Author’s response to reviews

Title: Mapping human resources for eye health in sub-Saharan Africa: current progress towards VISION 2020

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Dear Editor,

We thank the Reviewers and Editorial team for the time and effort they have spent reviewing our manuscript, “Mapping human resources for eye health in in 21 countries of sub-Saharan Africa: current progress towards VISION 2020” (MS: 5830160861201195).

Please find attached two versions of our revised manuscript, one with tracked changes, the other clean. Below, please also find our point-by-point response to each of the Reviewers’ comments, which we hope satisfy everyone’s concerns with this piece of work.

Sincerely,

Jen Palmer & Karl Blanchet (on behalf of the authors)

Authors’ response to reviewer comments

AU: Authors’ response

Reviewer 1

Reviewer: Serge Resnikoff

Reviewer’s report:

Overall, the authors adequately responded to the questions I raised. There is however an issue that still needs to be corrected. While in the text it is now clear that the averages presented are not representative of the sub-saharan region,
the abstract states "The regional ratio for surgeons (ophthalmologists & cataract surgeons) was 2.9 per million population, etc." which is quite misleading. Authors should -I think-find another formulation, such as, for example, «average ratio». The same applies to tables presenting «regional averages», and especially the Additional File 4 which refers to a Sub-Saharan Africa Regional Ratio (cell A25).

AU: We thank the reviewer for pointing out that this definition may be misleading. We have therefore clarified our definition of the regional ratio in the abstract (and the idea that this paper uses data from a sample of countries has already been added to the title). We have not, however, elected to change the definition in the text, tables and additional files, as the authorial team had already had lengthy discussions about how to distinguish pooled ratios from country means and medians early on; we agree that there is not a simple solution and hope that readers will seek clarity on this definition in the Methods section and Discussion of the manuscript.

Reviewer 4
Reviewer: Susan Lewallen
Reviewer's report:
General:
The strength of the current paper is that it provides good information, thoughtfully collected, on current numbers of eye health workers in SSA, an area from which good data are scarce. The paper would be stronger and more scientifically sound if the authors presented their data, showed the associations with national development indicators and pointed out the lack of evidence for HReH targets, rather than compare their findings to hypothetical non-evidence based targets. Arguments for this are presented in detail in points 5-6 below.

My comments on the revision will address the author’s responses to the major issues I raised in the first review. Please consider these all non-discretionary unless otherwise noted (1, 12 & 24)

1. The authors still reference both the GAP and the V2020 initiative but still have not clarified whether the former supercedes the latter or how they are related to each other; this is a question that has left a number of people in the field confused. Understandably, the authors may feel it is beyond the scope of this paper to discuss the question but then perhaps they should leave out mention of either. (discretionary)

AU: In response to the Reviewer’s concerns, we have contacted both IAPB International and WHO Prevention of Blindness Programme for clarification on how these documents relate, in case we were misinterpreting them. We were told that the VISION 2020 documents should be viewed as technical suggestions from an expert working group that were not endorsed by member countries whereas the GAP was. Both organisations, however, recognised that the documents are very similar, sharing a common origin and reflecting somewhat an evolution in global prevention of blindness thinking.
Specifically regarding the reviewer’s concerns relating the continued appropriateness of targets: while the GAP could not set universal targets, both organisations saw the regional HReH targets set by the group of experts in VISION 2020 as still helpful until local/revised targets can be agreed.

We have therefore made some changes to the first paragraph of the Background section to address these problems and hope this will be clearer to readers.

2. NOTE: In the original comments I sent I accidently had two separate and unrelated comments under #2, for which I apologize. They should have been numbered 2 and 3. I’ll use 2 and 2a now to avoid further confusion.

2. The authors have provided more complete citations but there are still many problems with references. This is not just a pedantic matter since other researchers may want to follow up on some statements.

• There is generally too much reference to websites and reports that are not peer reviewed. These might be acceptable for a policy document but I don’t think they are acceptable documentation for a scientific journal.

• When websites are used the dates these were accessed should be included. When I tried to follow the websites listed I got “page not available” messages.

• Authors need to check every reference they’ve used to see if it provides primary evidence or data to support the statement. For example, Ref 10 is a good description of training a cataract surgeon but it is not appropriate to support the statement it accompanies. Fewer, more carefully selected references are needed.

• Refs 20 and 21 (and perhaps others) still appear in the list although they no longer are in the text.

AU: Regarding the quality of literature we have cited: We have removed reference 10 from the manuscript, as suggested by the reviewer. We have, however, maintained references to the other non-peer reviewed documents as, by and large, these were written by authors who participated in the expert advisory groups who chose the Vision 2020 HReH targets, whose historical evolution we have been trying to trace. We therefore consider these citations informative, and have made several caveats throughout the Background section as to the quality of evidence behind targets, as per this reviewer’s previous requests.

