Reviewer's report

Title: Integrating intensified case finding of tuberculosis into HIV care: an evaluation from rural Swaziland.

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Reviewer: Katharina Kranzer

Reviewer's report:

This is a very well written article addressing an important and timely issue. The authors should be congratulated on a very thorough work and an altogether very solid write up. All my comments are minor, and listed below according page number.

Methods, page 5: “The ICF programme was implemented at the one district hospital which serves the region and the 16 community clinics which provided HIV services.”

Could you please describe the services available at the hospital and clinics a bit more in detail? Do the clinics provide ART – if yes on the bases of clinical staging or on the bases of CD4 counts? If the clinics provide ART on the bases of CD4 counts – where are the CD4 counts analyzed? It seems that TB diagnosis (even in HIV-infected individuals) at clinic level was only implemented at the time of the study. Did the clinics refer patients for TB investigations to the hospital prior to the study? Is there a X-ray machine available at the hospital?

Please describe the differences between the hospital and the clinics – are both settings operating a provider-initiated HIV testing service? Did you include all patients (inpatients and outpatients) diagnosed with HIV in the hospital – one would expect patients accessing the hospital to be sicker than patients accessing the clinics.

Methods, page 8: “We analysed the probability of initiating TB treatment within one month of diagnosis using logistic regression. Predictors of time to diagnosis and treatment were analysed using Kaplan-Meier survival curves, log-rank tests and proportional hazards models.”

In the result section the author state that the proportion of starting treatment within one month of a smear positive diagnosis was not significantly different between the hospital and clinic groups. They also speak about the median time from diagnosis to treatment. Thus it sounds like a simple #2 test or ttest for difference in proportions and maybe a Wilcoxon test for difference in medians was used to do the analysis.

In addition in the title of table 1 the authors state that the comparison was performed by “univariate logistic regression”. Again I think a #2 test for differences in proportions and a Wilcoxon test for differences in medians (e.g. for age and distance from the hospital) would be more appropriate.
Results, page 9: “Sputum-smear positive case detection rate was 2% overall giving a number needed to screen (NNS) of 52.”

The authors used the total number eligible for screening as the denominator to calculate the case detection rate. I completely agree with this approach, please state your denominator clearly in the results. However a lot of studies use the number participating (or submitting sputum) as their denominator. Thus when comparing the yield of TB found in this study with other ICF studies in ART or VCT sites the difference in denominator should be part of the discussion. In addition most of the ICF studies in ART or VCT clients were performed as part of a research project and therefore had more resources and a lower attrition rate. This study shows that motivating individuals to submit sputum samples is difficult. I think this should be stressed in the discussion. However despite this difficulty the authors were able to diagnosed 28 cases among individuals who submitted sputum samples. Thus the yield among individual submitting sputum samples was 28/172 (16.3%). Please comment on that very high yield in TB suspects. The expected yield in TB suspects is around 10% (resources are allocated on the bases that 10% of TB suspects are expected to be smear positive).

Results, page 9: “There was no significant difference between the hospital and clinics sites in smear positive case detection rates (OR = 0.48 (0.21-1.15); p=0.10)). The number needed to screen (NNS) in order to detect one new case of AFB smear positive TB was 34 cases in clinics as compared with 64 cases in the hospital. The NNS for one treatment initiation was 38 in clinics and 75 in hospital.”

This paragraph is a bit difficult to understand. It would be easier to first state that the proportion of individuals identified as TB suspects in the hospital (18%) was significantly different to the clinics (49%) (I would use a #2 to compare those two proportions) – Why? This should be part of the discussion.

The proportion lost to follow-up between identifying them as TB suspects and submitting the sputum was similar in the hospital (45%) and clinics (50%).

However the yield of TB in patients submitting sputum samples was 20% in hospital TB suspects and 12% in clinic TB suspects. – Why? – This should be part of the discussion.

Results, page 10: “Demographics and characteristics”

Please consider calling it “demographics and characteristics of individuals diagnosed with TB”

Results overall:

One of the main findings is that there is a considerable drop out between being identified as a TB suspect and sputum samples submission. I think it would be really interesting if the authors investigate risk factor of not submitting sputum samples (e.g. age, sex, immunestatus). The knowledge of potential risk factors could inform the program to pay special attention to certain patients groups.

If the data is available it would be interesting to know how many of the eligible
individuals were newly diagnosed with HIV and how many were in routine pre-ART care. Was being newly diagnosed with HIV a risk factor for not submitting sputum samples?

Discussion, page 11: “One potential solution would be increased use of spot sputums and at the hospital, real time microscopy”. Please consider sputum induction as a possible mean to get sputum from individuals otherwise unable to produce a sputum. Real time microscopy would not reduce the loss between identifying individuals as TB suspects and sputum submission it would just decrease the time between submission and diagnosis (and possibly treatment initiation).

Discussion, page 11: “In this ICF programme, TB treatment was available only at major centres including the district hospital”. Please remove the “g”.

Figure1: “Patients is given result on the day they return and advised to see a physician for review and consideration of possible smear negative or extrapulmonary TB”. Please clarify what that means. I am not sure how many physicians are available in rural Swaziland. Would the patient not be sent to the hospital to rule out TB with e.g. CXR?

**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.