Reviewer's report

Title: The cost of uncomplicated childhood fevers to Kenyan households: implications for reaching international access

Version: 1 Date: 19 June 2006

Reviewer: Gerry Killeen

Reviewer's report:

General
This has the potential to be a really excellent and very important piece of work. I strongly recommend that the authors consider developing this paper much further and, if they do so, that it be considered for publication in BMC medicine.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1.1. My greatest concern is that this model assumes all fevers are caused by malaria and will be resolved by antimalarial drugs. There are some quite useful estimates of the attributable fraction of fever which is caused by malaria that have become available (eg recent articles on urban malaria by Wang et al) and should be quoted. Comparable rural estimates are available in previous analytical work by the same group and recent field studies in rural Tanzania (TMH 11:441) confirm that at least half of all fevers are unlikely to be of malarial origin.

1.2. The cost of non-resolving fevers is not considered although I accept this would be very difficult to address. This might be another underestimated cost of a) malaria fevers that are not treated with modern drugs (branch 3) and b) Non-malarial fevers regardless of antimalarial treatment. I note that because only resolved fevers are considered, and fevers which persisted but eventually treated, all go into branch 1, the duration of home management may be substantially underestimated.

1.3. This decision tree approach should be readily compared with similar approaches by Goodman et al and these should be compared in the discussion.

1.4. While it is at a loss to suggest an alternative approach, $1 per day for women's opportunity costs seems a bit excessive under most typical rural Kenyan conditions. This is not really my area of expertise but I hope some of the other reviewers can suggest more appropriate figures. My understanding and experience is that most rural women do not receive cash wages but rather contribute to household income and wellbeing through providing a) non-income generating essential services including care-giving or b) services that lead to cash income which will be received through the man of the house and is already calculated under his income. I suggest de Plaen et al's work from Cote D'Ivoire (TMH 8: 459; Acta Tropica 89: 135) is also useful in understanding the interactions between daily activities, financial flows and decision making ability in impoverished rural households. Kenya is clearly a different setting but some features are probably common to both. If this figure is retained it should be more clearly justified and explained to non-specialists such as myself.

1.5. I also question whether caretakers typically spend 50% of their day on caring for a child with a non-severe fever of the type referred to in DHS. My feeling is that it is probably far less in reality. Perhaps rather than making an assumption of 50% or 25% in the absence of literature reports, a sensitivity analysis with graphs exploring the ranges of values and identifying key thresholds could be conducted?

1.6. Some of the assumptions based on the initial data review sound interesting but should be presented explicitly if they are to be accepted and understood by a broad audience.

1.7. The finding that less than 10% of fevers were treated within 24 hours and only 23% in 48 hours is a very important observation and should be emphasized. My feeling is that the economic incentives to early treatment may be greater than presented here if the opportunity costs because of extended, unresolved fevers could be considered. For example, what proportion of the DHS-reported fevers are actually recurring
surges of parasitemia from the same infection? Indeed much recent work has shown just how persistent infections can be, and one report upon which one of these authors is a coauthor (Nature 438: 492) estimates mean duration of infection of about 6 months, during which time a patient may be febrile half a dozen times (See malaria therapy data plus numerous papers analysing it, notably TRSTMH 96: 205, Parasitology 122:379 and Sama et al TRSTMH E-pub ahead of print plus references therein). If effective treatment and can prevent more than one fever, the potential saving of opportunity costs and perceptions thereof by the community could be much greater than presented here. I strongly suggest a careful sensitivity analysis considering the potential to prevent multiple fevers within the range that can be expected from the malaria-attributable fraction.

1.8. I agree absolutely that financing mechanisms to make ACTs accessible for home management should be developed and evaluated as a top priority. I suggest including this in the abstract immediately following the existing conclusions. The potential of making ACTs accessible though facilities is enormous but reaching out through the retail sector has massive potential and circumvent the leakage otherwise likely to occur with these valuable commodities (Malaria J 5: 25).

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

2.1 Abstract and introduction, first line: While fever is certainly very good indicator of malaria disease, many people do become infected and ill without developing fever. I suggest a close look at TRSTMH 96: 206 and Parasitology 122:379.

2.2 Although the costing of opportunity loss in highly interesting and novel, a lot of interesting and relevant recent literature would enrich the discussion and should be included (eg TMIH11:299; Health Policy Plan. 2006 May 8; TMIH 11:441; Malaria J 5:25).

2.3 It would be valuable to see the dollar cost breakdown of each branch and its component costs in table 1.

2.4 Table 2 should also have dollar figures.

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Discretionary Revisions (which the author can choose to ignore)

None

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

I declare that I have no competing interests