Author's response to reviews

Title: Parasite-based malaria diagnosis: Are Health Systems in Uganda equipped enough to implement the policy?

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Version: 4 Date: 24 July 2012

Author's response to reviews: see over
RESPONSES to Reviewer's report
Title: Parasite-based malaria diagnosis: Are Health Systems in Uganda equipped enough to implement the policy?
Version: 3 Date: 2 July 2012
Reviewer: Heidi Hopkins

Major Compulsory Revisions

Comment 1: The data presented in this manuscript cover a broad range of “capacity needs,” and the authors make good use of a conceptual framework (Potter & Brough, reference 12) to categorize these needs for analysis and reporting. However, within each category or “tier” of needs, it is not always clear what standards were used for assessment of the health centers surveyed. For example, in the Results section, 36% of health workers are described as “sufficiently knowledgeable in identifying clinical symptoms and signs of severe malaria” (page 8, Skills, sentence 3); and “support supervision was weak and erratic” (page 8, Staff and Infrastructure, Supervisory capacity, sentence 1); and “10% patients referred had received adequate referral care” (page 10, first sentence) – but I cannot find any description in the Methods or Results section of what criteria were used to draw these conclusions. As much as possible, it would be very helpful for each category or tier, to systematically: a) specify in the Methods which survey instruments (see comment 2 below) and standards were used; b) specify in the Results what specific data or information was obtained (using summary statistics/proportions as appropriate), and then c) draw conclusions and editorialize in the Discussion section. The authors make an excellent point with this manuscript – and a clearer, more precise presentation of the information collected and measurement standards used will bolster the strength of their message.

RESPONSE 1: There are no published standards for grading knowledge, and clarification has been made in the discussion to say that the authors decided on what constituted adequate knowledge in the methods section. We also give explanation on why we decided on a 3 months stock out as measure of significant levels (discussion page 15 last paragraph reads: Although there is no documented minimum anti-malarial drug stock-out period compatible with adequate malaria case management in an endemic region, the authors felt that over three-months’ long drug stock out represents an inadequate stock management system which is a major drawback to malaria diagnosis and treatment. In the methods section we have included text on page 8 about standards

Skills capacity For knowledge assessment, health workers were asked about identification and management of severe malaria. Knowledge was graded inadequate if health workers mentioned only 1 out of 10 types of severe malaria, <4 out of 12 danger signs, only one cause of non-malaria febrile illness, could not identify parenteral quinine as the first-line treatment
for severe malaria and did not mention two life saving practices for severe malaria. The combination of all the above provided a measure of adequate knowledge. In the results section and the tables of results we have presented the breakdown proportions for each of the aggregated measures as well (page 11 the last paragraph)

**Supervision:** We have clarified the assessment of supervision in the methods section (page 9 first sentence) reads: Supervisory capacity was assessed by documenting frequency and source of health workers’ supervision. The methods and frequency of supervision were used to assess the regular reporting, monitoring and evaluation systems available. In the results section we show the data as proportions of health workers supervised on page 12. We have removed the word erratic and replaced it with the term irregular.

**Adequate referral:** We included a measure of adequate feral (page 9 line 10), a combination of the expected action: Patients were considered to have had adequate referral if they received all of, a) received pre-referral medicine, b) got a referral note and c) were offered transport at the minimum and are cited in an earlier paper (Achan et al ref 12) and are based on Uganda Ministry of Health (MOH). National Treatment guidelines, 2nd Edition: October 2003, Kampala Uganda.

Comment 2) Methods, Study design and setting, paragraph 1, last sentence, states “Most survey instruments were adapted from the WHO hospital care assessment tools.” However, no reference is provided. I think that many readers would be interested to review the survey tools, possibly with the intention of using them in their own settings. At the very least, please provide references and links for these tools. In keeping with comment 1 above, I think it would be even more useful to provide the actual survey instruments used for this study (as supplementary on-line documents, etc). This will help readers’ comprehension of the current report, and also will enable replication of the study approach in other settings.

RESPONSE 2: (page 7 line 10) we have added this sentence: Most survey instruments were adapted from the WHO hospital care assessment tools (http://whqlibdoc.who.int/publications/2008/9789241596428_eng.pdf); see study tools as additional file 1.

Comment 3) The current draft of the manuscript includes several terms that are not widely understood or used outside Uganda, e.g. “HC II” and “HC III,” “askari,” “in-charge,” “malaria focal person,” and some clinician titles (“enrolled nurse,” etc). Some of these are defined at some point in the manuscript, but in general the use of these local terms detracts from the report’s readability and relevance outside Uganda. Please use generic, globally understood terms as much as possible. For example, for the purposes of this manuscript, the difference between HC II and III relates mostly to size of the catchment population, intended presence or absence of microscopy, and staffing levels. This could be briefly described in the Methods (as already done
to some extent in the first paragraph of that section) and then referenced where necessary in the Methods and Results sections; but the Abstract, Introduction and Discussion are likely to be clearer if the health centers are considered as one category of “peripheral health facilities” or “lower level health facilities” as already used in the Discussion. “Askari” can be translated as “guard.” For the various clinician categories (clinical officer, enrolled nurse, etc), perhaps relevant details of education and responsibilities could be briefly summarized in a table or in a paragraph in the Methods section.

RESPONSE 3: We have described the terms HCII and HC III in the methods and all later referred to as Lower level health facilities (LLHF). The local terms have been removed including in-charge, askari, and the various Uganda terms for the medical workers have been limited to the duration of pre-service training attained and skill gained.

Comment 4 “Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)”:

RESPONSE 4: The Authors have made all corrections needed to make the text more clear and readable.

