Reviewer’s report

Title: Prevalence of Anemia among Under-5 Children in the Ghanaian Population: Estimates from the Ghana Demographic and Health Survey

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Reviewer: Sudhir Venkatesan

Reviewer’s report:

The authors report findings on the prevalence of anaemia in under-5 children from a national level survey in Ghana. The manuscript is well written and the topic is an important one of public health concern, however, some key points will need to be addressed by the authors in their manuscript (discussed below).

Major Compulsory Revisions

1) The authors report findings based on data from the 2008 Ghana Demographic and Health Survey (GDHS) conducted by the Ghana Statistical Service. A more recent survey, also performed by the Ghana Statistical Service—Multiple Indicator Cluster Survey (MICS), 2011—report more up-to-date findings on the population prevalence of anaemia in Ghanaian under-5s. The cover letter indicates that the authors have been made aware of this, however, there is no mention of the MICS in the manuscript. While the findings reported in the manuscript are more detailed than those published in the MICS 2011 report, it is important for the authors to at least briefly discuss how their findings compare with the more recent MICS 2011 figures and what their findings add to existing evidence. The authors state in their cover letter that they are currently attempting to obtain the MICS 2011 dataset; would the manuscript be more insightful after the MICS 2011 data have been obtained and analysed?

2) In Table 1, the authors report 1,179 children with birth weight classified as “Large”, 664 with “Normal” and 306 with “Small”. The total does not add up to 2,168 (total sample size). Please clarify why there are 19 fewer observations.

3) In Table 1, the authors report 945 children as having had an infection and 1,219 children as not having had an infection. The total does not add up to 2,168 (total sample size). Please clarify why there are 4 fewer observations.

Minor Essential Revisions (in the order in which they appear on the manuscript)

1) Typographical error at the end of the first sentence of the ‘Methods’ section (redundant bracket).

2) In the second sentence of the ‘Methods’ section, “Agency for” has been missed out from the expansion of USAID (USAID-United States Agency for International Development).

3) Under ‘Statistical Analysis’, the authors state that they have classified birth
weight as “Large”, “Average” and “Normal”, but have labelled birth weight in Table 1 as “Large”, “Normal” and “Small”. Please correct this to maintain consistency of terminology throughout the manuscript. It would be clearer to present exact birth weight measurements for each of these categories.

4) Typographical error in the second paragraph of the ‘Results’ section:
“Also, about 32% of the respondents were in urban residences WHILE 68% were in rural residences.”

5) In the fourth paragraph of the ‘Results’ section (last sentence), the authors state:
“The prevalence of anemia among children who had at least one COMORBIDITY disease was significantly higher than the prevalence among children who had no INFECTION, 83.3% and 74.6% respectively”

The corresponding numbers in Table 1 have been labelled “Has an INFECTION? Yes/ No”.

“Comorbidity” is not synonymous with “infection”; the authors will have to correct this.

6) Are the p-values that the authors report in their tables exactly the same for both weighted and unweighted figures? For example, in Table 1, the prevalence of anaemia was greater in males than in females for both weighted and unweighted analyses. It is not clear if the reported p-value of 0.4530 is for the weighted analysis or unweighted analysis or both. Please consider re-formatting all tables to make this clearer.

Discretionary Revisions

1) I understand that the 2008 survey is the fifth edition of the GDHS with previous surveys having been performed in 1988, 1993, 1998 and 2003. Data on the prevalence of anaemia in under-5 children were not reported in the first three surveys but were reported in the 2003 GDHS. Has there been a change in the reported prevalence of anaemia in under-5s from 2003 to 2008? The authors briefly allude to this towards the end of their manuscript but this could be discussed further with reporting of the exact anaemia prevalence figures from the 2003 GDHS report.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

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

Declaration of competing interests:
I declare that I have no competing interests.