Regarding technical problems with the reference list, we have checked all URLs listed and found only one (ref 23) that needed to be updated. (The reviewer could be getting ‘page not available’ messages if she tried control-clicking from within the document, rather than copy-pasting the URL directly.) We have already included access dates in our bibliographic file, however, according to the journal’s style instructions, these should not be listed.

As for refs 20 and 21 related to Latin America, these were only listed in the ‘changes marked’ version of our last submission reflecting a problem with the
track changes function of our software. These are no longer in the current version.

2a (explain origin of CSR target estimates for Africa)

I appreciate the authors’ efforts to clarify the CSR target issue (which I requested) but I’m afraid the discussion about CSR is now longer and has become even less clear (to me at least)

The authors state: “On the other hand, it can be argued that CSR targets do not need to be strictly based on incidence, since the most visually impaired people are normally the hardest for eye services to find, evidenced by the fact that the majority of cataract operations are on non-blind patients, even in the poorest countries [19].” Why is this sentence started with “On the other hand…”? Are the authors suggesting that something besides incidence would determine the target CSR? If so, what? Perhaps related to this, I cannot tell what part of the complex sentence the reference 19 is supporting, but in any event I don’t think it supports the concept that incidence of cataract (at whatever VA level chosen) is not a critical factor in CSR targets. The ideal number of procedures needed for any surgically cured condition (e.g., hernia repair) will be dependent to a large extent on the incidence of the condition.

On reconsidering this issue and the authors’ response, I suggest that, rather than get involved in a lengthy technical discussion of how CSR targets have been or could be set, the authors might consider simplifying the entire subject, addressing both my points 2a and 3 and shortening the paper by explaining that The original CSR targets were rough estimates based on several assumptions including a uniform prevalence of cataract blindness in SSA and an assumption that mostly blind eyes would be operated. Evidence accumulated since has shown neither of these to be true. (refs, including 19 and 17) Nonetheless, for planning purposes a target of 2000 is often used.

AU: We greatly appreciate the reviewer’s suggested solution to simplify this section of the manuscript and have incorporated wording to this effect in the text.

4. Thank you for including the reference on CSR targets in Africa. This reference also presents the evidence from numerous RAAB surveys that shows cataract (lens opacity, operated or unoperated) prevalence to vary 2-3 fold across the continent, which has not been acknowledged or taken into account. (The need to do this would be eliminated if the authors simply take the shortcut suggested in point 3 above) The two Latin America references are not mentioned anymore in the text but are still in the list of references.

AU: The suggested ‘shortcut’ has been used and the Latin America references have already been removed.

5 & 6. These 2 comments are both related to how one goes from a target CSR to a recommendation of 4 surgeons per million

The authors acknowledged that the evidence base for the HReH targets is weak,
but I think it is much weaker than they suggest and they need to make this point much more strongly in the paper or else refrain from comparing their data to these targets. Please consider the following: They now describe the assumptions underlying the target of 4 surgeons per million thus: one surgeon supported by a team of 3-5 mid level personnel would operate one day per week and do 2-3 surgeries per hour (around 10-15/day). They have not questioned whether one operating day per week is a reasonable assumption -and many would argue that it is not. It is more reasonable to suggest that a surgeon would operate 2 days per week and do twice as much surgery. Under this assumption the HReH target for surgeons would be cut in half and the logical conclusion from this paper would be that SSA has exceeded the target for surgeons, rather then reached ¾ of the target. In fact, variation in surgeon productivity is documented and it varies up to ten fold. This is an example of how weak the evidence is for HReH target numbers required; yet the authors compare their data to the targets in detail, calculating how many more surgeons might be needed and stating that we are ¾ of the way to achieving the goal. The fact that they admit there are many variations at the country level or urban/rural unevenness does not address the fact that the basis for the targets is so weak in the first place. The paper would be more scientific if they simply presented their data on existing HReH numbers of personnel (which has been collected carefully) and resisted using questionable hypothetically derived HReH targets as a benchmark for comparison. (The subject of what might constitute reasonable evidence based targets requires extensive study, well beyond the scope of this paper)

Regarding the targets for refraction personnel in SSA the authors now describe a target based on evidence from India, where the epidemiology of refractive error is known to differ from that in SSA (and even in SSA it is likely not uniform).

Again, why not simplify by using one paragraph to admit that the evidence is weak and state that depending on the assumptions made, the number of teams required may vary 4-5 fold or even more.

