Author's response to reviews

Title: Human resource development for community based Health Extension Program: Case study from Ethiopia

Authors:

Hailay D Teklehaimanot (ht2170@columbia.edu)
Awash Teklehaimanot (at2076@columbia.edu)

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Author's response to reviews:

Hailay Desta Teklehaimanot
Center for National Health Development in Ethiopia,
The Earth Institute at Columbia University
P.O. box 664 code 1250
Telephone: 251-11-663-1050
Fax: 251-11-618-9896
Email: ht2170@columbia.edu
Addis Ababa, Ethiopia

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Dear Editor of the Human Resources for Health, BioMed Central,

We are resubmitting a revised manuscript "Human resource development for community based Health Extension Program: Case study from Ethiopia." We have addressed each of the reviewer’s comments item by item. Most comments were very important points to be addressed and we have revised the paper accordingly to improve its presentation.

Thank you for considering our paper for publication.

Yours truly,

Hailay Teklehaimanot

We would like to thank the reviewers for their insightful comments. The comments suggested by all reviewers were considered item by item and we think the paper has improved in its presentation.
Reviewer 1: Gordon C McCord

General comment

1. Overall, I recommend that the paper be published pending some minor essential revisions that I outline below. Perhaps the most constructive comment I can make with this paper that it would be interesting for the authors to link the case study more explicitly to the ongoing “1 Million Community Health Worker” campaign. The Ethiopian HEP seems a very important case from which to take lessons learned and best practice to the continent#scale initiative, but the authors here do not explicitly relate the operational characteristics of the HEP to the characteristics of the CHW system described in the recent report and the ongoing campaign. Doing so would raise the profile of this case study significantly and insert the Ethiopian HEP into the center of the debate on CHWs in Africa.

We have linked the various operational characteristics HEP with the CHW system described in the One Million CHW Campaign report, particularly in relation to health worker to population ration, training, health information system (mhealth), and service packages. Moreover, we have indicated that this article will serve as a model to adopt some of the innovative strategies and approaches in the scale up of CHW campaign.

Specific points (discretionary unless marked as essential)

2. The text requires editing to fix minor English language errors throughout, particularly with absence of articles (“a” and “the”).

We have revised the paper for syntax and typo errors as suggested by the reviewer.

3. (essential revision) Abstract, “Conclusion” section: The first sentence mentions that the article describes, among other things, “the impact” of the HEP program. Strictly speaking and for an academic publication, however, this is inaccurate. This case study offers some suggestive evidence regarding impact, but does not include a statistical framework from which causality with regards to program impact can be inferred.

We accept the comment and have revised accordingly. We have described the limitation of the data regarding the quality and reliability and indicated that the data presented only offers suggestive evidence, and one of our recommendations is to undertake systematic evaluation studies using appropriate methods to determine the impact of the program.

4. Page 10, under section 4 “Management and health information system:”; paragraph 2: the paper describes that the FMOH is “seeking a mechanism to record, transmit, aggregate, and analyze real#time critical HEP data.” The 1 Million CHW Report (Singh et al. 2011) goes into much detail about technological
options for optimizing real-time data collection in CHW programs. It would be interesting to know what exactly the FMOH is considering and which of the available technological options the authors believe is optimal for the HEP.

We have recommended in the article that the alternative technological options described in the One Million Community Health Workers report presented based on the experiences in sub-Saharan Africa could be used by the FMOH in selecting the optimal technology for HEP.

5. (essential revision) Page 11, section 5 “Political and partner commitment and community engagement:” The paper mentions the per capita costs of HEP implementation ($7.5 with B#EMOC and $13.3 with CEMOC and clinical care). Given the fact that one of the great unknowns regarding burgeoning CHW systems is with regard to cost, I would strongly advise the authors to break these per#capita costs down into components so that other scholars can benefit from more relevant unit costs. Doing so would further elevate the paper as one of the leading descriptions of a community extension system. McCord et al (2013) have costed out example CHW systems given the paucity of cost data in the literature; it would be very interesting to know the detailed unit costs associated with the HEP program and see how they relate to costs from elsewhere as described in McCord et al.

Although not very detailed cost break down, we have presented the share of the estimated cost for HEP with C-EMOC by program component (including “health service delivery and quality of care”, “new construction, expansion and transport”, “human resource development”, “strengthening pharmaceuticals”, “IEC”, “management, HMIS, and M&E”, and “health care financing”). Inspired by McCord et al cost estimation, we are planning to undertake detailed cost estimation (based on the standard vs. actual).

6. Page 13, section 5 “Pastoralist health services:”; I would urge the authors to more thoroughly describe how the HEP packages were “adapted to pastoralists’ needs.” Other countries with pastoralist populations could very much benefit from successes and failures working with pastoralist communities.

Since the description of the pastoralist HEP design by itself requires a separate manuscript, and it was indicated as discretionary, we defer to go into more details.

7. (essential revision) Page 17, under “Implementation status and outcome”: The data for the trend analysis is from the “Health and Health Relation Indicator annual report of the FMOH”. Given the absence of health outreach before 2004, one might imagine much larger measurement error pre#2004 compared to post#2004. I would recommend a discussion of measurement error of health indicators, how it may have changed for rural areas between 2000 and 2011, and how it might adversely affect analysis (such as the spline analysis of trends).