Comment 5) Please clarify how the health workers interviewed were selected. The current manuscript states only (page 8, Skills, sentence 1) that “a total of 131 health workers found at the health centers were interviewed.” Does this mean that any health workers who happened to be at the center on the day interviewers visited were interviewed? Or another approach?

RESPONSE 5: We have added this sentence: page 7 line 6-8) At the LLHF, all health workers found at the study facility were consecutively offered an interview based on study tools. Health facility specific questions were addressed to the head of the health facilities.

Comment 6) Page 9, Referral practices, sentences 3 and 8 appear to be contradictory and/or redundant.

RESPONSE 6: The statements of information collected from health workers have been removed in preference to the data collected from the referred patients for clarity.

Comment 7) Please provide reference citations for the following sentences:

   a) Page 4, Background, paragraph 1, sentence 4: “In 2008, 33 of 43 malaria-endemic countries in Africa were working to institute…”

RESPONSE 7: Reference number 1 now shown.

   b) As in comment 2 above, page 5, Methods, Study design and setting, last sentence: “Most survey instruments were adapted from the WHO…”
RESPONSE 7b: Included WHO reference as mentioned above

c) Page 6, Staff and infrastructure, sentences 2-3: “The recommended staffing norms for HC II are…”

RESPONSE 7c: The source included as Additional file 2 (Ministry of health, unpublished data)

d) Page 13, Staff and infrastructure capacity, sentence 9: “The ethical challenge is that nursing assistants … offer are a form of ‘unrecognised and unregulated task-shifting’.”

RESPONSE 7c: We have re-written the section to read: (page 18 line 11) This causes an ethical challenge because nursing assistants are neither recognised nor regulated by any medical professional body in Uganda. Therefore they offer unregulated task-shifting services and it is difficult to monitor their competences, training needs as well as professional discipline.

Comment 8) For the final manuscript, please proofread and standardize usage of capital letters, punctuation and abbreviations. For example: a) Generic drug names are not capitalized, e.g. artesunate rather than Artesunate. b) Standardize punctuation, e.g. most of the semi-colons (;) in the current draft should be replaced with colons (:).c) Use abbreviations or acronyms sparingly; and where they are used, define them early and then use them consistently throughout the rest of the manuscript. E.g. currently, “PDM” is presented early on as an acronym for “parasite-based diagnosis of malaria” but then it is not used consistently throughout the manuscript. “SSA” (sub-Saharan Africa) and “EMSH” (essential medical and health supplies) are introduced but then used only once afterward – these abbreviations are not really necessary. “LLHF” (lower level health facility) may be usefully introduced earlier in the manuscript as it can generically encompass “HC II and III” which is not understood outside Uganda. Etc etc etc

RESPONSE 8: We have corrected typos and punctuation and used consisted abbreviations e.g. PMD for parasite-based malaria diagnosis and removed SSA and EMSH and only used LLHF

Response to Reviewer’s report 2
Reviewer: Hugh Reyburn

Comment 9: This is a study of the quality of care for malaria in outpatient facilities in Uganda. It is an important although ambitious study and the title is slightly misleading as it is really an overview that includes more than parasite based diagnosis and the quality of slide reading has not been assessed.

RESPONSE 9: We have included in the limitations section that microscopy was not assessed beyond know that it is offered on not.

Comment 10: The first para of the introduction states that 33/43 MOHs had moved to ‘parasitological testing’ by 2008. I think this needs a reference and the policy for malaria
diagnosis in Uganda at the time of the study needs to be clarified as I think presumptive
diagnosis of malaria in children still applied, and there was thus not much point in slide or RDT
testing children (although I agree presumptive diagnosis in adults had been abandoned). In
addition, its not clear who was providing RDTs or with what training on their use. I think it will
be useful to have a table summarising the assessment tools that were used. More importantly I
think there should be a table summarising and referencing what was the Ugandan standard of
care for malaria at the time of the study. The test of skills and knowledge is an important
component but some detail or reference is needed to know if this was a standard or validated
tool. I think it will be useful to have such a table if it’s a valid measure of knowledge.

The absence of QA for slide or RDT testing is an important point although it might be a little
harsh since quality control of slide reading is very rare outside research groups and there are still
no established quality systems for RDT at level of primary care (comparison with routine slides
seems unworkable although its recommended by WHO). I think expert review of actual slides
that had been used for patient care in the clinic would have been much more useful.

RESPONSE 10: We have included in the discussion that capacity building will be important and
needs to be cross cutting for both RDTs and microscopy.

Comment 11: The referral data were obtained by case notes of admitted patients so there is no
measure of complete/incomplete referrals and the cases arriving in hospital are unlikely to
represent referred patients generally. Some comment on this would be a good addition.
RESPONSE 11: We have clarified that admitted patients (admitted as a result of referral from a
LLHF) were used to document the prevalent pre-referral and referral systems and practices on
Page 9.

Comment 12: In addition, it would be useful to know the case fatality of the referred cases as an
indication of whether they were appropriate referrals or not.
RESPONSE 12: This was a cross-sectional study that did not evaluate the outcomes of admitted
patients. However we noted that mortality data is collected through the HMIS and such mortality
data could be analyzed specifically for case fatality.

Comment 13: A key finding is the frequency of drug stock outs but the authors have a single
indicator of ’ACT or SP stock-out’ while I think these need to be cited individually since (as far
as I’m aware) ACT was the standard treatment in 2008 and SP was reserved for IPTp only.
RESPONSE 13: We have now separated out the stock of ACTs separate from SP as 55% and 59% as those
facilities that no stock out of any level within three months.