Reviewer's report

Title: Identifying Children with Excess Malaria Episodes after adjusting for Variation in Exposure: Identification from a Longitudinal Study Using Statistical Count Models

Version: 2 Date: 12 June 2015

Reviewer: Amanda Ross

Reviewer's report:

Revision by Ndungu et al

The authors have addressed my points.

Outstanding comments

Point 3. The 95th percentile cut-offs are derived from the simulations and then applied to the children. If the model fitted the data perfectly, then there would be 5% children in the EM group. The fact that there are more than 5% tells us that the model does not fit perfectly: it doesn’t in itself say that these children are a separate group or have biological differences. A model could fit perfectly and the children have a different immune system, or a model fit badly and there be no such differences. They just have more malaria than expected on the basis of this model and these covariates.

Point 2: (An additional observation): The parameter values for the covariates may vary by study site eg calendar time or perhaps age due to the relationship with transmission intensity.

Point 7: The text states that bed net use was adjusted for (abstract and main text). In the previous version there was a table of covariates and their parameter estimates, but bed net use was not included. The authors have explained that the proportion of AM and EM children using bed nets was similar: but the question was whether bed net use was included in the model. If so, then it was just missed out of the table by accident. If not, then it is not accurate to say it was adjusted for.

I had wondered if the relative bed net use could affect the results eg if children living in an area with heavy bed net use did not use a net with transmission gauged using an unadjusted Exposure Index. However this seems unlikely if the EM and AM children had similar bed net use and came from similar areas.

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests:

I declare I have no competing interests