Reviewer's report

Title: Factors associated with non-adherence to Artemisinin-based Combination Therapy (ACT) to malaria in a rural population from holoendemic region of western Kenya

Version: 1 Date: 28 March 2012

Reviewer: Douglas Curran-Everett

Reviewer's report:

General Comments

I have many of the same questions about sampling as did the reviewers and the Associate Editor. I suspect this is mainly because of how the process is described in the paper. In addition, I have questions about the regression approach used to estimate the impact of different factors on adherence to ACT.

Major Compulsory Revisions

1. Study Participants, Sampling Design, Research Procedure, p 7-9. I struggled to understand how study participants were selected. It would help to rewrite the paragraph at the bottom of page 7 and at the top of page 8 in the actual order in which things were done. For example, how were the 388 households selected? How were clusters defined? What elements were included within each cluster, and how were those elements chosen? Information about the sampling procedure is repeated unnecessarily (p 8, middle paragraph and p 9, Research Procedure). Why was data collected from all 388 households if 297 were selected?

2. Statistical analyses, p 10. How was level of adherence to ACT estimated from duration of treatment and number of tablets taken? Was adherence considered to be a binary [yes-no] response? Was multiple linear regression used to estimate level of adherence, or was logistic regression done to estimate the probability of adherence? From Figure 3, it appears that adherence was considered to be a binary response. Was logistic regression used? In the second-to-last line of this section, chi-square analyses were done to analyze proportions. How does one analyze something thematically? Does that mean qualitatively?

Minor Essential Revisions

1. Throughtout the paper. P values greater than 0.01 can be rounded to the nearest 0.01. Percentages can be rounded to the nearest integer.

2. Figures 1-3. The information in these Figures can be better presented in a simple table or even within the text itself.
**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.