Reviewer's report

Title: Epidemiology of Human Immunodeficiency Virus-1 and Hepatitis B co-infections and risk factors for acquiring these infections in the Fako Health District

Version: 4 Date: 28 July 2015

Reviewer: Trevor Crowell

Reviewer's report:

The revised manuscript addresses several points raised in the initial review. This research provides prevalence estimates of HBV and HIV among individuals presenting for voluntary counseling and testing in Southwest Cameroon. The authors also investigate associations between various risk factors and each of these diseases. The statistical methods used for this analysis could be improved. The discussion section of this manuscript could be substantially expanded.

Major Compulsory Revisions:

1. Line 171. The authors state that injection drug use and blood transfusions are known risk factors for both HIV and HBV. Although these data were collected, they do not report rates of injection drug use in Table 1 nor was this included in any reported statistical model. This information should be reported and explored in statistical models. Even if not associated in the authors’ univariable analysis, the authors should consider including injection drug use and blood transfusions in multivariable models based on prior knowledge of their relevance.

2. Methods. The authors divide all population characteristics into binary variables in order to perform logistic regression. This is unlikely to be the most robust model. Continuous data like age and lifetime sexual partners might be better explored using more granular categories. Religion should be explored using a single model, rather than separate models for each individual religion. If income was recorded as one of four categories in the questionnaire, why not use these same categories to model that variable?

3. Tables 2 and 3. The reference category for each variable is unclear and ordering of the categories is inconsistent. Reordering the categories so that the reference category is always first would be helpful, as would be some explanation of the reference category within the table or a footnote.

4. Tables 2 & 3. The numbers do not add up consistently throughout the tables. In Table 2, there are 81 HIV-positive individuals, but only 26 males and 54 females (80 total) are reported and 59 low income and 17 high income individuals (76 total) were reported. Other categories do not add up to 81 as well. If this is due to missing data, wholly or in part, that should be explained.

5. Tables 2 & 3. It is not clear what is represented by the numbers in parentheses in the “HIV positive” and “HBV positive” columns. Please clarify.
Minor Essential Revisions:
1. Line 119. Change “based of past studies” to “based on past studies.”
2. Lines 119-121. The tense here moves from past to present. A consistent tense should be used throughout the manuscript.
3. Line 130. The sentence should begin “The study was conducted…”
4. Line 141. Change “designed” to “designated”.
5. Line 171. Change “tests kits” to either “tests” or “test kits”.
6. Line 234. “The line should read “low condom use was associated with increased risk…”
7. Line 271. Change “we have little information” to “we have no information”.
8. Line 282. Change “…rate on homosexuals…” to “…prevalence of homosexuality…”

Discretionary Revisions:
1. Throughout the manuscript, percentages are reported to two decimal places. This suggests a level of precision that does not really exist with this sample size. The authors should consider reporting to a single decimal.

Level of interest: An article of limited interest

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