Reviewer's report

Title: Marked variation in MSP-119 antibody responses to malaria in western Kenyan highlands

Version: 2 Date: 6 January 2012

Reviewer: Franck Remoue

Reviewer's report:

General comments
The manuscript submitted by Badu et al. concerns the use of human anti-malaria Ab response as useful marker of malaria transmission for evaluating the micro-geographic risks of malaria in western Kenya highlands. The topic of this study is interesting and clearly in accordance with the current problematic of the evaluation of malaria transmission risks in a particular context of low exposure, such as highlands. In general, the revised manuscript needs still minor substantial revisions to be published in BMC Infectious Diseases journal.

The entire revised MS has been considerably improved for the presentation of the main results, the introduction and discussion, and the English language, even if some sentences in the text could be still revised. In results section, some results have to be “predict” by the lecturer because they were not be clearly exposed in the text or with some confusions between the data not shown and the data presented in table or figures. This result part could be revised. In addition, it appeared regrettable in the cover letter, enclosed to the revised submission, that the authors have not answer point-by-point to the all reviewer comments of the first version of this article.

Major compulsory revisions:
1) Abstract: The conclusion of the abstract appeared weak whereas one major interest of the article is to compare the micro-geographic variations of malaria transmission, by using pertinent serological marker, in highlands. In addition, the term “density” for antibody response could be changed by “level”.

2) Introduction section:
- The subject of the study and its objectives are better presented than previous manuscript. In particular, the interest to use Ab response to P. falciparum antigens as marker of transmission and especially the seroprevalence tool are well presented.
- Some references on studies concerning Ab response to CSP antigen as marker of transmission and its limitations are still lacking.
- The conclusion of the results of the present study could be removed from the end of Introduction section.

3) Methods section
- Page 9: Studied population – Why the figure 1 is indicated in this section? This figure 1 do not described studied population (probably from the previous manuscript?). The Table 1 could present these informations on studied population

- Page 10: What is the number of naive US individuals and what is the cut-off value? These sentences can not be added in “statistical analysis” section but at the end of “Measurement of specific humoral response” section

4) Results section:
- Page 11: the 2 last sentences of “parasite prevalence” paragraph are not clear and could be re-written.
- The reference to Table 1 could be indicated above in this paragraph and not at the end of paragraph
- In “Variation of seroprevalence..” paragraph, the sentences concerning the Table 1 results are not clear and have to be re-written in the objective to well understand the main results from this Table 1. Indeed, it is difficult to understand which results are “data not shown” and which results are presented in the table 1.
- The Figure 2 has to be indicated in the text of “Spatiotemporal variation…” paragraph

5) Discussion section:
- In general, the discussion has been improved in the revised MS, especially, on the interests to use seroprevalence and such immunological tool presenting cumulative long-term specific antibody response, compared to classical microscopic and RDT references methods.
- The authors could indicate the percentage of individuals in uphill and in valley populations which are finally positive with serologic tool whereas they were negative using microscopic determination. This result could highlight the interest and the “gain” to detect P. falciparum infection by using serologic method.
- The English language could be improved still improved.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

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