Reviewer's report

Title: Comparative estimation of chikungunya prevalence in Reunion Island

Version: 1 Date: 28 September 2007

Reviewer: Maël Bessaud

Reviewer's report:

General

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Major Compulsory Revisions (that the author must respond to before a decision
on publication can be reached)

Method section:

The survey study on pregnant women is not well described. The age of the
pregnant women subgroup and of the total population are not mentioned. The
housing type (urban, rural) of the subgroup is not described. The geographic
location of the labs collecting the blood samples is missing, moreover the
geographic origin of the women is missing too. This constitute a problem knowing
the CHIK seroprevalence difference among northern, southern or eastern part of
the island (Perrau et al, 2007 INSEE website). The exhaustivity of these 900
pregnant women included here is not mentioned.

For these reasons and statistical ones this subgroup (pregnant women) can not
be representative of the entire population.

The authors should clarify the originality of the population-based survey
compared to the work performed by Perrau et al available in the INSEE website
(http://www.insee.fr/fr/insee_reunion/prodser/pub_elec/revue/revue129/revue129_Chikungunya…). They should also mentioned in their paper.

However, we don't know how the data were collected: the questions, the
language (French, Creole?), the date of the samples.

There are too little information provided here to compare the two different
serological methods used here:
- samples: 100µL of serum (pregnant) vs drops of whole blood collected on filter
  paper (cross-sectional study)
- labs (CNR vs GHSR)
- IgM and IgG (pregnant) vs IgG only (cross sectional study).

Result section

This important section is of poor quality. The data are not clearly presented.

The extrapolation using the pregnant women serological results can not be
performed for statistical reasons. This subgroup is not representative of the entire population (not randomly chosen). There are repartition and selection biases. The authors should explained their hypothesis and calculus mode for this "extrapolation".

The authors should explained how they were able to reconstruct the entire figure 2 with the cross sectional study data that occurred from August 2006 through October 2006. The authors should explained how they confirmed clinical incidence, and how the serological data was attributed to a particular Chik episode before august 06. The authors should precise if more than one chik episode or clinical episode per person existed.

Discussion section
The sentence line 7 is not supported by the data presented here : there may be other transmission spots missed by the 28 out of 45 labs included in this study.

The "congruent" or "relevant" result is due to a random effect, the labs and tested pregnant women are not representative. The authors can not over interpret their results.

The low PPV during the post epidemic phase has to be shown, a personal communication is not sufficient.

The potential biases due to pregnant women recruitment is higher than the ones due to false positive or false negative.

Recent publications such as Sergon et al 2007 Am J Trop Med Hyg would have provided interesting elements of comparison.

Conclusion section
The last sentence "In conclusion...." is not supported by their own datas.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

The background section is too long compared to the result section.

The IC 95% is missing for many data : 18%,12.6%, 88.5%, 90.3%, 75.9%. The number N is also missing in the population based study results.

Table 1
The number N is missing
lines in the manuscript margin should be removed

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Discretionary Revisions (which the author can choose to ignore)
Figure 1 and 2 may be grouped
What next?: Reject because scientifically unsound

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests