Author's response to reviews

Title: Human Resources for Eye Health in Sub-Saharan Africa: Trends and Implications for Achieving VISION 2020 by Year 2020

Authors:

Palmer Jennifer (jennifer.palmer@lshtm.ac.uk)
Farai Chinanayi (f.chinanayi@brienholdenvision.org.za)
Alice Gilbert (aliceemilygilbert@gmail.com)
Devan Pillay (devanpillay1@gmail.com)
Samantha Fox (sfox84@hotmail.com)
Jyoti Jaggernath (j.jaggernath@brienholdenvision.org.za)
Kovin Naidoo (k.naidoo@brienholdenvision.org)
Ronnie Graham (rgraham@iapb.org)
Daksha Patel (daksha.patel@lshtm.ac.uk)
Karl Blanchet (karl.blanchet@lshtm.ac.uk)

Version: 2  Date: 23 April 2014

Author's response to reviews:

24 April 2004

Dear Editor,

We thank the Reviewers and Editorial team for the time and effort they have spent reviewing our manuscript, “Human Resources for Eye Health in Sub-Saharan Africa: Trends and Implications for Achieving VISION 2020 by Year 2020” (MS: 1529900972122499).

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 and balance everyone’s concerns with this piece of work.

Please do not hesitate to get in touch with further queries.

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

Authors’ response to reviewer comments

AU: Authors’ response in bold.

Reviewer 1
Reviewer: Feyi G Adepoju

Reviewer’s report:
1. The question posed by the authors is new and well defined
2. The methods are appropriate sufficient details need to be provided to replicate
the work.

3. Data is sound and fairly well controlled. Sources of bias should be in detail enumerated and suggestions as to their effect on the data stated.

4. The manuscript adhere to relevant standards for reporting and data deposition.

5. Discussion and conclusions are well balanced and adequately supported by the data.

6. The title and abstract accurately convey what has been found. For individual member countries to benefit from the findings details of some specific are required.

7. The writing is acceptable for publication.

Major issues requiring attention

1. The category of cataract surgeon was it uniformly defined in all member countries. How many member countries had non physician cataract surgeon, the member countries who train diplomat were they categorised as ophthalmologists?

The cadre of ophthalmic clinical officers are found in which member countries or in all?

How reliable is the publicly available data on CSR in member countries, authors should please state where estimates were used so that the data can be interpreted with caution.

AU: Additional detail on the definitions used for cataract surgeons, ophthalmic nurses and refractionists has been added in the Methods section. For the sake of brevity, we have not included discussion of the numbers of countries which did and did not employ each type of cadre which data was collected on, but refer the reviewer to our companion paper which lays this out very clearly.

We have also added an additional paragraph in the Methods section on the sources of CSR data and refer the reviewer (and readers) to figure footnotes and the companion paper for further detail.

2. What informed the choice or selection of 21 countries out of 44-47 Sub Saharan member countries?

AU: At the reviewer’s request, we have added an additional sentence on this topic in the first paragraph of the Methods section and refer the reader to our companion paper which further states that questionnaires “were electronically circulated to key informants in all 33 countries of sub-Saharan Africa with more than 4 million population as of the year 2010, as well as in 3 countries less than 4 million population where research collaborations already existed (Botswana, Gambia, Guinea-Bissau). Effort was focused in these countries only, given the difficulties faced by earlier studies attempting to access HReH data in this region (V2020 2006; Resnikoff, Felch et al. 2012)”.

3. Previous works submitted (Palmer et al) may be inaccessible to the readers fair details should be given in this paper.
AU: We have attempted to provide additional detail on cataract surgeons and cataract surgeries data, since this is a focus of this paper. For the reviewers’ convenience we also attach a recently revised version of our companion paper which is also under consideration by BMC Human Resources. Since, if accepted, it will also be available to read at no cost from the same journal, we hope that it will be similarly accessible to all readers of this manuscript.

Minor issues
1. Second paragraph in discussion appears confusing, the terms surgeons, cataract surgeons, appear used interchanged.
AU: We have added a phrase to try to clarify this.

2. Background first statement should be reconstructed for ease of understanding. Introduction last statement is unclear, are the authors referring to this study or studies in the past
AU: These sentences have been amended to improve clarity. This last paragraph of the introduction refers only to previous literature (not our companion manuscript).

