Reviewer’s report

Title: The Apparent Effects of Dams and Season on Malaria Incidence and Anopheles Abundance in Ethiopia.

Version: 1 Date: 20 November 2012

Reviewer: Jordi Sanchez

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General comment:
In this manuscript, the authors provide new data of the impact of Gilgel-Gibe dam on both anopheline densities and P.falciparum malaria incidence risk. The authors also explored consistently the effect of season on these two parameters. This publication is of great interest as it is the first longitudinal study to assess the impact of a dam on malaria epidemiology in Ethiopia. It contributes on increasing our knowledge of the impact of this kind of water development projects on vector-borne diseases and it is a good example that reminds us that not always dams increase malaria transmission. They highlighted the importance of the local determinants of malaria epidemiology (from vector ecology to climatic factors) and the necessity of more site-specific studies on this topic. This work provides important data about this subject and I strongly recommend its publication once the authors are agreed to resolve some issues.

Major compulsory revision:

• Authors focus on An.arabiensis as the major malaria vector in the area. However, no data is provided regarding other potential malaria vectors that could play an important role on malaria transmission at the Gilgel-Gibe dam site, as An. funestus and An. nili species complex. Were these species collected during the two years entomological survey at all? In the conclusions, it is stated that the growth of aquatic vegetation at the lake shoreline could benefit other anopheline species and that could occur a vector shift prevalence. Do you mean An. arabiensis for An.funestus? That particular shift would be a risk factor for increasing malaria transmission?

• Mosquito collections were conducted monthly for two years. However, for each sampling effort, anophelines were only collected one day per month and only inside dwellings. Does malaria transmission exclusively occur indoors in the study area? One day per month may constitute a low sampling effort, because rain or unusual wind could had interfered with mosquito collections. Therefore caution on conclusions is advised.

Minor essential revisions:

• Page 2, 2nd paragraph and line 3: “A total of 2040 children from” by “A total of 2040 from”.
• Page 4, second paragraph and line 8: “malaria incidence” should not be in bold.

• Page 4, second paragraph and line 9: Review sentence: “dam reservoirs and climatic is also under reported”.

• Page 5, first paragraph. Review sentence advised; “water bodies (hydropower dams) an influence on”.

• Page 7, first paragraph, sentence: “Traps were set in each selected house every evening by trained mosquito collectors and run from 1800 to 0600 hours”. This sentence contains redundant information already found in the same paragraph.

• Page 10, second paragraph and line 8: “did not” by “didn’t”.

• Page11, first paragraph. It would be desirable to review the sentence: “All climatic factors (rainfall,) were strong predictors of mosquito density.

• Page 11, fourth paragraph and line 5. Is elsewhere [19] the correct reference?

• Page 12, first paragraph and line 4. “they could be explained” by “The could be explained”.

• Page 12, third paragraph and 2 line. Review sentence.

• In conclusions, Review sentence on line 8.

Discretionary revisions:

• Almost the half of malaria cases in Ethiopia are due to Plasmodium vivax and this plasmodium species has a similar distribution than P.falciparum. There are some publications that describe malaria epidemiology of P.vivax in south-west Ethiopia. In the present publication the authors only focus on P.falciparum. Is the reason because P.vivax transmission does not occur in the study área? Otherwise, it would be desirable a clarification on this issue.

• In the present study, why were only children under 10 years included and not older people?. What is the justification for such selection?

• Page 7, first paragraph. At the beginning of the mosquito sampling section is used the term ‘Light Trap Catches” as the method chosen for anopheline collection. Later is used CDC light Traps. I would recommend to substitute “Light Trap catches” for “CDC light Traps”, in order to use the same terminology.

• Authors use 4 months intervals to classify both years in three different MICS. I would suggest relating MICS with the seasons (meaning dry season, short and long rainy seasons as described in Yewhalaw et al [11]). In table 1, the terms dry and short and long rainy seasons are used in the multivariable frailty model.

Level of interest: An article of importance in its field

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.