This would obviate the need for discussion in the paper about how close SSA is to reaching its HReH targets and get the authors out of the awkward place they end up in when they say that SSA is ¾ of the way towards reaching the targets, but surely not ¾ of the way towards reaching the goals of either VISION2020 or the GAP.

AU: We recognise many of the points this reviewer has made on the evidence used to select targets and have amended the text in the Background section in response (e.g., that ophthalmologist’s target could be revised downwards if productivity was increased, including a newly published BMC HRH citation to support the reviewer’s concern about the variation in surgeon productive (Eliah et al 2014); the lack of data on refractive error prevalence in Africa compared to India, etc).

In recognition of the fact that there is no established link between achieving HReH targets and achieving overall global action plan goals (i.e. 25% reduction in avoidable visual impairment) which is beyond the scope of this study, we have
also tried to soften some of the language we have used, such as swapping the word 'ensure' to 'improve' in the concluding sentence of the paper: “Further research is needed to test innovative recruitment, retention and task-shifting solutions to ensure /improve universal eye health coverage in sub-Saharan Africa”.

7. I'd hoped for a reference to the statement that 10 mid level worker per million were required. The reference supplied is #9, a report from IAPB. I could not find it on line at the website given so cannot judge what evidence was used to set this target. The target doesn’t seem to fit the statement that 3-5 mid level workers per surgeon are required; 12-20 midlevel workers would be required for 4 surgeons/million. This is more evidence of the lack of real data behind these HReH targets.

AU: The reviewer has caught an error in VISION2020’s logic. We agree that VISION 2020 recommends 12-20 per million in theory, but the target ratio has been reduced for Africa to 10 per million, taking into consideration lower health system capacity. We have therefore altered the language in the text to make this more clear.

8. see response to 5&6 above.

9. Thank you

10. The authors have clarified that they did not include this group of general nurses or clinical officers without formal qualifications. Could they provide some idea, even anecdotal, of what proportion this represents?

AU: We would also be interested to know the answer to this question but haven’t been able to locate such information.

11. ok

12. I believe that the authors should use the WHO classifications of countries. Sudan is very different from South Sudan. (discretionary)

13 Thank you.

14. Encouraging individual countries to collect data over time is fine. However, I think that this problem of potentially vacillating CSR deserves to be noted as a limitation.

AU: We have highlighted this limitation in the introduction and believe this is sufficient.

15 & 16. Thank you

17. Authors have corrected the error and state now that they classified non-ophthalmologist physicians in DRC and Madagascar with the non physician cataract surgeons employed in other countries because “cataract surgeon” is the local term used in DRC and Madagascar. That may be true but I believe it is incorrect in an international classification. Having worked with these cadres, I
believe the important distinction is “physician.” Neither DRC nor Madagascar allow non physicians to operate whereas the “cataract surgeons” in the rest of SSA are NON physicians. Training, skills, and basic education of the physician “cataract surgeons” of DRC and Madagascar is far more like the ophthalmologists in the rest of SSA than like the “cataract surgeons” of the rest of SSA. This has implications both for the resources (financial and time) required for their training and for their stature in the countries, ability to be recognized as the head of a team of other health workers, and their ability to advocate on a professional level at their hospitals. (Another example where “local” terminology for health workers is not compatible with that used internationally is the term “clinical officer” as used in Tanzania.)

AU: The reviewer makes a very interesting point; physician cataract surgeons are probably treated differently by their peers and in human resources planning than non-physician surgeons. We agree that it is difficult to apply international classifications across SSA; it has not been easy to address this problem in our manuscript so we have elected to maintain our treatment of these cadres in our analysis (rather than remove them from analysis entirely as for general nurses who do refraction work or re-classify them as ophthalmologists, which they are not) with the existing caveat in the methods section that our study definitions sometimes needed to be locally defined.

18. I cannot judge whether this has been addressed since I have no access to the second paper. The authors should avoid making statements in this paper that require a future, but yet unaccepted paper to justify.

AU: The second paper is likely to be published in the same open access journal at the same time as this paper, so we expect readers will be able to read across each. Additionally, one reviewer provided input on both submitted papers and so was able to check the consistency between the two.

19. Thank you. (I agree!)

20. OK

21. This goes back to my arguments in 5-6 above regarding the dangers and fallacy of comparing good data to questionable targets.

22. Problem is the targets again. I had suggesting “referencing” these in the hope it would point out the weakness of the evidence. Would prefer to see the column on targets eliminated.

AU: Thank you, but we have elected to maintain this column, which is of prime interest to policy-makers.

23. OK

24. Still think it’s worth checking, although there may be no correlation. (discretionary change)

25. OK