Reviewer’s report

Title: Factors associated with DELAY in diagnosis among Tuberculosis patients in Hohoe Municipality, Ghana

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Reviewer: Maria de Fatima P. M. Albuquerque

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Maria de Fatima Pessoa Militão de Albuquerque

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This is a cross-sectional study developed to assess delays in diagnosing new TB patients and factors associated with those delays in the municipality of Hohoe, Ghana, in Sub-Saharan Africa. During the last decade, many studies have addressed this issue in other countries, including Sub-Saharan African countries. As per previous studies published on this topic, the authors employed the following categorizations: patient delay, healthcare services delay and total delay. Although the study does not bring any new scientific knowledge to this field, it has a local interest and its findings may be compared to the results of a study previously developed in Ghana, in 1995 in the municipality of Kumasi, after the Ministry of Health National Tuberculosis Programme was implemented, as reported by the authors.

- Major Compulsory Revisions

The study presents a clear research question and the methodological steps are well explained. However, the sample size – 73 new TB patients - is very small and could have jeopardized the internal validity of the study. The sample size of the study may not have reached the power to detect significant differences in risk for delay according to the variables studied, as in the case of no association between the negative smear TB patients with healthcare services delay. This may also have led to distortions in the association estimates between delay and other variables. The imprecision of the estimates is evident through the wide confidence intervals (CI), wide for both situations: associations which did not reach statistical significance, as was the case of the variable "smear sputum" (OR = 1.58; CI: 0.57-4.40; p = 0.383), and for those who achieved statistical significance, as "knowledge" (OR=5.6; CI: 1.04-24.63). The association of “2 or more” healthcare encounters may be due to the difficulty in diagnosing smear negative TB, as were the cases of two thirds of the study population (71.2%). The authors should discuss this study limitation and its consequences on the findings presented.

- Minor Essential Revisions

1- As stigma was one of the variables strongly associated with prolonged patient
delay, and in addition the social stigma is associated with TB in Ghana (Lawn, 2000) it would be of interest to indicate details of how the variable “stigmatization” was constructed in the “operation definitions” section.

2- The time delays among the smear positive and smear negative pulmonary TB individuals need to be reported to achieve a better understanding of the study.

3- The authors enrolled “all categories of TB patients” contrary to the study by Lawn et al., performed in Kumasi, Ghana, which included only the newly diagnosed smear-positive pulmonary TB cases. It would therefore be of interest if the delay pattern of 21 (28.8%) cases of TB microbiologically confirmed in this study were compared with the delay pattern reported in the population studied by Lawn et al (1998).

4- One interesting finding was that the median healthcare services delay verified (45 days) is shorter than that reported by Lawn (1998) for healthcare services delay (60 days). What is the author’s interpretation of that? It would be expected that a population study including 2/3 of smear negative pulmonary TB, as reported in the present study, would present a longer healthcare service delay than a study population of only smear-positive pulmonary TB cases.

5- Did the HIV positive patients present longer patient delays, perhaps as a result of atypical TB clinical presentation?

**Level of interest:** An article of limited interest

**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.