Reviewer's report

Title: Perceptual influences on self-protective behavior for West Nile virus, A survey in Colorado, USA.

Version: 1 Date: 30 March 2015

Reviewer: Bonnie Henry

Reviewer's report:

This paper reports the results of a survey completed in an WNv endemic area of the US investigating the role of risk perception and the health belief model on the use of protective measures for mosquito bites. The questions are well defined and the authors do a good job of explaining previous work on risk perceptions. This builds on the body of work around risk communication in public health and would be a helpful addition to the field if the major concerns are addressed.

Major compulsory revisions:

What is not clear is the rationale and justification for including the individual risk perception perspectives (cognitive, affective, ecology, proximity) with the HBM in a single model that also includes ethnicity. The HBM itself contains components that reflect affective, cognitive, ecology and proximity risk perception and including them in the same model with these perceptions as independent variables may not be valid. There should be an explanation and justification of why these were combined.

I have a number of concerns with the questionnaire for example it asks about use of citronella candles which are known to not be effective mosquito repellants and can be dangerous and some of the questions use a 5 point scale while others a 3 or 4 point scale and it is unclear the rationale for that. The questionnaire would be better informed if it had been piloted for validation or the authors had used previously validated tools.

The power of this study to detect a difference given the sample size and numbers of questions is unclear. A power calculation should be included.

The results and discussion section is fragmented and difficult to follow. The authors need to take more time to describe what the correlations do and do not represent and then include their interpretation.

The tables are not labelled appropriately and the description of the variables should be written out in a glossary for the table. It is not clear that the conclusions are supported by the data given the very real potential for confounding and the lack of an understanding of the power of the study.

Specific comments:

Page 4 Lines 19-26 should be included in the intro not methods

Page 5 lines 7-12 is the same as what is in the background; does not need to be repeated but details of where the questions came from should be included.
Page 5 line 19 ‘best practice follow up and cash incentives’ should be described.
Page 5 line 20 numbers of questionnaires and % return rate are results
Page 5 line 26 ‘others’ should have been described in the methods; it states ‘Anglos’ in the methods but these are not defined
Page 6 lines 15-21 these describe methods and should be in that section
Page 7 lines 3-5 also belong in the methods

**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