Author's response to reviews

Title: Potential impact of task-shifting on costs of antiretroviral therapy and physician supply in Uganda

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Author's response to reviews: see over
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Dear Sir:

We would like to thank you for reviewing our manuscript "Potential cost and physician personnel impact of task-shifting for antiretroviral therapy in Uganda.”

We would also like to thank the reviewers for their overall enthusiasm and their insightful, helpful comments and suggestions on how to improve our manuscript. Please find our enclosed responses to their comments. We have made changes to the manuscript in several places (in “track changes”) and believe the revised manuscript is strengthened.

We look forward to your continued review of our manuscript.

Sincerely,

Joseph B Babigumira, Barbara Castelnuovo, Mohammed Lamorde, Andrew Kambugu, Andy Stergachis, Philippa Easterbrook and Louis P Garrison
Referee 1:

Reviewer: Adamson Sinjani Muula

Comments

Thank you for giving me the opportunity to review this manuscript. Overall, I find the manuscript readable and clear to understand. I however do have the following comments that the authors may need to attend to:

1. It is not clear to me if the title of the manuscript is self-explanatory. At first I did not have that much clear insight what the manuscript would produce;

In response to the reviewer’s comment, we propose a change to the title with a view to improve clarity from “Potential cost and physician personnel impact of task-shifting for antiretroviral therapy in Uganda” to “Potential impact of task-shifting on costs of antiretroviral therapy and physician supply in Uganda.”

2. I would like the authors to also consider that the pay or salary that health workers receive is not everything that their employers put in. There may be medical insurance, pension and other benefits that may not come in within the salary;

We agree with the reviewer that medical insurance, pension and other benefits may accrue to workers on top of their salaries. However, our estimate of health workers wages represents their gross wage which includes pension and Uganda has a national health service which in theory covers everyone. We are not aware of other benefits to workers at the clinic where our study was performed. Additionally, our results were robust to a 50% increase in health worker costs at sensitivity analysis. This would suggest that our results would remain unchanged if added benefits were considered.

3. We also do not know if one cadre’s practice has tendency to increase costs e.g. via medical tests;

We agree with the reviewer that one cadre’s practice may increase costs. We tried to address this as follows in our discussion (page 11, 3rd paragraph):

“Task-shifting may lead to a higher rate of referral to physicians with associated costs”.

In response to the reviewers comment, we have improved this sentence to say (page 11, 3rd paragraph):

“Task-shifting may lead to a higher rate of referral to physicians and increased use of laboratory and radiological tests with associated costs”.

4. The sentence in between the references 21 and 22 could be written differently;
We agree with the reviewer’s comment. The sentence in question read (page 12, 2nd paragraph):

“We view task-shifting as an economically attractive direction for accelerating action in countries with severe shortages despite the political, financial and implementation constraints, in line with the key recommendations of the Kampala declaration of the alliance.”

We propose a change in this sentence with a view to improve its clarity by re-writing it as two sentences as follows:

“We view task-shifting as an economically attractive direction for accelerating action in countries with severe shortages despite political, financial and implementation constraints. This is consistent with the key recommendations of the Kampala declaration of the Global Health Workforce Alliance.”

5. One of the assumptions that we all make is to assume that the lower cadre source is replete with health workers who may “task-shifted”;

We agree with this comment. This assumption may not always hold but lower cadres are both cheaper and faster to train which makes task shifting a potentially efficient policy option. We address this in our discussion as follows (page 12, 2nd paragraph):

“Between 2000 and 2005, Uganda trained 650 physicians at a cost of $11,600 each compared to 6,585 nurses at a cost of $730 each (government-subsidized) and $2,500 each (privately sponsored). Therefore countries can increase nurse and pharmacy worker numbers in a relatively short time”.

6. It would be great also if the titles for the Tables are self-explanatory such that even without reading the whole text, the tables can still be useful;

We agree with the reviewer and propose changes to the table titles as follows:

Table 1 from: “Time use (hours) for different types of health workers at the Infectious Diseases Institute Clinic” to: “Personnel time use and patient waiting times for different types of health workers at the Infectious Diseases Institute clinic in Kampala, Uganda”.

Table 2 from: “Cost per visit at the Infectious Diseases Institute Clinic” to: “Per visit time use, unit costs and total costs of follow-up for different types of health workers at the Infectious Diseases Institute clinic, Kampala, Uganda”.

Table 3 from: “Costs of follow-up at the Infectious Diseases Institute Clinic from a societal perspective” to: “Per visit and annual costs of antiretroviral therapy follow-up for different types of health workers at the Infectious Diseases Institute, Kampala, Uganda from a societal perspective”.

Table 4 from: “Costs of follow-up at the Infectious Diseases Institute Clinic from a ministry of health perspective” to: “Per visit and annual costs of antiretroviral therapy follow-up for
different types of health workers at the Infectious Diseases Institute, Kampala, Uganda from a ministry of health perspective”.

