Author’s response to reviews

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

Authors:

Lauren Shevell (lauren.shevell@gmail.com)
Henry D Meriki (merilonga@yahoo.com)
Fidelis Cho-Ngwa (chongwa_ub@yahoo.co.uk)
Crystal Fuller (cf317@columbia.edu)

Version: 4 Date: 19 July 2015

Author’s response to reviews: see over
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: 2
Date: 22 May 2015
Reviewer: Trevor Crowell

Reviewer's report:
This article presents a cross-sectional survey of HIV and hepatitis B prevalence among a convenience sample of volunteers presenting for voluntary screening at five hospitals in Southwest Cameroon. The prevalence data are of interest to regional caregivers and researchers. The authors also use logistic regression to investigate factors associated with HIV infection and HBV infection, with a focus on whether each individual infection was a risk factor for the other. Their conclusion is that HIV is not a risk factor for HBV and they interpret this as evidence, along with other aspects of their analysis, that sexual transmission of HBV is not a driving force in Southwest Cameroon. This is not a surprising conclusion. The statistical methods used for this analysis are acceptable, but could be bolstered with the inclusion of sensitivity analyses since the authors use a number of relatively arbitrary cutoff points for categorical variables and do not include all collected variables in multivariable regressions. The discussion section of this manuscript could be substantially expanded.

Major Compulsory Revisions:
1. Lines 61-63. The authors state that the prevalence of HIV in Cameroon is 4.3% and the prevalence of HBV is 9%. This contradicts the leading statement in the abstract background that 20% of the population in Southwest Cameroon has one or both infections. If the statement in the abstract refers to data specifically from Southwest Cameroon, rather than country-wide, these data should be highlighted in the manuscript introduction. If the statement in the abstract refers to the present study, it should not be included as background.
   The prevalence percentages for HIV and HBV in the abstract and introduction have been clarified to be accurate and consistent.

2. The authors construct their multivariable models by including only variables that were significantly associated in univariable analysis. Constructing a multivariable model in this method may exclude important variables. Are there any variables the authors would consider including a priori, based on prior knowledge? The authors should perform sensitivity analyses to test the effects of their statistical methods on the interpretation of their data. For example, they could consider performing a sensitivity analysis in which a higher threshold p-value is used to select variables for inclusion in the multivariable model.
   A sensitivity analysis was not considered appropriate in this case because the p-value used is based on standard practice. A higher p-value would increase the likelihood of spurious results while a lower p-value would reduce the power of the test.
3. The authors decided to code age as a binary variable with a cutoff of 32 years. The study population includes volunteers as old as 94. More granular age categories should be explored, at the very least in sensitivity analyses. 

We believe using a binary split and having a larger sample size in each group is the best approach to our research question.

4. Lines 243-248. In the discussion, the authors state that the results of this analysis support their initial hypothesis, which had never before been stated. This hypothesis needs to be stated in the introduction. The authors already present information in the introduction supporting this hypothesis. A case needs to be made for why this requires the further investigation described in this manuscript.

Discussion of hypotheses mentioned in lines 243-248 has been revised to be consistent and are now stated in the introduction.

5. The researchers administered a 30-question questionnaire, but far fewer variables are modeled. The authors should explain how these variables were selected and others were excluded from the analysis.

Variables considered for inclusion in the model included both (1) variables significantly associated in the univariate analysis as well as (2) additional variables apparent from the literature or prior knowledge. Since the literature or prior knowledge failed to indicate the importance of any variable in addition to those associated in the univariate analysis, these were the variables included.

Minor Essential Revisions:
1. Line 25. The abbreviation HBV should be defined at first use in the abstract. Done

2. Line 33. Some words are missing here. Perhaps “...to conduct final model building”? This reviewer recommends dropping the phrase “...and final model building.” This sentence has been rephrased

3. Line 33 and throughout. The authors should be careful not to confuse “correlation” and “association”. Correlation describes the strength of a linear relationship between two variables. The authors of this manuscript are generally investigating associations, not correlations.

All use of correlation has been changed to association

4. Line 37. The phrase “significantly crude associated” should be changed to “significant crude association”.

Done

5. Line 40. The abbreviations AOR and CI should be defined at first use in the abstract. Done

6. Line 42. The word “association” should be changed to “associated”. 7. Line 52. The
word “cause” should be changed to “causes”. 8. Line 60. “The phrase “is sparse” should be changed to “are sparse”. 9. Line 64. The word “kin” should be changed to “in”.

