Reviewer’s report

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

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Reviewer: Susan Lewallen

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Major issues requiring attention include:

1. Pg 6 para 1. The authors refer to the 2014-19 Global Action plan with the goal of “reduction…by 25% by 2019”. This is very different from the VISION2020 goal—elimination of avoidable blindness by 2020. They refer to both plans/initiatives throughout the paper. Which is the agreed upon goal now by WHO and NGOs; or is there one? This needs explanation.

2. Page 7 para 1. I can’t confirm the targets that are supposed to be described in reference 2 as the citation is inadequate. In all references the authors need to provide enough information to allow the reader to find the specific document (or website) easily. Many references in this paper (e.g., 1-4, 6,9,22 etc) do not allow that.

Page 7 para 2. Can the authors provide a clear explanation of the way that the CSR targets (2000-3000 for Africa) they use have been estimated? Also clarify whether these targets are required to eliminate cataract blindness or to eliminate visual impairment at some VA level. This is an important point since the CSR target is the usual basis for estimation of manpower needs. While it may be beyond the scope of this paper to estimate target CSR in SSA the authors should provide the reader with background on how CSR “targets” have been estimated and how new data impact these and how they might vary on the continent. (see Lewallen et all, Ophthalmic Epi 2012)

3. Page 7 para 2 description of factors affecting CSR needs to be corrected: CSR targets are based on the estimated incidence of visually impairing cataract in those over age 50; incidence may be estimated by using prevalence of visually impairing cataract in those over age 50 and mean life expectancy. This then has to be adjusted for percent of population over age 50 to get a target CSR.

4. Page 7 para 2. Why are two papers from Latin America (17,18) used to support a statement about CRS targets in SSA?

5. Page 7 para 2. The authors state: “Surgical programmes can achieve this with…four surgeons per million population.” The reference for this is (19). Interestingly this same reference (19), in another graphic (figure 6), suggests that at least two surgeons per million are required -half the number suggested in the graphic (Fig 4) the authors quoted. The authors should explain how these targets were estimated; was any systematically gathered evidence used to inform them? It seems very inefficient to suggest that a surgeon only does surgery one day per week.
6. Related to #5 above: throughout this work, and key to aim ii, is an assumption that the targets suggested by the VISION2020 initiative for numbers of HReH required are reasonable. These were proposed at the inception of VISION2020, based on several assumptions. The authors should explain where the targets came from and whether there is evidence that they are “correct”. The authors have not referenced a paper with evidence-based estimates for CSR targets for Africa. (Lewallen et al, Ophthalmic Epi, 2012).

7. Pg 8 top of page. VISION 2020 targets usually provided per million population (average “district” size). The authors refer here to a district of 100,000; a citation that can be easily accessed is needed here too.

8. Pg 8 para 2. “A global target of 20 refractionists per million has been chosen.” This needs a citation or an explanation of how the estimate was made.

9. Page 9 para 1. Please check math. If (in 2006) 2210 ophthalmologists comprised ¾ of those needed, then the additional needed would be 736, not 1487.

10. Page 9. It is unclear if the information on ophthalmic nurses refers to nurses who have undergone a formal (degree) training in ophthalmic nursing or to nurses who have had on-the-job training and have been functioning as ophthalmic nurses (often for many years). To ignore this latter group would miss a large portion of the HReH workforce.

11. Ref 28—if this is a personal communication then it should be noted and left as such without additional citations

12. Sudan was included in the review. Sudan is not considered part of SSA (by WHO or any other group) and should not be included. On table 5, removing Sudan (the outlier with 8.8 per million population) will likely change some of the findings.

13. What specifically was done to “verify the quality of reported data”? (page 10)

14. It appears that data needed for calculation CSR for each country was collected for only the year 2011. CSR can vary from one year to another (especially in small countries). How much annual variation is there in published CSRs for African countries? Are those for 2011 “typical”? The CSR in Gambia dropped precipitously in following years yet the manpower remained constant.

15. On page 12 the authors state that data for Malawi and Zambia could not be obtained and that the Etyaale data set was used. Did the CSR figures in the Etyaale data set match those provided by the other countries included in this assessment? Some verification would be helpful.

16. Page 13 para 4; Please explain why these particular boundaries were selected (1/4 the V2020 targets? The Asian targets? etc)

17. There is inconsistency in the use of the term “cataract surgeon.” Page 7 defines these as non physician practitioners- However on page 15 DR Congo is reported as one of the largest employers of “cataracts surgeons” and on page 17 it is noted that DR Congo and Madagascar have the largest number of cataract surgeons working in the private sector. Neither country allows non physician
cataract surgeons. (Madagascar has a large number of “physician cataract surgeons” who do not go through the long training required by the system there to be called an “ophthalmologist” but do spend 2-3 years specializing in ophthalmology.) This leaves the reader confused by the definition used in other parts of the text and in the Tables.

18. Authors should compare their findings on productivity to two other papers from African countries reporting productivity of non physician cataract surgeons, (Courtright et al 2007 and Habtamu et al 2013.

19. Page 23- top. It is interesting that, although most African countries have prevention of blindness or eye health committees at national level (often with a national eye coordinator), 15 years into the VISION2020 initiative, it is so difficult to get the basic data sought by the authors. Could the authors comment on this? How did the countries from which they could get no data differ from the 58% of countries from which they did get data?

20. The inclusion of very few Francophone countries and no Lusophone countries means that the findings are a representation of Anglophone Africa, not all of SSA.

21. The authors find that, as a region, Africa is ¾ of the way towards meeting the HR “requirements” for surgeons – yet the CSR is only ¼ of the target. Obviously there’s a discrepancy somewhere. Perhaps productivity is more important than numbers? The authors touch on this when they describe the low productivity but this key issue deserves more discussion than it is given.

22. Table 7 needs references for the columns referring to HReH targets and the 2006 survey.

23. The inclusion of very few Francophone countries and no Lusophone countries means that the findings are a representation of Anglophone Africa, not all of SSA.

24. What was the reason for doing the correlation with “geographic size” as on Table 6? It would seem more relevant to do a correlation with population density.

25. On table 7 please include the reference for the columns and include the number of countries in each of the surveys.

Minor issues:
There are a few typos and punctuation errors.