Reviewer's report

Title: Improving educational achievement and anaemia of school children: design of a cluster randomised trial of school-based malaria prevention and enhanced literacy instructions in Kenya

Version: 3 Date: 29 June 2010

Reviewer: Prathap Tharyan

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Editorial comments on Trials MS: 8382857453995675

1. Will the study design adequately test the hypothesis?
   This is an excellent study design and will adequately test the hypothesis. It is well described and a great trial with important lessons to be learnt about the effects of interactions of the two interventions, if any, as envisaged in the hypothesis; the qualitative components; the attention to cultural issues; and the need for a combination of interventions to improve outcomes in the real world.

2. Are sufficient details provided to allow replication of the work or comparison with related analyses: if not, what is missing?
   The protocol is detailed and provides sufficient detail about the interventions, the considerable effort taken to ensure community involvement and ownership (particularly the randomization and allocation exercises that are indeed novel) and the discussion sets out contextual issues and difficulties well.

3. Is the planned statistical analysis appropriate?
   The general details are provided to take into account clustering, and the factorial design and these seem sufficient at this point.

4. Is the writing acceptable?
   Yes. There is one attention-grabbing typo that I could spot, on page 21 of the manuscript, opening paragraph and the one before the discussion section, where I am sure the authors mean a two-way flow of Information between study team and schools and communities and not a two-way flow of “infection”

5. Additional issues:
   a) There are some discrepancies between the clinicaltrials.gov registration document and this protocol- These needs to be reconciled and amended in the registration document
      • the primary outcome in the registration document is anaemia while educational outcomes are also a primary outcome in this manuscript and a secondary outcome in the registration document. It would be better to amend this (and the points raised below) at this stage rather than raise the suspicion of selective reporting or unplanned post-hoc analyses of results at a later stage
• In the detailed description in clinicaltrials.gov, the school classes are 1-7, while the protocol states classes 1-5

• The sample size in clinical trials.gov estimates 5000 children to be enrolled while the outcomes stated in the manuscript will be done on 6000 children. In view of this, the number of children randomised in each of the four arms, if detailed in the flow diagram, would provide clarity.

• There are additional outcome measures in the manuscript compared to the trials registration document (economic, process, qualitative and others).

• The unit of analysis in the registration document is at the cluster level but the manuscript also intends to perform generalized linear and random effects analysis at the individual level

b) What provisions will be made for post-trial benefits for the children in the 50 schools that will serve as malaria controls and get no intervention?

c) Would there be particular efforts needed to prevent attrition in this group or non-cooperation for outcome assessments considering they would soon find out that they are getting neither of the interventions? There is also the issue of differential inputs in terms of community meetings etc., and outcome assessments, for qualitative and process outcomes.

d) Would an additional qualitative measure that would be informative be the elicitation of responses to participation in such a randomized trial? The views of the control group would be informative about the acceptability of no-treatment arms from people who got no treatment and any differences in attendance etc that are partly explained by disappointment at not receiving any interventions, could be evaluated.

e) The 101 schools appear to have a de-worming programme but only 48% had schools had feeding programmes. Lack of school feeding (as a potentially important co-intervention) might be a confounder in educational