Reviewer 2
Reviewer: Serge Resnikoff
Reviewer’s report:
Major issues requiring attention
1. Title: the current title “Human Resources for Eye Health in Sub-Saharan Africa: Trends and Implications for Achieving VISION 2020 by Year 2020” suggests that the study analyses data from all sub-Saharan African countries, while in fact the paper presents data only from countries 16 countries, out of 48 –i.e. one third. It is therefore strongly recommended to amend the title to avoid any undue generalisation. Reference should be made to the sample rather than to sub-Saharan Africa (or the “region”) throughout the text, including in the abstract.
AU: We thank the reviewer for this observation and have amended the title of the paper (now: “Trends and Implications for Achieving VISION 2020 Human Resources for Eye Health Targets in 16 Countries of Sub-Saharan Africa by Year 2020”), abstract, Results, Discussion and Conclusion text to reflect this idea.

2. Page 6, Background, first paragraph. “One population-based service delivery ratio is also suggested to measure the performance of eye health services, cataract surgery, used to prevent or treat cataract blindness.” It should be noted that CSR is an output indicator used as a proxy indicator for the provision of eye care services. The use of CSR as a performance indicator is therefore questionable, as it does not measure the outcome of cataract surgery in terms of reduction of cataract blindness or ocular morbidity. It is recommended to replace performance by output (or any equivalent term) throughout the article.
AU: In this paragraph of the Background, we have added the clarification that CSR is a proxy measurement of the ability of health services to reduce avoidable visual impairment. In the remainder of the manuscript, however, we have decided to retain use of the term ‘performance’ to discuss progress towards these specific, agreed HReH and CSR indicators/targets. We have attempted to make clear that we discuss a country’s ‘performance’ only in relation to these specific indicators rather than overall prevention of vision impairment programme goals, as in our opening statement to the Discussion: “This study predicted the performance of eye health workforce development in 16 countries of sub-Saharan Africa by the year 2020, according to key HReH and service delivery indicators suggested by the global VISION 2020 programme”.

3. Page 7. Methods, National questionnaires. “1. ‘Surgeons’: considered to be (i) ophthalmologists (physicians (MD or equivalent degree) who specialise in the eye and visual system)” There is a major issue here because not all ophthalmologists are trained to do cataract surgery. In addition, among those trained, not all actually perform cataract surgery for various reasons. Authors should provide information on the proportion of trained surgeons. If this is not available, a sensitivity analysis should be performed to check the impact of small fractions of ophthalmologists trained in cataract surgery.

AU: We have added the following note in the Methods section: “While it was assumed that all surgeons (of both types) had been trained to perform cataract surgeries and are thus theoretically capable of providing this service, no information was collected on the proportion of surgeons who are clinically active in the eye health workforce but who do not currently perform cataract surgery because of infrastructural limitations, strategic or other reasons.” We also further highlighted discussion of both of these limitations in the Discussion (3rd paragraph) with additional literature citations. We have already attempted to conduct sensitivity analysis of year 2020 CSR projections under two ideal scenarios, including achievement of national target surgical efficiency ratios and expanded discussion of the implications in the Discussion section, as requested by the reviewer.


Same comment as above. Only ophthalmologists actually trained in cataract surgery should be considered here.

AU: See response above. We have noted this limitation/consideration in the Methods and Discussion.

5. Page 13. Refractionists, first paragraph. “…refractionists (optometrists and mid-level refractionists combined).”

Please note than in Francophone countries, TSO/ISO are trained to provide refractive services. Has this been considered? If not, recommend mentioning it in
the discussion.

AU: We now note how we considered TSOs in both the Methods and Discussion.

“…cataract surgeons are much more likely to be employed in the public sector”
This is likely to be only true in countries where cataract surgeons are recognized
as a professional cadre, which is not always the case.

AU: This was actually a clear finding of our study, presented in the companion
paper (already cited to support this statement): only 9.4% of cataract surgeons
(sample country mean) worked in the private-for-profit sector; those who did were
mainly in DR Congo and Madagascar where, indeed, ‘cataract surgeons’ were
locally defined to mean non-ophthalmologist general physicians.

7. Page 18 Discussion.
“is a major advantage for countries wishing to improve their eye health system
performance and equity.”
This might be true for cataract, but for cataract only. What about the other eye
conditions?
The issue is that this article focuses on CSR as a proxy indicator of eye health
needs. While it is indeed true that cataract is the main cause of blindness, there
are still many other eye health needs that are requiring attention. In addition,
edemiological transition will require skilled practitioners to address emerging
needs. In that respect, training more ophthalmologists able to do eye surgery,
including glaucoma surgery and to manage retinal conditions, such as diabetic
retinopathy is critical in medium and long term. This issue should be raised in the
discussion.

