Reviewer's report

Title: Retention in care, resource utilization, and costs for adults receiving antiretroviral therapy in Zambia: A retrospective cohort study

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Reviewer: John Bratt

Reviewer's report:

Overview
This paper is a well-organized and clearly-written analysis of costs of anti-retroviral treatment delivered through six different Zambian health facilities under routine clinical conditions. Research questions and methods are well-defined, and the data appear to be sound. The authors report average annual per-patient costs that are similar to other published studies, and find that unit ART costs vary widely across facilities. They conclude that knowing what is actually happening (current clinical practice and client adherence) is a valuable addition to information on the costs of guideline-concordant ART. The discussion and conclusion are well-supported by the results, and the authors clearly state limitations of the analysis.

Major Compulsory Revisions:
1. This is more of “compulsory methodological clarification” rather than a compulsory revision. The facilities included in the sample are primary health clinics and hospitals that presumably provide many other services than just ART. In Table 2, it was not clear whether it was necessary first to disentangle costs of ART provision from other primary health care services before calculating average per-patient costs of the various ART-related cost elements. Or were ART services delivered by dedicated staff in dedicated sub-facilities?

Minor Essential Revisions: none

Discretionary Revisions:
1. The authors state in the Introduction and Discussion that their findings on costs of actual care delivered under previous clinical guidelines may be useful to guide current decision making. One issue with this paper is that the data and findings correspond to an earlier set of service delivery guidelines, and their relevance to current service provision could be questioned. It would be helpful to outline a couple of specific research utilization scenarios to help the reader see the application of the analysis to contemporary health policy in Zambia.

2. Related to the first point, would it be possible to use your data to estimate costs of guideline-concurrent ART delivered in the study facilities, to show how much greater the resource need would be if patients adhered to clinical guidelines? Even though perfect adherence is highly unlikely, it would be interesting to know the cost of ART if clients demanded care according to clinical guidelines.
3. Also related to the first point, the authors state in the Conclusions that variability across sites in average cost of care suggest potential for efficiency gains. Would it be possible to make some estimates of the magnitude of potential gains and their possible impact on serving more patients at these sites? Such information would likely be of interest to policymakers and program managers.

4. Picky point – in the Conclusion, the authors state that “a large proportion drop out of care within one year”. It bears mentioning that nearly half of the observed discontinuation is due to “involuntary drop-outs” (i.e., deaths), likely related to the problem of patients initiating ART late in disease progression. Only 15% voluntarily dropped out in the first year, which is in line with retention estimates in the wider literature.

5. I would consider dropping Table 8. It only seems to merit one sentence of description at the end of the Results section, and does not materially add to the analysis or the conclusions.

**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.