Reviewer's report

Title: Healthcare provision for HIV co-infected tuberculosis patients in rural Zambia: an observational cohort study at primary care centers

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Reviewer: Jennifer Harris

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Healthcare provision for HIV co-infected tuberculosis patients in rural Zambia: an observational cohort study at primary care centers

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In this study, the authors thoroughly tracked TB/HIV co-infected patients in Chongwe district in Zambia to evaluate the linkages between TB and HIV care programs. After identification of the gaps in linkages and factors associated with enrollment into HIV care, they discuss possible explanations for these gaps. This is an interesting study for persons working in this field and their methods are good. They adequately describe the limitations of the available data for this study. Please find my comments below.

Major Comments:
1. I believe that some of your situational assessment of Zambia may be inaccurate and request that you check the following details:
   a. My understanding is that provider-initiated counseling and testing for TB patients has been recommended in Zambia since 2006, but many RHCs were not offering it routinely to all TB patients until 2008 or 2009 (as opposed to 2007 as stated in the article)
   b. Your current description of the mobile ART program suggests that ART services are offered only at hospitals and through the mobile program. This under-represents the availability of ART services in Zambia; there are many urban health centers, district health centers/hospitals that service rural populations, and even some rural health centers that have permanent HIV clinics. If the situation you describe was accurate for Chongwe in 2009-10, then you should specify that you are referring specifically to Chongwe during that time period. However, I believe that there were at least 2 permanent ART sites in
Chongwe at that time (the district hospital and a mission hospital); did any of the TB patients receive ART services from these hospitals? Your program description suggests that you followed all of Chongwe district’s co-infected patients- so some of them must have received care at the hospitals rather than the mobile clinics.

c. You refer to guidelines stating that all TB/HIV co-infected patients should initiate ART as quickly as possible. My understanding is that these guidelines were not adopted in Zambia until the middle of 2010; thus the majority of your study period was under the older guidelines which recommended delaying ART until after ATT completion for patients with higher CD4s. (Discussion, paragraph 2)

2. Your last paragraph of methods (statistical section) is a bit confusing. The first sentence suggests that you compared medians with the chi-square tests, but chi-squared tests are for proportions. The second sentence is also confusing; I understand what you did, but it could be described more clearly. Overall I believe your statistical methods are fine; I just think the description needs a little work.

3. For your adjusted OR’s, please state what variables they are adjusted for.

Minor Comments:

Discretionary Comments:

1. Table 1: I would consider listing EPTB in addition to PTB under ‘Site of Disease’

2. Table 2:
   a. I would consider replacing your OR’s of “1” with “Ref” for referent group
   b. I would change “30 #” to “# 30”

3. The heading “Factors affecting the enrolment...”: use of the word “affecting” implies causation. I’d consider changing “affecting” to “associated with”.

4. Comment on men in the discussion (first paragraph under patients): do you think that men’s work schedule may have influenced their lower HIV care enrollment? It may be more difficult for them to miss work to go to the clinic.

5. Your discussion talks a lot about referral, but you never state in the methods how ‘referral’ is defined? Is a referral form completed? Is something documented in a register? In other words, how do you know that a patient was referred to HIV care?

6. Conclusions: I would re-consider your first sentence about the 12% of patients who did not test for HIV; this point is mentioned but not discussed in the paper prior to this point.

7. In general, several observations in the introduction and discussion as presented without a lot of justification to support them and/or other potential reasons were not considered. For example:
a. References to poor linkages- why are they poor? What type of referral systems/forms/communication are used?

b. Health care workers- you state that healthcare workers may be (a) neglecting referrals; (b) unaware of options available. Do you know if the health workers had received training to make them aware of ART services and recommendations for co-infected patients? It’s hard to believe that health care workers were completely unaware of the availability of ART services.

c. Men not accessing care due to apathy…could it also be due to work schedules and difficulty missing work to go to the clinic?

d. Lower HIV enrollment from re-treatment cases…your explanation of these patients focuses on reasons they should have higher enrollment (mainly better-monitored TB treatment) as opposed to why you think they have lower enrollment.

8. Your conclusion states “Greater commitment of healthcare workers to provide patient-centered services, and appropriate interventions for patients are urgently required.” Do you have any specific recommendations? How do you suggest making services more patient-centered? What type of interventions for patients are needed?

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

**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