Reviewer's report

Title: Cost and cost-effectiveness analyses of global HIV training programs

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Reviewer: Elizabeth A McCarthy

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- Major Compulsory Revisions

1. An important revision is to more clearly specify the target audience, and to write the article with that audience in mind. Currently this article attempts to do 2 things, at the expense of not fully doing either to its full potential. One objective is to provide introductory information about methods of cost analysis and cost-effectiveness analysis to the target audience of program managers who are non-economists. They can then use this tool to more effectively make decisions and shrewdly manage resources related to the selection of training approach for health workers providing HIV-related services. Given that this is the primary intent, the article would be greatly improved by improving the structure so that a newcomer to the field is introduced to new terms in as clear a fashion as possible, with strong definitions and examples of how the term is used. An example of where this falls short is with the description of incremental costs, in the methods section, paragraph 2, where the term is introduced but the authors don’t go far enough in explaining what it means and how it is used in the analysis; the result is that it remains an inaccessible concept to the target audience – they know that it is important but don’t have enough information as to how to use it.

If, on the contrary, the primary intent of the article is to describe the cost-effectiveness of these 3 approaches to training (which it doesn’t seem to be), then a more thorough job would have to be done to explain the analysis behind these examples. If this were the case, the authors should make the article about the CEA of 1 of these examples, or all three. It would then be about the methods used to do the CEA of these training programs and would add to the field. Currently it does this only partway (since it is focused on sharing information about the approach with program managers).

2. It would be a great addition to the article if these examples could be used in a clearer way to demonstrate how to do a cost analysis. One suggestion would be to break it down into a set of steps that are applied to each of the three examples.

3. Title: Related to the above comments, the title should be more descriptive that this is about teaching cost and cost-effectiveness analysis for use by program managers in decision making about HIV training programs. Currently the reader might think the author is going to present an analysis of multiple countries’ training programs, but this article does not do that. It should represent the stated
purpose of the article: (Background, par 4) “This article offers an introduction to cost analysis and cost-effectiveness analysis (CEA) of training programs for program managers who are not economists, but make decisions about how to deploy analytic resources.”

Methods:
5. As mentioned above, this section would be improved by making it more explicitly written to teach new concepts and how to conduct a CA or a CEA.

For example:
5a. Cost Analysis, par 2
Third sentence that addresses incremental costs should be its own paragraph with more attention paid to explaining this concept that is one of the more nuanced and difficult for those new to health economics to understand.

5b. Cost Analysis, par 4
Here the concept of “opportunity costs” is introduced, but it is not very thoroughly explained.

5c. Cost Analysis, par 5
The challenges are laid out here, but there are no suggestions given for overcoming the challenges.

5d. Cost-effectiveness analysis, par 4 – QALY and DALY mentioned but not well explained.

5e. Cost-effectiveness analysis, par 5 – amortization mentioned but not well explained.

6. Results and Discussion:
The way it is currently organized, it is as though the reader is given some background information about CA and CEA in the methods section, and the result as presented is that these methods can be used in the context of HIV training programs. Most would argue that although as the paper points out, these methods are not often used to evaluate the cost-effectiveness of different approaches to training programs, they can and should be. It may help improve the manuscript if this argument were made in the background section to set the stage—not as a result.

7. The details of the analyses that are currently in the results section, could be better placed in the methods section where the methods are applied to these 3 examples.

(Example 1): Par 1 - Everything up until the last sentence could go in the methods section.

(Example 2): First 4 paragraphs would be better placed in the methods section.

8. Conclusion:
Conclusion would be strengthened by an inclusion of how program managers can learn more about CEA – the types of resources that are or should be available – since this article gives the audience some of the information necessary to perform these analyses. It can also be a place to make suggestions to the field as to what should be done to ensure that these are more often used – such as making them part of donor requirements, etc. It would help if it were tied into the big picture – how much money could be saved globally if this type of methodology were accessible to program managers – to bolster the case that this is important and can be made more accessible, with an impact on improved use of resources for global health.

- Minor Essential Revisions

9. Background:
Par 1 – Is the figure 213,200 for both those trained in ART and PMTCT? I wonder if it’s an error because I’m surprised that the exact number was trained in both – it seems so precise that it may be inaccurate.

Abstract:
10. Conclusion:
“CEA with a narrow scope are feasible for many training programs, as are CEA based on intermediate outcomes or based on published estimates of program effectiveness.” – I think this conclusion in the abstract falls short of really concluding what is in the manuscript, and instead conclusions are presented without the link to how the analyses in the article prove the statements made.

11. “CEA can guide program managers to make the best investments in training and capacity-building.” This isn’t new information; would be better to link this statement to the analyses that have been done in this manuscript and how these analyses support this statement.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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.