Reviewer's report

Title: Health-related rehabilitation services: assessing the global supply of and need for human resources

Version: 1 Date: 27 June 2011

Reviewer: Susan Gargett

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Major Compulsory Revisions:
1. In the Methods section, second last paragraph, you indicate that 'need' was measured in terms of YLL due to causes considered to require the assistance of a rehabilitation health care professional. A description of how these causes were selected/determined i.e., on what basis was it decided that a particular cause required the assistance of a rehab professional is required (e.g., who made this judgement).

2. In relation to Figures 5 and 6, I believe you have reported the calculation of power trend estimations. You need to provide greater detail in your Methodology Section on how these were calculated (e.g. were the data transformed into logs and then reconverted?) rather than just say that statistical analyses were conducted.

3. In your Results and Discussion Section, 7th paragraph, you state that you find a reasonably close correlation across the 2 information sources and report the R squared value. In your Results and Discussion Section, 9th paragraph, you report the R squared value and use it to describe the strength of a relationship. My understanding is that the R squared value, or coefficient of determination, is a measure of the % of variation in 'y' (i.e. YLL in this instance) explained by the model. I believe your interpretation of the R squared value as a measure of the strength of the correlation between the 2 variables is incorrect and needs to be addressed.

4. I understand the difficulty and limitations associated with defining rehabilitation health professionals but a more detailed justification for the professional groups included/excluded is required. For example;

- you have included psychiatrists (spelt incorrectly in Table 1 and in the text) but you don’t identify mental health conditions as causes contributing to the need for rehabilitation services. If mental health conditions aren’t included then you need to explain why psychiatrists are included.

- you include nutritional deficiencies as contributing to the need for physical and rehabilitation medicine but don’t mention dieticians as a relevant profession; were they included?

Minor Essential Revisions:
1. In the title, the Abstract and elsewhere in the paper the ‘need’ for rehabilitation personnel is referred to however the term ‘demand’ is used as well. My concern is that in some disciplines the terms ‘need’ and ‘demand’ are not synonymous. For example, in economics the term demand has a very specific meaning and relates to someone’s desire to consume something along with their willingness and capacity to pay for it (or it could be the market’s demand for the good/service rather than an individual’s demand). The concept of need is more difficult to define but generally doesn’t incorporate whether or not a commodity can or will be paid for. The concept of ‘capacity to benefit’ can also be used in relation to whether or not you need something (i.e., if you can’t benefit from a service then you don’t need it). Also, a supply-demand relationship is also frequently referred to in the paper. A demand-supply framework is a basic concept in economics used to illustrate hypothetical markets for a particular service/good e.g., the quantity of rehabilitation services demanded and supplied at particular prices. These relationships are illustrated in a graph using demand and supply curves, with ‘price’ on the vertical axis and ‘quantity supplied/demanded’ on the horizontal axis. My point is that although these terms are used in everyday language, care is need when using them in an academic publication as they mean different things to different groups. I believe you need to be consistent in your use of terms. And, as you are using YLL as the measure of demand/need for rehabilitation personnel, perhaps the concept of need is closer to what you are referring to rather than that of demand. As such, some revision of your terminology is required.

2. In the Results Discussion Section, 4th paragraph, in the sentence starting ‘There is no global shortage ...’; do you mean ‘countries’ rather than ‘contexts’?

3. There are a number of minor grammatical errors that need correction e.g., in the Background Section 1st paragraph, change ‘improve’ to ‘improving’(?); and in paragraph 2; change ‘implementing’ to ‘implement’, and delete the ‘the’ from ‘and sectors to the meet the medical’; etc.

Discretionary Revisions:
1. You note the low number of countries for which allied health/rehab data were available but don’t comment on which countries/types of countries aren’t included or discuss or suggest any implications of this.

2. In relation to the countries presented in Figure 2, was there a reason these countries were selected? It appears (from comments later in the paragraph) that these 6 countries may have been the only countries with available data on this issue (was this the case?).

3. You use the term ‘context/s’ in a number of places, it would assist the reader if you defined or clarified what you mean by it.

4. You use data on the number of physical and rehabilitation staff by occupation for period 1991-2008. As some of the data used are 20 years old you could acknowledge this as a limitation of the study.
5. I feel you need to acknowledge further the extent to which some of the included professions e.g. general practitioners would be involved in activities other than rehabilitation e.g. in prevention and acute health care activities, thereby further emphasizing the limitations of the available data.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.