Author's response to reviews

Title: Rapidly expanding human resources for health in Zambia to meet staffing goals by 2018: a quantitative analysis of policy options

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Version: 2 Date: 5 May 2010

Author's response to reviews: see over
May 5, 2010

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Dear Editors:

I respectfully resubmit the attached manuscript entitled “Rapidly Expanding Human Resources for Health in Zambia to Meet Staffing Goals by 2018: a Quantitative Analysis of Policy Options,” which has been revised to address the comments from Dr. Lisa Hirschhorn and Dr. Amy Hagopian.

On behalf of my colleagues, I would like express our gratitude for the thorough and thoughtful review. We have carefully considered each of the reviewer’s suggested revisions. Please find a point by point response to each reviewer’s comments below:

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Comments from Lisa Hirschhorn:

"While it is clear that some increase in production of new HRH is required, understanding the relative costs would be important. A discussion and any estimates (if they exist) should be included. If none are available that would be important to add into the next steps which would be required for utilization of this type of model."

In the limitations section, we discuss the current lack of high quality studies that cover the costs and feasibility of improvements to retention and hiring in Zambia. We discuss a study of the costs and feasibility of doubling training enrollment in Zambia—this study has been submitted as a separate manuscript to the Human Resource for Health by many in our author group—and describe the importance and need for more costing and feasibility studies to allow for full utilization of our policy assessment.

"... the authors should explain the components which make up the attrition rates as these are a main driver of some of the HRH gaps. For example, mortality due to HIV has been decreased as access to HIV treatment becomes more available"

We have added a full breakdown of the components of attrition, including the contribution of HIV to staff death.

"It would also be helpful for the authors to discuss the potential impact of changes in attrition over time and anticipated duration for a graduate or existing staff to stay. For example, if the rates of attrition decrease (or increase) over time"
An additional paragraph was added to the results section describing the impact of attrition over time. Our analysis focuses on reaching staffing goals within a ten-year timeframe, and because of this, we did not examine the long-term impact of attrition beyond this timeframe nor did we determine the complete duration that graduates remain in the workforce.

"One important additional component which is discussed briefly but deserves more in depth consideration is the potential for task shifting to change the overall strategy for the 4 cadres included."

We expanded our discussion of task shifting to include evidence of its effectiveness in resource limited settings, including a reference that quantifies in terms of physician-hours saved the benefits of task shifting in a pilot study in Rwanda. As part of the analysis, we take as an assumption the minimum staffing needs set by the Ministry of Health, and felt that a thorough analysis of the potential impact of task shifting was beyond the scope of this paper but would be an important future analysis.

"Discretionary Revisions: A discussion about the potential for recruiting HRH who have left the field but not the country might be of interest given statistics from some other countries which estimate significant numbers of nurses who are in the country but not working in health care facilities."

We decided not to discuss this in depth due to the lack of information on how many nurses are in Zambia but working in other sectors.

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Comments from Amy Hagopian:

"Clarify the source of the WHO ratios on which this model is based."

We explicitly state the broad WHO staff-to-population ratio (2.3 per 1000) on which the health worker targets were based in Zambia.

"The authors should refer to other papers in the literature that offer modeling approaches, and indicate where their work is similar to or diverges from those approaches."

We added a paragraph in the background section on other modeling approaches to HRH and noted how our model aligns.

"I have tracked all the numbers in the text to the numbers in the tables, and suggest these changes…"

The requested changes to the table were addressed in the manuscript.

"The authors need to mention the restrictions historically placed on Ministries by lending institutions inhibiting the ability to fully employ all qualified health workers"

We have added information on this in the limitations section.

"What are the population growth assumptions in this model, which would affect ratio calculations?"
We discuss in the limitations section that, while the population is expected to grow in the next decade, we only use the current staffing target as set out by the Ministry of Health, which is not currently pinned to population growth.

“The authors should probably at least mention the difficulty of scaling up training to meet a current need, especially at the levels of magnitude suggested are required by the model, and how the country would deal with this scaled up capacity once the current needs are met.”

We have added more discussion regarding this first point and a paragraph on the second.

“Can the authors supply spreadsheets so that other Ministries might enter their own assumptions and use the calculations?”

The models are freely available through the authors by request.

“Writing edits were made in track changes.”

We reviewed all of the track changes and incorporated most. We greatly appreciate the level of detail given to reviewing this manuscript and for edits in track changes for our consideration.

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Thank you for allowing us the opportunity to address these concerns. Please do not hesitate to contact me if you have further questions.

Sincerely,

Aaron Tjoa