Author's response to reviews

Title: Lymphatic filariasis control in Tanzania: Effect of six rounds of mass drug administration with ivermectin and albendazole on infection and transmission

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Author's response to reviews: see over
Response to comments from Reviewer 2

Thank you for the useful comments from Reviewer 2. The comments have been carefully considered and a detailed response is given below.

1) Numbering of schools: As suggested by the reviewer, the schools have now been numbered in the text (Methods, Study sites). They were already numbered in the legend to Figure 1.

2) Additions to Table 1: The suggested additional information (villages and hamlets, census, net distribution) has been added in the table.

3) Addition to Table 2: The differences in proportions have been statistically tested, and the p-values indicated in the table. The text (Results, Lymphatic filariasis in Kirare before treatment, last sentence of first paragraph) has been changed to: “Statistical comparison of the LF status in the overall population of Kirare (all four hamlets) to that in the village section included in the later part of the study (Mtambuuni and Mashine hamlets only) indicated no significant differences.”

4) Net coverage: The sentence (Methods, Assessment of treatment coverage and bed net use, second paragraph) has been changed to: “After MDA 5, net coverages were 27.6% (366 nets/1326 individuals) for any kind of net and 6.6% (87/1326) for insecticide treated nets in Kirare (all four hamlets). After MDA 6, these net coverages were 27.0% (452/1674) and 7.1% (118/1674), respectively, for the study hamlets of Kirare, Kiomoni and Kisimatui combined.”

5) Impact of MDA vs. bed nets: It is obvious that the reviewer has a keen interest in bed nets, which is also an interesting topic in relation to LF control. However, bed nets do not really play a role in the present study. It is indicated in the manuscript that bed net coverage was low in the communities during the time of the study (and some net coverage figures are given). It is also indicated that bed net distribution on a large scale only took place two months before the end of the study period, and it is unlikely that this had an impact on the study results. There can be little doubt that most of the effect observed was due to the MDAs. However, we find it too strong to say that “the study demonstrates the impact of MDA alone on both human and mosquito infection rates as well as perhaps on vector species composition”. Some of the effect seen on human infection may also have been due to the dramatic change in vector composition (which is most likely not related to the MDAs, but to environmental changes), as discussed in paragraphs 7 and 8 in the Discussion (p. 17-18). We do mention in the Conclusion that “It is likely that the recent initiative to distribute insecticide impregnated bed nets to every household in the area will contribute substantially to further transmission reduction”.

6) Change in diagnostic tests over time: On page 16 (near top) we are not trying to say that the Og4C3 test is less sensitive than the ICT card test, since we generally find these two tests equally sensitive and specific (as also mentioned elsewhere). What we do want to say is that there was a
need to change to a diagnostic approach which was more practical after the infection burden in the humans had decreased (and as people became more opposed to night blood sampling), and that we therefore changed the primary community screening tool from mf-testing to CFA-testing by ICT cards, followed by examination of only CFA positive individuals for mf. To make this clearer the two sentences on page 16 (near top) have now been changed to the following: “Second, due to the reduced human infection burden after the first MDAs there was a need to adopt a new and more practical diagnostic approach. The primary community screening tool was therefore changed from mf-testing to CFA-testing by ICT cards [31], followed by examination of only CFA positive individuals for mf.”

As regards the discussion of the Og4C3 ELISA at the bottom of page 16: Here we explain why no decrease in CFA prevalence was detected in the beginning of the study when using the quantitative Og4C3 ELISA, namely because intensities were extremely high and therefore, although they decreased, did not reach the cut-off level for becoming negative. Later in the study, when CFA intensities were lower, the prevalences also decreased, and therefore the qualitative ICT cards (which only measure +/- CFA) became useful to assess the effect of treatment on human infection status. In this way it all fits nicely and consistently together.