Reviewer’s report

Title: Analysis of the Association Between Millennium Development Goals 4 & 5 and the Physician Workforce Across International Economic Strata

Version: 0 Date: 12 Mar 2017

Reviewer: Lillian Mwanri

Reviewer's report:

The manuscript is well written and easy to understand.

The methods are well detailed. However some issues are notably not clear. For example, 189 countries adopted the Millennium Development Goals (MDGs). In your analysis you included 208 countries and there was no detailed information to justify why you did include countries that did not adopt the MDGs. Similarly, countries that data were drawn from were not disclosed making it difficult to judge how the countries were compared. For example, if data were drawn from developing and developed countries, it would be inappropriate to draw similar conclusions because of differences in health care systems, healthcare delivery and the differentials in economic levels.

Although issues of human resource for health (HRH) may be important, information about the density of physician in less developed countries and their impact on progress towards health related MDGs identified in this study may already be known. As such, it does not appear that this study adds new knowledge to our understanding. The paper while well written, there is lack of understanding of how the delivery of health service in developing countries is implemented. Singling out one factor ie the density of physician per 1000 population and not discussing in details other factors that affect the outcomes of interest is misleading. For example, in most developing countries, physicians are too higher up in the health care service delivery. As such, they would not be involved in routine immunizations. Nurses and other health care workers are the main service providers for immunization and many other services that impact indicators for MDGs 4 and 5. Drs may be involved in immunization or similar services mainly during training, for capacity building or in complex cases. As such, the lack of discussion about task shifting and delegation of task including the role that non-physician would have on indicators of interest are a significant commission. Literature review could have been done to enhance the discussion and demonstrate deeper understanding of the health system and the complexity of the issue.

The density of physician is not only low in developing countries. There is also inequitable distribution of Drs according to settings with rural and remote areas being highly disadvantaged. As such, in addition to discussion about the brain drain, issues of addressing inequity of human resource for health within countries could be part of the recommendations.
Overall, the paper lacks a deeper understanding and critical discussion of the issue of HRH and in fact there was no discussion section. The lack of the discussion section where critical analysis and understanding of the issues, supported by literature is a significant commission and makes the manuscript a bit shallow

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Unable to assess

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

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