Reviewer's report

Title: Prevalence of Zika virus in blood donations: a systematic review and meta-analysis

Version: 0 Date: 14 Jun 2018

Reviewer: Yu-Wen Chien

Reviewer's report:

In this study, the authors conducted a systematic review and meta-analysis to obtain a pooled prevalence of Zika virus infection. However, given the extremely high level of heterogeneity among studies (I-square = 99.5%, p<0.001) and it is known that the severity of ZIKV epidemics can vary year by year and place by place, is it meaningful or reasonable to conduct a meta-analysis to obtain a pooled prevalence estimate? Maybe a systematic review is enough.

In addition, the prevalence of "Zika virus infection" is very confusing. If the authors want to evaluate the risk of transfusion-transmitted Zika virus infection, they should only include studies which detected ZIKV RNA, because the detection of anti-ZIKV antibodies in the blood does not mean that the blood is infectious, especially for anti-ZIKV IgG. If the authors were interested in the incidence of Zika virus infection after an epidemic, they should include seroprevalence studies of anti-ZIKV IgG or IgM. Getting a pooled prevalence of ZIKV RNA and anti-ZIKV antibodies was not appropriate, even though the difference was not statistically significant in the subgroup analysis. Although the authors seem to have very good skills to conduct a meta-analysis, it is important to define the research question more clearly and avoid combing "oranges" and "apples."

Line 35-36: "The overall pooled prevalence of ZIKV in blood donations was 1.02% ....." This is not the pooled prevalence of "ZIKV" because several studies which only tested anti-ZIKV IgG or IgM were included.

Line 37-39: "Blood donations were more than two times likely to be infected by ZIKV in Zika epidemic period (1.37%, 95%CI 0.91-1.91) than in non-epidemic period (0.61%, 95%CI 0-2.55)." Is it reasonable that 0.61% of the blood donation were "infected" in "non-epidemic period?" What does it mean that blood donations were "infected?" Does the result suggest blood screening test for Zika virus should also be implemented during "non-epidemic period"?
Line 246-247: The authors argued "Thus, a routine blood screening test for Zika virus should be in place as soon as possible." How much money should be spent to save a life or gain a quality-adjusted life-year (QALY)? It'd be better to make a more conservative suggestion without a cost-effectiveness analysis.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.
Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.
Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.
No

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