Reviewer's report

Title: Estimating the Feasibility and Costs of Doubling Health Training Institution Graduate Output in Zambia: Planning through Individual School Assessments

Version: 1 Date: 16 April 2010

Reviewer: Till Barnighausen

Reviewer's report:

This is a well-written, extremely interesting study assessing the feasibility and estimating the costs of doubling the annual number of health training institution graduates in Zambia. The topic is highly relevant because Zambia belongs to one of the countries with the worldwide lowest population density of health workers. I have no major comments, but a number of minor ones, which the authors should address in a revision of the article.

MINOR ESSENTIAL REVISIONS

1. In some countries in sub-Saharan Africa, one of the obstacles to increasing health worker education rates is the lack of sufficiently large numbers of qualified (and interested) secondary school graduates. The authors address this points (page 7, para 2):

"Training schools reported having a large enough pool of applicants to meet scale-up intake levels. Each school noted accepting only a fraction of the qualified applicants that applied to their training programs, and they expressed confidence in being able to accept qualified candidates up to target intake levels given a greater number of funded training slots."

The assertion that sufficiently large numbers of qualified secondary school graduates apply each year to health worker education in Zambia to allow a doubling of the health worker education rate could be strengthened if the authors provided a more detailed explanation of how the schools identified "qualified candidates". What were the quality criteria? Secondary education performance? Additional formal tests? Motivational statements?

2. We would assume that even if schools reject sufficiently qualified secondary school graduates, they accept the most qualified graduates into health worker training. Such a selection would imply that the additional applicants who would be accepted to training under the plan to double the health worker education output are, on average, less qualified, which is likely to imply either higher training needs or higher education failure rates. It would be useful if the authors discussed this point.

3. In general, it would be useful if the authors explored the robustness of their cost estimates to variation in each of their key assumptions in sensitivity analysis, e.g. the assumptions discussed in 2. above and 4. below.
4. Funding may not be the binding constraint in Zambia’s effort to increase health worker education rates. The authors estimate that "for expansion to succeed, the number of tutors and clinical teachers must increase by 363 (111%), assuming they will work only the recommended maximum number of lecture hours per week. Broken down by teacher type, the aggregate number of tutors must increase from the current level of 260 to 431 (66% increase) in 2012 post scale-up. The need for clinical skills teachers was neither fully considered nor funded in the past, and to reach quality standards during scale-up, the aggregate number of clinical teachers must increase remarkably from 66 to 258 (291% increase)."

The authors discuss options to increase health care education faculty. However, even if the large estimated number of new teachers can be hired, the quality of the newly hired teachers may be lower than the quality of the current teachers, e.g. because the new teachers will on average be less experienced in teaching than the existing ones (or less physically able to teach, such are rehired retired teachers). The lower teacher quality is likely to imply higher "training of trainer" needs or lower productivity (e.g., lower proportions of enrolled students graduating from health worker education). It would be useful if the authors discussed this point and investigated the impact of relaxing the current assumption of unchanging average performance of teachers during the expansion in sensitivity analysis.

5. One of the fascinating results of the analysis is that it seems to have directly influenced policy (see, e.g. page 15, para 1). Can the authors provide more detail on the background of this study? Was it conducted by consultants hired by the Zambian government?

In addition, it would be very interesting if the authors could add a section to the discussion section describing in detail the policy processes, in which the study results were used, and any evidence that the results influenced policy decisions.

6. While the article is well-written, there are a few typos that need to be corrected before publication, e.g. page 7, para 2, line 3.

Please correct the spelling of "Barnighausen" (reference 6) to read "Bärenghausen" (i.e. spelled with an a-umlaut, an a with two dots on top of it).

Level of interest: An article of outstanding merit and interest 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.