7. I would appreciate if there is an indication when the web sources; URL were accessed.

We have embraced the reviewer’s comment and have updated our references to indicate the dates of access of all cited web resources.

Referee #2:

Reviewer: Nathan Ford

Reviewer's report: This is an important and timely study, and well written. I only have a few comments to make.

PAGE 4
Two important studies were recently presented at the IAS in Cape Town. This article would have been submitted well before then, but I would suggest you add reference to these in the background. Their abstract numbers are MOAD101 and LBPED03 and they can be accessed at: http://www.ias2009.org/pag/PosterExhibition.aspx Note that both of these studies are RCTs and on page 10 you call for randomized studies, so this section would need updating as well.

We thank the reviewer for pointing us to these abstracts. We have obtained them, reviewed them and cited them in our introduction and discussion. In the introduction (page 4, 1st paragraph) we added two sentences as follows:

“A recent randomized controlled trial in South Africa found that nurses were non-inferior to doctors when monitoring the treatment of HIV patients on ART. Another cluster randomized trial in Uganda found that patients receiving home-based support, monitoring and drug delivery by lay workers with 6-monthly routine evaluation achieved favorable and comparable outcomes—mortality and virologic failure—to patients receiving facility-based care with monthly visits for drug refill and 3-monthly evaluation.”

In the discussion (page 10, 4th paragraph; page 11, 1st paragraph) we changed the passage:

“Studies like ours of the comparative effectiveness of task-shifting are prone to selection bias: patients with a favorable prognosis are likely to be seen by lower level cadres. To minimize this bias, a randomized study of task-shifting is required. A review of on-line trial registers revealed that such a trial to evaluate the effectiveness and cost-effectiveness of nurse-led versus doctor-led ART is currently ongoing in the Orange Free State in South Africa.”
“Studies like ours of the comparative effectiveness of task-shifting are prone to selection bias: patients with a favorable prognosis are likely to be seen by lower level cadres. To minimize this bias, randomized studies of task-shifting are required. Two such trials have reported that task-shifting results in outcomes that are similar to care with doctors. A review of on-line trial registers revealed that another trial to evaluate the effectiveness and cost-effectiveness of nurse-led versus doctor-led ART is currently ongoing in the Free State in South Africa.”

PAGE 5
Can you give an indication of whether broadly speaking there are differences in the types of patients assigned to each algorithm. In the discussion you mention there may be a selection bias with sickerer patients entering the 'doctor track' but as programme implementers I imagine you have a sense of whether patients are triaged or whether, at this stage, it is random. This would be important to mention in the programme description and in the discussion

Broadly speaking, patients assigned to physician care are sicker than patients assigned to nurse and pharmacy-worker care. Our study was an observational study of on-going care in which sicker patients are monitored closely by doctors and those thought to be doing well sent to the other health workers. We have added this to the program description (page 6, 1st paragraph) as follows:

“At IDI, sicker patients are more likely to get treatment through PF while patients who are doing well on treatment are more likely to be sent to NF and PWF”

and in the discussion (page 11, 1st paragraph) as follows:

“Studies like ours of the comparative effectiveness of task-shifting are prone to selection bias: patients with a favorable prognosis are likely to be seen by lower level cadres as is the case at the IDI clinic where our study was performed.”

PAGE 9
The estimation of doctor time saved is important, but some reflection needs to be given to whether a commensurate increase in nurses/pharmacists would be needed. This would be unlikely to undermine the gains proposed (nurses are more plentiful, quicker to train, less expensive to pay) but without a statement about reinforcing lower cadres readers might be left with a sense of only being told half the story.

We agree with the reviewer that some of the gains in physician time saved would be reduced by the increase in nurses/pharmacist needs. We have added this to the discussion (page 11, paragraph 3) as follows:

“Lower cadres to whom tasks are shifted must be trained to replace physicians; our estimates of physician savings from task-shifting would need a commensurate increase in the supply of nurses and PWs.”
"We recognize that task shifting is not without it's problems" I suggest changing 'problem' to 'challenge' as doing training and supervision is not a problem. I would also alter the sentence on overlooking serious conditions; algorithms have been validated that allow nurses to detect even complex forms of TB (see eg Saranchuk et al, S Afr Med J. 2007 Jul;97(7):517-23). So the issue is not that nurses make mistakes, but that they need appropriate training, tools, and supervision.

We have embraced the reviewer’s suggestion and changed “problems” to “challenges” (page 11, 3rd paragraph).

We have also altered the sentence on overlooking serious conditions (page 11, 3rd paragraph) from:

“And even after receiving training for HIV/AIDS management, they may overlook other potentially serious conditions such as tuberculosis which physicians may have been able to recognize”

to the following (page 11, 3rd paragraph):

“And without appropriate training on HIV management, tools and supervision, they may overlook other potentially serious conditions such as tuberculosis which physicians may have been able to recognize.”