We have described the limitation of the health facility data with regard to quality and reliability. The data could be affected by limitations in completeness,
accuracy and external consistency. In particular, when the “imperfect” data with such limitations is used for trend analysis, any change (improvement or worsening) over time of these limitations would further affect the quality. However, there was no major systematic change on these factors over the study period, and assuming the “imperfect” health facility data is consistent over time, we feel that it is adequate to reliably indicate the trend in service coverage. Furthermore, the indicators are generated based on actual country level data reported from all regions (not sample) and thus, the trend analysis could not be affected by measurement error. For example, number of children immunized is reported from each health facility. Although, the number of health facilities reporting has changed over time, the national level indicator is not the mean of the health facility level coverage. If it were the mean, the true value and error bounds would be affected by number of health facilities reporting. The indicator is calculated by adding the number of children immunized in each health facility, and dividing the sum by the national level denominator. Thus, the indicator is actual value (although affected by the limitations listed), which is not affected by measurement error.

8. (essential revision) Page 18: do all the indicators mentioned come from sampled data. It is not explained in the text. If they do come from sampled data (likely the case given that it’s yearly), reporting error bounds around the means of variables would be appropriate.

See above.

9. (essential revision) Page 18/19: the paper mentions that “outpatient attendance per capita did not improve” but doesn’t report the numbers. Similarly on page 19, saying “The utilization of HEP services is very low…” it would be more useful to give numbers.

Addressed (Table 2)

10. Page 19: given the low ratio (2:5000) of HEWs to villagers, what was the proportion of time that HEWs actually spent doing household outreach? The program intended for 25% of time at the post and 75% of time at the community (as described on page 14) but was this the actual breakdown of time use?

This is one of the areas that should be determined through monitoring and evaluation studies, and we have indicated this as one of the recommendations.


We have cited McCord et al.

12. (essential revision) Page 21: The authors make recommendations (increasing # of HEWs, development of time use protocols, etc.) to increase service utilization but haven’t reported service utilization numbers (as opposed to coverage numbers). Being able to see breakdowns of utilization numbers to identify exactly which ones haven’t increased would be helpful. The only number
I can find in the paper is the OPD visits per capita which is graphed in Figure 1.

Addressed (Table 2)

13. Page 21: If in fact the # of HEWs per population was a limiting factor, might it be possible to use the variation in HEW:population ratio to test this hypothesis? If there are 2 HEWs per kebele, and there is certainly variation in population across kebeles, then some kebeles natural will have better HEW:population ratios than others. It might be worth checking whether kebeles with smaller populations (and thus higher HEW:population ratios) have better per capita utilization indicators. This would lend support to the hypothesis that the HEW:population ratio is a limiting factor for utilization (as opposed to other hypotheses, such as HEW training quality).

Currently there is no data at village level to test the hypothesis that the number of people per HEW is a limiting factor for utilization, and we have made a recommendation that any consideration on this should be based on evidence since it requires a significant investment.

14. (essential revision) Page 31, Table 2: Please report number of observations

Addressed (Table 2)

Reviewer 2: Mwansa Annette Nkowane

Major compulsory revisions

The paper is needed at this point in time when evidence is being sought on effectiveness of workforce strategies. However, this article has not vigorously explored the issue under discussion. The key issues to address:

1. The objectives of the study are not clear

The last paragraph of the background section describes the objectives of the paper. The objective of the paper is to describe the HEP strategy, the operational characteristics including human resource development process and infrastructure, and limitations of the program. It also documents the indicators comparing the pre-2004 and post-2004 periods. These would contribute in the improvement of HEP in Ethiopia, and in the identification of best practices and lessons for informing similar systems elsewhere.

2. The study methodology is not clear

Since it is a case study, a separate methodology section is not required; but we have presented some details on the methodology used for the trend analysis.

3. The health extension workers scope of work is not clear

At times it is described as promotion of health and disease prevention and at times they are being described as being able to undertake treatment. This brings into question the regulations that govern their practice. This issue needs to be explored

We have tried to make it clearer. The HEP package includes promotive and
preventive interventions with limited basic curative service; thus, the HEWs provide treatment service for malaria, pneumonia and diarrhea.

4. This cadre had not contributed to reduction of maternal and child mortality so the point of argument is not clear as the objective was to have this cadres help in the strife to achieve MDGs. This compromises the gains on access to health services.

Although there is improvement in majority of the indicators, maternal services, in particularly skilled delivery has not improved. We have indicated this as one of the limitations of the program, which might have occurred due to quality of training and service as well as lack of demand. Moreover, unless it is accompanied by access to health facilities with emergency obstetric care, the impact of the cadre on maternal mortality will be limited.

Essential minor revisions
5. Explain how the improvement in health indicators are attributable to HEWs. What specific roles in their functions led to this improvement
We have described the specific roles of HEWs that contribute to the improvement in health indicators.