Done

10. Line 65. The word “rates” should be changed to “rate”. 11. Line 115. The word “or” should be changed to “of”.

Done

12. Line 183. It is not clear why median income is provided as a range of 10,000-50,000 CFA. Median should be one number and, according to the authors’ methods, that one number should define the cutoff for their income categories (currently 50,000 CFA). Income was collected on a four-tiered basis: <10,000 CFA, 10-50,000 CFA, 51-100,000 CFA, and >100,000 CFA. The median income level was 10-50,000 CFA. This is now stated in the manuscript.

13. Lines 185-186. This sentence needs to be reworked. As written, it states that the “no” category indicates a volunteer responded “no to never having a transfusion.” This double-negative suggests that volunteers in the “no” category have indeed received a transfusion.

This has been reworded to be more clear.

14. Lines 197-198. As in the abstract, some words are missing from this sentence. This reviewer recommends dropping the phrase “...and final model building.”

Done

15. Lines 201-202. Please define the criteria for determining statistical significance.

Done

16. Line 219. The phrase “a univariate analysis” should be changed to “univariate analyses”.

Done

17. Line 240. The phrase “likely to infected” should be changed to “likely to be infected”.

Done


XAF is the conventional short code for Central African Francs; reference updated

20. Tables 2 and 3. It is not clear why some results are bolded. For example, statistically significant results in the crude column are not always bolded. Please explain in a footnote.

Bolding has been removed; statistical significance is indicated by stars.

Discretionary Revisions:
1. Throughout the manuscript, there are instances where it can be confusing to the
reader whether the authors are discussing HIV/AIDS and HBV separately or referring to “HIV/AIDS and HBV co-infection,” which is a cumbersome phrase. The authors could consider referring to HIV/AIDS simply as “HIV” throughout the manuscript and referring to co-infection as “HIV/HBV co-infection” (as was done on lines 107-108).

Done

2. The methods section could be shortened substantially.

3. Lines 83-86. These lines restate points in the preceding paragraph. Consider removing or integrating into the preceding paragraph.
   These lines have been combined with the preceding paragraph to make one main point.

4. Lines 86-88. Consider incorporating these lines into the subsequent paragraph.
   These lines are now part of the preceding paragraph.

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.

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: 2
Date: 28 May 2015
Reviewer: george nyandoro
Reviewer's report:

Major Compulsory Revisions Methods - Sampling
Comment 1: Rewrite the sampling methods to describe the sampling criteria used to choose or select the study participants or blood samples used. Note that sampling can either be broadly classified as probability (e.g, multistage, stratified, cluster, simple random, and systematic) or non-probability sampling (e.g, purposive or convenience sampling). Do this even in the main text. Show how you prevented or reduce bias in selecting 761 participants to represent from district level, hospital level, up to individual level depending on who (group) the results is generalized to.

The sampling method used to describe the selection of participants has been changed to reflect that this was a convenience sample, stated in the Methods section of the manuscript. The Methods section also describes exclusion criteria and how we promoted awareness of our study to encourage participation by members of the towns.

The Discussion section states populations to which this study may be generalized.

Abstract - Results section
Comment 1: Am referring to Line 34 and line 206. Report the mean age with standard
deviation (x) i.e. mean 34 age was 35.2± x years
Done

Comment 2: See line 37. “there was a statistically significantly crude” please state the p-value to complement the statement.
Done

Minor Essential Revisions Methods - Selection section
Comment 1: See line 115 “The study sample was made up or 761 participants” replace the word “or” with “off”.
Done

Discretionary Revisions Comment 1: 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 have no competing interests

---

**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:** 2

**Date:** 14 June 2015

**Reviewer:** Henry Bautista-Amorocho

**Reviewer’s report:** Major compulsory revision:
1. The discussion should be treated deeper. Several results such as a lower OR among "never married" in HIV, compared to a higher OR among the same group (never married) for HBV is not explained in the discussion. I advised to include previous studies where several risk factors have been addressed in Africa or countries with similar epidemiological pattern, discussing authors' findings.

   The discussion section has been deepened. The lower OR among “never married” in HIV compared to the higher OR among never married for HBV is referenced in the Introduction section which now describes past studies on high-risk sexual variables associated with HIV but not HBV.

2. Study limitations are not informed in the manuscript.

   The limitation section has been added and addresses issues of generalization.

Minor revision:
Methodology: Please explain why you used 2 rapid test for HIV infection.
An explanation for the 2 rapid test for HIV infection is not included, as a verification test on samples testing positive is standard practice.

Also, it would be important to mention exclusion criteria from the study. Exclusion criteria now mentioned in the Methods section.

Results: Percentages described in paragraphs are not accurate when sum up. Some total is 99.9% and other is 100.01%. Percentages consistently add up to 100% in the Results section.

Discussion: Line 244 add "Cameroon" before the period.
Done

**Level of interest:** An article of importance in its field

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

**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