Reviewer’s report

Title: Retention in care and virological failure among adult HIV+ patients on second-line ART in Rwanda: A national representative study

Version: 2 Date: 17 Jan 2019

Reviewer: George Rutherford

Reviewer's report:

Thank you for the edits that you have made; they are totally consistent with the original reviewer's suggestions. On my review of the edited manuscript, however, I have noted several issues -- largely arithmetic errors, -- that need to be corrected. See below.

Page Line Comment

1 29 "... in the off chance of treatment failure..." seems unnecessary at best. Treatment failure is all too common. I'd suggest removing this phrase.

2 19 The paragraph below in the Methods (line 36) says that 7,390 patients were on second-line ART in Rwanda. The authors should use the same number (presumably 7,390 instead of 7.200 on line 19).

3 33-39 No need for quotation marks. Same thing for lines 50-56.

4 32 "reverse" should probably be "converse", since 1 - retention = loss to care

4 44 I would suggest adding a sentence that says that patients who had changed to third-line therapy were excluded.

5 4 Is "loss to follow up" the same as "loss to care"? I assume it is, but I suggest avoiding changing the wording of variables.

6 7 To what does the 82.7% refer?

6 7-9 174,252 + 7,625 = 181,877. Who are the other 44 patients (to get to 181,921)? Are they on third-line therapy or are data just missing?

6 38-41 1562 + 126 + 37 = 1725, so there's something wrong with the numbers. This, and the percentages, which by the way add to 102.2%, all need to be recalculated.

7 4 Why has the denominator now changed to 1,689? It's been 1,688 up until now.
7 31 Re: >500 cells/mm³ and <500 cells/mm³, one of these needs to include 500. There's the same issue with viral load of <1000 or >1000 on line 36-38.

Table 1 The total for several variables in the viral suppression column is 1,689 (age category, sex, marital status, TB screening, BMI, median CD4, WHO stage, second-line therapy). These should be totaling to 1,688.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
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Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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I am able to assess the statistics

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