.* Ranks have been removed from Table 5, which now shows only alcohol-related YLL as percentage of total YLL by demographic group and links to the mini-website. We would have liked to create the sex-specific tables containing all that Dr Anderson suggests, but each ethnic group has a unique ranking of leading causes by YLL (and unique PAFs are required for Asians and Latinos with method 3). These constraints would have required larger tables than are allowable by the journal, except as additional files, and many tables would have been required. This typographical problem is solved with the mini-website.
5) **Numerical errata in text.** We greatly appreciate this identification of errata, which have been corrected.

**Referee 2, Peter Byass**

Dr Byass asks for five revisions:

1) **Definition of “premature mortality.”** We agree, our use of “premature mortality” as equivalent to YLLs should have been more explicit and have revised the manuscript accordingly.

2) **Deaths versus YLLs.** We agree, the relationships among deaths and YLLs are very important. Numbers of deaths have been added to Tables 1 and 2, and brought into the Discussion as suggested.

3) **Age stratification.** If we had begun with many more years of data, the eight age sub-groupings for which PAFs were described by Ezzati et al [ref 6] could have been used to estimate age-segmented alcohol-related YLLs. The addition of death counts to Tables 1 and 2 sheds some light on this issue, e.g. deaths from violence and drug overdose are associated with many YLLs. However, from a public health standpoint, the overall burden of alcohol-related premature mortality is most important, because the most cost-effective interventions like raising alcohol taxes would be aimed at the entire population [refs 52-54].

4) **Table headings.** The table headings now include the time and place to which the data relate.

5) **Metric equivalents.** Metric equivalents for US alcohol consumption recommendations have been added.

**Referee 3, Jürgen Rehm**

Dr Rehm, who is arguably the world’s authority on estimating alcohol-related harm, offered “two major suggestions for improving the current estimates and making the comparisons more meaningful and better interpretable”:

a) **WHO 2009 report.** This report is based on population-attributable fractions of deaths and DALYs, not YLLs, and only the summary results (e.g., DALYs attributable to tobacco use, alcohol use, high blood pressure, physical inactivity etc by global region) are provided: [http://www.who.int/healthinfo/global_burden_disease/global_health_risks/en/index.html](http://www.who.int/healthinfo/global_burden_disease/global_health_risks/en/index.html)

Population-attributable fractions of YLLs for alcohol-related outcomes are not included in any of the files (including spreadsheets) that accompany the report on the WHO
website. A spreadsheet containing estimates of risk exposure prevalence for selected risk factors by age and sex and geographic region is included on the website, but the task of generating a comprehensive set of disease-specific tables of alcohol-attributable fractions of YLLs by global region would greatly exceed our present resources, and the resulting estimates would still not be specific to San Francisco. Such tables might have been created for an earlier draft of the WHO report, but they are not publicly available.

b) Estimates of local alcohol consumption. Although there are surveys for San Francisco, they are not statistically reliable for the population subgroups that appear to be most at risk. Overall consumption patterns in San Francisco are quite different from (riskier than) those in California generally. We hope that our results, as preliminary as they may be, will provide the impetus (including funding) for a reliable survey. These survey results could then, as suggested, be used with published risk relations to estimate alcohol attributable fractions directly.

As noted in the last sentence in our Background section, “Our goal was not a precise estimate but rather an assessment of order of magnitude of burden of disease from alcohol, relative to the magnitude of burden of disease from Global Burden of Disease classifications of diseases.”

As for the concern of potential “problems in interpretation of the results, as there is no comparison which could be used as gold or silver standard,” our purpose was not to extend the GBD to San Francisco but rather to use GBD resources to answer a local question: “We asked how alcohol-related premature mortality in San Francisco, measured in years of life lost (YLLs), compares with other well-known causes of premature mortality, such as ischemic heart disease or HIV/AIDS,” and we are pleased to have been able to answer this question. I don’t mean to dodge the issue of comparison with the recommended 2009 WHO report, Global Health Risks, which would have required that we report our results in DALYs (the sum of YLLs plus estimated YLDs—years lived with disability). On two occasions during the past decade, members of our group have calculated DALYs for San Francisco based on GBD YLDs, and in both cases the results were abandoned because of discomfort with the externally-derived YLD component. (Directly measuring YLDs—and therefore DALYs—is cost prohibitive and not practical for most local health jurisdictions. The application of externally-derived PAFs to externally-influenced DALYs was never considered for our alcohol paper.) The next iteration of the Global Burden of Disease Study, http://www.globalburden.org/ which will be ready by Spring 2011, promises much-improved YLDs. The reason for our choice of YLLs in preference to DALYs is now better clarified in the Methods section.

We regret overlooking the 2009 WHO report, Global Health Risks and have cited it (ref 9) on page 4. Its finding that alcohol use ranks second to tobacco use, closely ahead of overweight and obesity, among the leading risk factors in high-income countries (and is the leading risk factor in middle-income countries), measured in DALYs, strongly supports our assertion that “alcohol use has been established as a major contributor to the overall burden of disease.” Although not directly comparable to the 2009 WHO report, our study provides a compelling argument that alcohol consumption in San Francisco is
problematic, particularly among males.

We are grateful for all of the reviewers’ suggestions, which have strengthened the revised manuscript.

Best regards,

Brian S. Katcher, Pharm.D.