Reviewer’s report

Title: Parasite threshold associated with clinical malaria in areas of different transmission intensities in north eastern Tanzania

Version: 2 Date: 10 August 2009

Reviewer: jean Gaudart

Reviewer’s report:

I. Generalities :
The presented work aimed to find a threshold of parasite density associated with fever.
Authors provide many correction, as asked.
Nevertheless, there are many points to clarify.

II. Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached) :
1/ Concerning the definition of the Fever ( axillary temperature >= 37.5°C), please provide references. Note that the reference #12 gives 2 threshold for axillary temperature: 37.7 and 38°C.
2/ in the “Method” section, subsection “Parasite threshold models formulation”, sub-sub section “threshold model”:
2.1/ Statistical model (1) have to be rewritten as
\[ \gamma_i = F(\alpha + \beta I(\pi > \tau)) \]
Or
\[ \gamma_i = F(\alpha) \text{ if } \pi \leq \tau \]
\[ \gamma_i = F(\alpha + \beta) \text{ else} \]
Choose one of these 2 formulations.
2.2/ Statistical model (2): why not using the same simplification as model 5?
2.3/ Statistical model (3) have to be rewritten like model 1
\[ \text{Logit}(\gamma_i) = \alpha + \beta \pi_i \]
Is correct.

3./ the numbering of the models steel remain very confused: model (3) and (1) are similar, model (4) and (5) also. Page 9 line 36: “results from models (4) and (5) showed that…” but model (4) and (5) are the same model!
Note that results of the model (3) are provided and not for model (1) which is a general model! Please clarify these notations. Further more, in the discussion, 3
models are presented (page 10 line 12) instead of 4. Furthermore, it seems to me that 4 models are studied (model (2), model (1/3), model (4/5) and model (6)). Please clearly number them from 1 to 4.

4./ In the simulation study, model (2) have been stratified on Age. Then, model (2) and model (4/5) are very similar, as discussed. Providing theses 2 results are not necessary. Could you provide results on unstratified model (2)?

5/ “Discussion” sections:
5.1/ Model (5) seems to have computing time problem. Could you provide the computing time for each model and the characteristics of your computer?
5.2/ Table2: lowlands/4-5 the AIC of model (2) is better than that of model (6). similarly for highlands/0-1. Please discuss.
5.3/ Model (6) is always better than model (1). please discuss.

III. Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct) :

IV. Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore) :

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

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

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