Another issue is the absence of consideration given to the quality of care. Doing
just more surgeries is not necessarily the answer, especially given the poor
results observed in a number of recent population-based surveys. This should be
addressed in the discussion.

AU: We thank the reviewer for these observations and have added discussion of
both of these issues in the Discussion.

Minor issues
This abstract in French requires significant editing, especially regarding HR
terminology.
The following wording is offered.

Contexte: Le développement des ressources humaines pour la santé oculaire est
une priorité majeure des initiatives mondiales pour la réduction de la cécité d’ici à
l’an 2020. Sur la base de notre analyse précédente concernant la situation en
2011, nous avons calculé des indicateurs de performance pour 2020 pour 16
pays de l’Afrique sub-saharienne.
Méthodes: Les données concernant le nombre d’opérations de la cataracte ainsi que les effectifs en ressources humaines ont été collectées auprès des coordonnateurs des programmes nationaux pour 6 cadres de santé (ophthalmologistes, opérateurs de la cataracte, techniciens supérieurs en ophtalmologie (TSO), infirmiers spécialisés en ophtalmologie (ISO), optométristes et réfractionnistes). Ces données ont été combinées avec les données démographiques. Les données sur les entrées et les sorties des effectifs pour la période 2008-2011 ont été utilisées pour projeter le taux de densité de la main d’œuvre ainsi que le taux d’opérations de la cataracte entre 2011 et 2020. Les liens statistiques entre indicateurs de performance et présence d’opérateurs de la cataracte ont été analysés en utilisant le test de la somme des rangs de Wilcoxon et le coefficient de corrélation de Spearman.

Résultats: La densité des professionnels de santé oculaire par million d’habitants va augmenter légèrement pour les chirurgiens (ophtalmologistes/opérateurs de la cataracte, de 3,1 en 2011 à 3,4 en 2020) et les TSO/ISO (5,8 à 6,8) mais resteront bas pour les réfractionnistes - optométristes inclus - à 3,6. Parmi les pays qui ont déjà atteint les indicateurs cibles en 2011 la croissance actuelle sera insuffisante pour atteindre les cibles en termes de chirurgiens et réfractionnistes à l’horizon 2020. Un seul pays pourra atteindre la cible pour les chirurgiens en 2020. Pour les infirmiers, deux pays vont atteindre la cible en 2020 tandis qu’un troisième sera juste en dessous. En 2011, les taux importants en chirurgiens étaient associés avec de taux élevés d’opérations de la cataracte, quel que soit le type de chirurgien employé. La population en operateurs de chirurgie augmente proportionnellement plus rapidement que celle d’ophtalmologistes.

Conclusion: La force de travail en santé oculaire n’augmente pas assez vite pour atteindre les cibles de performance d’ici à 2020 dans la plupart des pays d’Afrique sub-saharienne. Les pays qui veulent augmenter rapidement leur taux de chirurgie pourraient investir dans la formation des opérateurs de la cataracte plutôt que dans celle des ophtalmologistes puisque cette population de professionnels peut s’accroître plus rapidement.

2. Discussion.

In the discussion section, the following three issues could be addressed:
• Not all trained professionals are actually delivering services because of possible lack of infrastructures, equipment or consumables. For example, not every prescription of glasses results in actual correction of refractive error because actual access to glasses may be very limited.
• The validity and accuracy of existing targets should be discussed. How have they been validated? What is the evidence that reaching them leads to the desired impact?
• The surgical output depends on the working environment. For example, cataract surgeons or ophthalmologists working in a project supported by an NGO are likely to have a higher output than cataract surgeons or ophthalmologists working in an under resourced public hospital.
AU: We thank the reviewer for these suggestions and have inserted detailed discussion of the relationship between HReH, infrastructure/working conditions and surgical output in the Discussion; we now also briefly touch on the same phenomenon related to refractive error.

We believe the idea that the working environment (NGO vs govt vs for-profit) may affect surgical efficiency is intriguing and note that some of us (Palmer & Blanchet) are exploring this concept in more detail in a separate study of cataract surgeons in Tanzania.

Regarding the link between achieving targets and achieving ‘impact’, we have added some discussion of this in our Discussion section in terms of surgical quality and that the epidemiological transition in eye care needs may affect perceptions of the ‘minimum’ HReH targets for Africa. We would refer the reviewer to our companion paper which discusses the validity of targets in more detail as well as an upcoming ‘policy paper’ that some of us (Graham, Naidoo, Jaggernath) are preparing.