6. Too many acronyms. This makes it difficult to read
Addressed.

7. Too little information on the profile of the HEWs
Some information has been provided.

8. There is little discussion on accreditation and regulation all which are pertinent to workforce development and quality service delivery.
Addressed

Reviewer 3: Luke C Mullany

The authors have provided a description of the design of the HEP program and follow this with a qualitative examination of data before and after the HEP was initiated

1. The long background description of the HEP program may or may not be necessary. If the goal of the paper is to present the indicators on the HEP program and compare these to the pre-HEP period, it is likely that the longer presentation of the program in the background is not necessary

The primary goal of the paper is to present the design and operational characteristics of HEP, and presenting the health system context is important, but we have tried to make it more concise.

2. There appear to be many statements in the background section that should be cited in order to strengthen the claims made by the authors.
We have included necessary citations in response to the comment.

3. Overall, the citations throughout are not very recent - There are a couple of citations from the prior 2 years, but most are ten years old or older. Could the authors update their citations?

We have updated the citations.

4. The description of the HEP appears to be somewhat divorced from a presentation of the health status of the country. A closer link between the aims of the HEP and the actual national statistics on maternal, neonatal, and child health would be helpful, along with a discussion of how the interventions within the HEP correspond to widely agreed upon essential interventions for MNCH.

We have addressed the concern by linking the specific HEP services, which are designed based on widely accepted interventions, with the health indicators presented in the paper.

5. The authors should provide a critical analysis of how this model does and does not fit with the many other models of community-health worker programs in other countries. This would be helpful for meeting their goal of having this case study contribute to the design/implementation of programs elsewhere

Addressed

6. The statements about the program describe what the program is supposed to do on paper, but this does not necessarily reflect the reality on the ground. Can the authors strengthen their argument by citing actual data on whether or not the HEP has met these goals of coverage?

We have presented the design of the program and the achievement of the country in terms of human resource and infrastructure developments along with the potential health service coverage using actual data obtained from the ministry of health. We have also presented actual data on health indicators as suggestive evidence of the effect of the HEP program in improving health service access and utilization. However, we have not presented specific information on whether the program was implemented as per the standard developed on paper, which requires data collection using appropriate evaluation methods. On the other hand, we have identified potential challenges and limitations in the implementation of HEP, and one of our key recommendations is to undertake process and outcome evaluation studies to bridge the information gap. In fact we are undertaking national evaluation study, which we hope that it will answer such questions.

7. There is little information about the Health Development Army, and how this more recent development of the health system fits with the HEW program and HEP.

We have included additional information on the specific role of the network regarding HEP program.
8. There is no description of the source of data for the analysis of the pre-HEP vs post HEP implementation indicators of coverage. Where does this information come from? How should the readers understand the quality and reliability of these data? Where are the citations for these data?

The source of data has been described along with the citation. We have described the limitation of the health facility data with regard to quality and reliability. The data could be affected by limitations in completeness, accuracy and external consistency. However, there was no major systematic changes on these factors over the study period, and assuming the “imperfect” health facility data is consistent over time, we feel that it is adequate to reliably indicate the trend in service coverage.

9. Why should the reader believe that the changes in indicators have anything to do with the HEP program?

Acknowledging the inherent limitation of the health facility data, our conclusion is that the information presented only offers suggestive evidence of the effect of the HEP program in improving health service access and utilization, and one of our recommendations is to undertake systematic evaluation studies using appropriate methods to determine the impact of the program.

10. What is the status of funding for the HEP program? Is it fully funded by the Govt? Is it reasonable to recommend that they double the number of HEWs from 2 to 4, when there is little evidence that health service utilization has increased?

We have described the financial resources for the program, which includes government treasury and development partners. We have also indicated the presence of significant financial gap to scale-up HEP as per the standard despite the high commitment of the government and partners.

Regarding the recommendation to double the number of HEWs, we have modified our recommendation that increasing the number of HEWs should be considered but it should be based on sound evidence that it would improve utilization because increasing the number of HEWs requires significant investment.

11. There are many sweeping statements that appear to be too general, and thus are not helpful. For example, "Emphasis should be given to the expansion of referral health centers with functional CEMOC to address the high maternal mortality rates. However, this would not be effective without creating demand and establishing a practical referral system [46].". We can say this about any health system in any low resource country in the world. Thus, it is not very helpful to simply state this, and move on. Rather, perhaps the authors should provide actionable specific recommendations as to how to move forward on this issue in Ethiopia.

We have tried to be more specific. We have recommended improved quality of service (training to create skill and better equip the health posts) and create
demand to increase skill delivery coverage. Moreover, the data presented shows a very low access to emergency obstetric care due to the delay in expansion of referral health centers as part of the primary health care units, and it is a specific activity to recommend the acceleration of the expansion of emergency obstetric care without which the MDG goal on maternal mortality can not be achieved.

12. Overall, I'm not sure how this commentary on the HEP contributes to our understanding for how to solve problems related to human resources. It might be valuable as a description of how the program was initially designed, but only if such a description is not already publicly available.

We believe that the description of the design and operational characteristics of HEP presented in this paper, especially after addressing the reviewer’s comments, would contribute in identifying best practices and lessons in the design and implementation of similar programs elsewhere.