Author’s response to reviews

Title: Health workforce demography: A framework to improve understanding of the health workforce and support achievement of the sustainable development goals

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Reviewer #1:

Comment 1.1: This paper examines the role of population pyramids to help health workforce planning. The age-gender composition of a health workforce can be informative about long term demographic trends, and may suggest areas for further investigation for policy, including potential future shortages/surpluses, and gaps in the workforce in specific age-gender-groups. Being able to visualise complex health workforce data is important for policy makers and they apply a useful technique for doing this. Overall the paper is well written and presents the arguments very well and clearly, and I have no suggestions on how to improve the content. However, the main issue I have is that the content of the paper is not new or original. Using the age-gender composition, and changes in the composition over time, is a basic feature of most existing health workforce planning exercises across many countries, and also used as a basis for health workforce projections. Health workforce planners and others undertaking such planning exercises will be familiar with these methods.
Response 1.1: We thank the reviewer for the positive comment and agreement regarding the importance of the issue. We kindly disagree with the reviewer’s assertion that “using age-gender composition...is a basic feature of most existing health workforce planning exercises across many countries”. In our experience, few Low and Middles Income Countries do this, not least because their data systems don not allow it. As highlighted in the paper (lines 63-78), we acknowledge that there are a few recent examples of using demographic techniques to study HRH, however the concept of health worker demography as an important field of study has not yet gained traction. Indeed though these methods are sometimes used for individual workforce planning departments around the world, the results, discussion and application of those methods have not been established as part of the global health literature, with the result that this fundamental issue in health systems analysis is poorly understood. Our study aims to fill this gap by proposing a more systematic way of conceptualising and analysing HRH using demographic techniques while discussing the importance and implications of their application in case studies. It also aims to encourage the utilization of these techniques in practice.

Reviewer #2:

Comment 2.1: This article describes how the principles of a demographic "population pyramid" could be applied to health workforce planning. The Authors provide examples from Nepal and Finland to illustrate the value of these workforce pyramids. I judge the manuscript to be a sound contribution to the field. Below I list minor suggestions for improvement.

Response 2.1: We thank the reviewer for the useful comments and address them below.

Comment 2.2: Decision tree of who/which country contexts may find this pyramid approach to be most useful. I suspect that HRH planners in low and middle income country contexts would find this paper to be helpful in anticipating workforce needs. However, some contexts may be more appropriate than others. For instance, if a large share of the HRH workforce is in the private sector, and the data available are only in the public sector, the pyramids may tell an incomplete story.
Response 2.2: We agree that the unavailability of the private sector data might pose a limitation and acknowledge this limitation in the Conclusions section. Current data does not allow this kind of disaggregation. This might be an important area for future research. Regarding a decision tree, it might perhaps be best for the countries, governments and HRH departments to consider its development, through a participatory approach.

Comment 2.3: In addition, absent a full population pyramid as a backdrop, the age structure of the workforce does not necessarily contextualize whether “drops” by age arise from true labor force exits or simply from age structure of the population.

Response 2.3: National level pyramids are included for comparison (starting at line 142).

Comment 2.4: Next, planning models may be most appropriate for countries with (i) a long-term planning horizon (say, 10+ years) and (ii) stable "rates" of entry and exit as inferred by the pyramid. These, and perhaps other, considerations should be made easily accessible to the reader. Perhaps a decision tree of how/when/in what circumstance these pyramids would be instrumental for planning?

Response 2.4: We agree with the reviewer and some existing literature on the topic (e.g. Song and Lu, 2015), that decision tree might be a useful planning tool, however, our concern is that such tools should be developed through a participatory approach with multiple stakeholders approach. Following the reviewer’s comment, we started thinking of developing another study which would specifically focus on using proposed in this paper analytical tools, as one of the planning inputs. A country-level multi-stakeholder workshop is being planned to develop further work on this.

Comment 2.5. Demographic trends can affect productivity?

Please elaborate how (p.5) the pyramid has direct implications for worker productivity. I understand the supply and demand aspects, but are you arguing that productivity of workers is somehow density dependent? Please clarify.
Response 2.5: While labour supply and demand are more intuitive, worker productivity may also be affected as for example aging populations may be arguably at risk of lower innovative capacity and productive outputs (Coenen et al. 2009). We have clarified this point in the paper.

Comment 2.6. What are data requirements?

Perhaps a step-by-step description of the exact data steps necessary (or list of data inputs) to create a pyramid would be helpful for the end-user.

Response 2.6: Following the reviewer’s suggestion, we have included the data requirements necessary to create population pyramids (lines 186-189).

References:


