Reviewer's report

Title: Social and Clinical Attributes of Patients who restart Antiretroviral Therapy in Central and Copperbelt Provinces of Zambia

Version: 3 Date: 21 January 2015

Reviewer: Nathaniel Chishinga

Reviewer's report:

Chama Mulubwa and colleagues have submitted a manuscript on an important topic about HIV-infected patients that default and then restart antiretroviral therapy (ART). The aim of their study was to describe the characteristics of HIV-infected patients that restart ART and determine factors associated with CD4 count response among these patients over a period of 24 months in 5 health facilities in Zambia. The following are my comments:

Major Compulsory Revisions

1. Show the CD4 count for the participants at the time of restarting ART. This should be included in Table 1 of the results. If other clinical characteristics of the participants at the time of restarting ART are available, e.g., WHO clinical staging, these should also be included in Table 1.

2. The authors should also show a figure in the results section that has boxplots of the median, minimum and maximum, and interquartile range of CD4 counts at restarting ART, 6, 12, 18 and 24 after restarting ART. Outliers if any, should also be shown in the boxplots.

3. A regression analysis that determines factors associated with CD4 change from the CD4 value at time of restarting ART to 6, 12, 18 and 24 months will be more informative, unlike the analyses the authors have performed that determine factors associated association with the median CD4 count at 6, 12, 18 and 24 months. To measure CD4 change, the authors should determine the difference in CD4 counts between the values at 6, 12, 18 and 24 months and the CD4 count values at time of restarting ART. This difference in CD4 counts should then be used as the outcome for the models at 6, 12, 18 and 24 months. Since this outcome is numerical and the study was conducted in 5 health facilities, the authors should consider using appropriate regression analyses that take into account within health facility clustering.

4. The results and conclusion in the Abstract may have to be changed based on the above analysis.

5. Provide a reference for the definition of restarting ART in paragraph 2, line 77 in the Introduction section.

6. Provide a reference for the sentence “Defaulting treatment has been associated with age, gender, residency and self-health” in paragraph 3, line 88 in
the introduction section.

7. Start with ‘Study design and sampling’ followed by ‘Study population’ in the Method section. This way the reader will follow the flow of the sentence starting with “All the 5 ART centres …” in line 105 of paragraph 1 in the study population section.

8. Explain what SmartCare is in the Data collection section of Methods so that the reader can understand.

9. The sentence under Ethical issues should read: ‘The ERES Converge ethics committee approved this study. Permission to conduct the study was granted by FHI 360, Zambian Ministry of Health (MOH) and district health authorities in charge of the ART centres.’

10. Note the Family Health International is an old name and is no longer used. Check the whole manuscript that FHI 360 is used instead and appropriately, including the Acknowledgement section.

11. The Statistical analysis section and the Bivariate and multivariate section should be combined into one section – ‘Statistical analyses. Provide more detail on the descriptive analyses, including CD4 change (described in 3 above), before describing the appropriate regression analyses that take into account comments in 3 above.

12. Reference number 23 in line 154 by Tien PC and colleagues does not seem to address the analysis used under the Bivariate and multivariate section. The primary source for Tien and colleagues is Koenker R. Quantile regression. J Econ Perspect. 2001;51:143-56.

Minor Essential Revisions
The authors should consider reading through the manuscript carefully and check for spelling mistakes, repetitions of words in the same sentences and complete abbreviations the first time they are used. Here are some errors observed:

1. Confidence interval should be placed in line 38 before “CI” in the Results section of the Abstract and delete “Confidence Interval” in line 39 of the Abstract.

2. Delete “LTFU” in line 44 in the Results section of the Abstract because it is used only once.

3. Delete “the all’ of the sentence in line 50 in the Conclusion section of the Abstract. Also remove one of the full stops at the end of this sentence.

4. Make a space between “mortality” and reference “[1]” in line 70 of parapha1 in the Introduction section.

5. Delete “antiretroviral therapy” in line 70 of parapha1 in the Introduction section; because the first word in this paragraph completes the abbreviation ART.

6. Replace “of” with “in” between “programmes” and “most” in line 73 of parapha1 in the Introduction section.
7. The sentence starting with “Restarting ART on the other …” in line 91 of paragraph 3 in the Introduction section is not clear. What does “other’” mean? This should be clear in the text of the manuscript.

8. Make a space between references “[17, 20-22],” and “Despite” in line 94 and between “high” and “[8]” in 97 of paragraph 3 in the Introduction section. Also remove the full stop between “years” and references “[17, 20-22]” in line 93 and 94 of the same paragraph.

9. The last part of the last sentence in paragraph 3 in the Introduction section (before the Methods section) should be in past tense and should include: ‘and clinical characteristics …’

10. The last sentence in Study population in the Methods section should be in past tense and should read as: ‘The population was selected because they had access to a comprehensive package of ART care which included HIV counselling and testing, and provision of ART.’

11. The age distribution of the study participants is skewed to the left. It would better to present the median age and interquartile range instead of the range as shown in line 158 of paragraph 1 in the Results section.

12. Use (Table 2) with a capital “T” instead of (table 2) in line 169 of paragraph 2 in the Quantile regression at 6 months section. Also check that the punctuation between “if” and “the” in line 170 of the same paragraph is correct.

13. Include ‘of’ between “duration” and “LTFU” in line 182 of paragraph 3 in the Quantile regression at 6 months section.

14. Include 'at' between “regression” and “12” in line 196 of paragraph 1 in the Quantile regression at 12 months section.

15. Include 'at 6 months' between “count” and “and” in line 196 of paragraph 1 in the Quantile regression at 12 months section. However this may change after taking into account of comments in 3 above under the Major Compulsory Revisions.

16. Remove the punctuation “:” between “had” and “a” in line 200 in the Quantile regression at 12 months section.

17. The last sentence in the Quantile regression at 12 months section that starts with “However, patients who had …” is not complete.

18. Check the punctuations and spaces at the beginning and end of sentences in the Quantile regression at 18 months section. Also in the Quantile regression at 24 months section.

19. Revise the beginning of the first sentence in the discussion section. The author may consider starting this sentences with: ‘This study demonstrates …‘.
20. Consider revising the last sentence in paragraph 1 of the discussion section so that it is in line with findings of the study.

21. Remove the punctuation “” at the end of the sentence in line 371 under Competing interests.

22. Label “Table 5.1” as ‘Table 1’.

23. Label “table 5.4”as Table 2’. Also consider including p-values in Table 2. Further, if regression analyses hat take clustering in to account are used (see comment 3 above under Major Compulsory Revisions), then the authors have to consider just reporting on adjusted coefficients (AC) with 95% Confidence intervals (CI) and P values.

Discretionary Revisions

None

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests