Author’s response to reviews

Title: Tuberculosis and HIV are the leading causes of adult death in northwest Ethiopia: evidence from verbal autopsy data of Dabat Health and Demographic Surveillance System, 2007-2013

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Rebuttal Letter

We would like to appreciate for your time and concerns to increase the quality of the manuscript. We incorporated your valuable comments as follows

1. Can they include a table (Table 1) showing the leading causes of death at ages 15-24, 25-49, 50+ and then frame their results and discussion around the leading causes of death in each of these three age groups?
Authors Response

Of 1082 deaths, 687(63.5%) were adults age 50+ and followed by 273(25.2%) age 25 - 49 years old. Tuberculosis, 139 (20.2%), Cerebrovascular diseases, 55(8.0%), Meningitis, 40(5.8%) and HIV/AIDS, 35(5.1%) were the leading specific causes of deaths for those 50+ years old adults. Tuberculosis, 54(19.8%), HIV/AIDS, 52(19.0%), Meningitis, 19(7.0%) and Cerebrovascular diseases, 3(1.1%) were the leading specific causes of deaths for those 25-49 years old. Meningitis, 17(13.9) and Tuberculosis, 14(11.5) were the leading specific causes of deaths for those 15-24 years old (Table 2).

2. Why is their Crude Death Rate so low? 1/1000 suggests that about 80% of deaths are unrecorded. In a population of 145,000 I would have expected around 1500 deaths a year, NOT 150 –200 as they record. What are the characteristics of missing deaths and are they likely to have a different cause of death distribution to the small fraction of deaths that they capture?

Authors Response

In the study setting section of this manuscript, we said, according to Ethiopian Central Statistics Agency, the district had an estimated population of 145,458 resided in 27 rural and 3 urban kebeles (CSA). However, the Dabat HDSS included only ten kebeles of 27 though we have expanded it to 13 kebeles, 17,000 households and 70,000 population since 2014. During the study period from year 2007-2013, the population in HDSS were about, 47000, not 145000.

3. Can we see a graph of the log of the death rate (all causes) in each 5 year age group in this population, with some discussion of its reliability?

Authors Response

The aim of this study was to characterize the specific causes of deaths using VA and not aimed to calculate death rate. Similarly, evidences of rates (from HDSS data), like crude death rate, age specific death rate and others were already published.
4. Within each broad age group, calculate and show the fraction of deaths from Groups 1, 2 and 3 from the GBD, separately for each period 2007-10, 2011-13. Discuss the comparative importance of communicable/NCDs/injuries within each age group. You claim that NCDs are rising. Does this analysis support that claim?

Authors Response

Our data are real data and had been collected from open cohort population at Dabat HDSS and the data are not related to GBD data format. The nature of our data and the platform GBD model is not related. We do not want to calculate fraction of deaths from Groups 1, 2 and 3 from the GBD.

5. They claim that their VA instrument/physician coders can distinguish puerperal sepsis from other maternal causes (see pg 10, para 2). They need to justify why? If not, they should combine all maternal causes together.

Authors Response

As per the valuable comments, amended other maternal causes together, instead of puerperal sepsis.

6. Explain why the odds ratio for NCDs is significantly higher in rural than urban populations (pg 11). Normally it is the converse.

Authors Response

The population size who have been followed in the surveillance are quit larger from rural residents and the death are equally higher than urban residents.
7. Explain why HIV/AIDS is 1.8 times more important as a cause of death among women than men. Are these comparisons rates or numbers? We should be comparing RISKS of death (rates) and not numbers.

Authors Response

Women are more vulnerable to HIV/AIDS than men. The women are more likely to die due to HIV/AIDS higher than men. The comparison is made using odds ratio.

8. The first sentence of the Discussion is a tautology: these three broad causes account for all deaths, so how can they be the leading causes of death?

Authors Response

The comments are well taken and amended in the document.

9. Authors should justify their claims about leading causes of death by comparing to the GBD estimates as well as to other evidence about comparative mortality distributions in Ethiopia/neighboring countries.

Why should we believe them?

Authors Response

We compared the findings of this study from previous similar studies. However, comparing this findings with GBD is incomparable as evidences generated are from different sources. The data sources and the model in GBD are not similar to the data we used in this study.
About trustworthiness of the findings, we can attach the data and other required evidences we used to generate these evidences.

10. The justification about the value of the open narrative (pg 16) is weak and unconvincing.

Authors Responses

As per the valuable comments, we have amended the document. See the detail.