   • Please provide links accessing the following sources: 1, 4, 10 and 15.
   • Please use the final version of reference number 2, rather than the draft version.
   • Please provide full reference for the following articles: 5 and 14

AU: The reference formatting has been adapted to allow URLs associated with these documents. Reference 2, 5 and 14 have been updated.

4. Page 26. Figure legends
   « Figure 8. Refractionists V2020 projected performance »
   This seems to be more about achieving V2020 targets rather than performance.

AU: The title of this and similar figures have been changed to: “V2020 projected performance: refractionists ratio”

Reviewer 3
Reviewer: Ferdinand Maduka-Okafor

Reviewer's report: TITLE: The title conveys the content of the manuscript. ABSTRACT: The abstract conveys what was found. MATERIALS AND METHODS: Is well spelt out and is reproducible. RESULTS: Are well illustrated with graphs and charts. DISCUSSION: Adequately supported by the results. CONCLUSION: Derives from the survey. REVISIONS. There are no major, minor or discretionary revisions.

Major issues requiring attention
None

Minor issues
None
Reviewer 4
Reviewer: Andreas Mueller
Reviewer’s report:

Background
Note: The authors refer to the VISION2020 action plan 2006-2011, which states specific targets for human resources for eye health per cadre. The current global action plan however does not identify HReH targets but requests monitoring of HReH only. Most countries have national action plans and will have national HReH targets based on needs.

AU: In response to this reviewer’s suggestion, we have added some brief detail on the debate about the validity of VISION 2020 targets in the introductory paragraph of this manuscript, but refer the reviewer and readers to our companion paper which explores this topic in much greater detail.

How were the 21 Sub-Saharan countries identified? Throughout the paper, the authors refer to findings as ‘regional’. This may be questioned considering that less than 50% of countries in the region were included in the research and the lack of data received e.g. on refractive error.

AU: In keeping with this comment and similar comments by Reviewers 1 & 2, we have added additional detail to the Methods section to explain the 21 (or 16) country sample selection, and have modified our language throughout the manuscript to reflect concerns about our data as a sample of countries which may not reflect the true picture of the ‘region’/continent.

Method
How were data collected for cataract surgery numbers per surgeon?

AU: This detail has been added into the Methods section.

Please define "surgical target performance"?

AU: This phrase has been clarified.

I suggest the authors define the VISION2020 target ratios in this section

AU: At the reviewer’s suggestion, we have added a new table, outlining the VISION 2020 targets here (Table 1).

Results
It would be useful to have a table with country specific numbers for HReH and surgical efficiency. Efficiency is a crucial factor in this context and country specific data would be useful for planning purposes.

AU: We agree and would like to draw the reviewer’s attention to the Additional File submitted with this manuscript – country specific ratios for all indicators in the study are available there.
Were private refractionists / optometrists included? I suggest the authors further discuss the role of the private sector to deliver these services in Sub-Saharan Africa.

AU: Key informants were asked to provide data covering all sectors in the country (i.e., government, non-governmental and private-for-profit) and a statement to this effect has been added to the methods section. We have also added a statement in the final paragraph of the Discussion about the difficulty of collecting data on refractionists in the private sector and refer the reviewer to a fuller discussion of public/private workforce dynamics in our companion manuscript.

Were NGO activities included in the data analysis? NGOs will provide a large proportion of surgeries in the region and this will need to be reflected when CSR targets are discussed.

AU: See above. NGO sector was included in all data collected.

Can the authors please reference the "VISION2020 CSR target" of 2000 surgeries per million population. Where is this stated? Is this a regional target? Most countries will, appropriately, have national CSR targets.

The current global action plan does not set CSR targets but refers to national targets only.

AU: A reference to the 2000 target for Africa is available in the Background section (VISION 2020 2007) and has been added in the target indicators table (Table 1). We have added a sentence in the Methods section to refer readers to our companion paper for a discussion of how these targets were selected (including debate on the evidence base).

Discussion

For a meaningful discussion on HRH, the authors may want to further address the issue of distribution of existing human resources. Although the authors do relate HRH with surgical output, the issue of rural vs urban distribution will play an important role in this discussion.

AU: We agree with the reviewer and refer him to our companion paper where this topic is discussed in detail.

The authors briefly mention the issue of trained surgeons not actually carrying out cataract surgery. It is suggested to further discuss this important issue here.

AU: On the reviewer’s suggestion, we have attempted to highlight this idea more fully as a limitation of the study in the Discussion.

References cited