Reviewer's report

Title: Emergence of new Leptospiral serovars in American Samoa - Ascertainment or Ecological Change?

Version: 1 Date: 26 October 2011

Reviewer: Stephen McGarvey

Reviewer's report:

Major Compulsory Revisions
1. The basic questions addressed in the report are well defined, and pertain to a descriptive exploration of leptospiral serovars in American Samoa. However, the background section is too brief and does not serve the curious non-specialist. The second sentence in the Background needs more details including some estimates of leptospirosis’ prevalence to support the statement that it is the most common bacterial zoonosis. This will allow readers to compare it to others. In addition please be specific about the WHO global regions where its recent emergence has been reported. It would be helpful to simply name the nations or regions in which the specific contexts listed occurred. Again more detail about the variation in specific animal hosts is welcome here along with some summary information about any evidence for variation in efficiencies or adaptedness to different animal hosts.

2. The methods do not describe the participation proportion from the recruitment. This is needed.

3. The information on occupation, especially farming, and potential contact with non-human animals is missing. The increase in piggeries has been a concern in American Samoa and any reports about leptospirosis must include some information about proximity of participants to piggeries and their potential role in human infection. Since there are data on behavioral risks not presented here, their distributions should be described as well as their associations with odds of leptospirosis and its serovars.

4. Since part of the findings involves a comparison to earlier unpublished work from American Samoa, please make some brief mention of that in the Background before the purpose statement.

5. In Results there is no test of whether the variation in seroprevalence between islands is significant or meaningful. The confidence intervals for the prevalence should be included in Table 1.

6. Since the results indicate new serovars in the 2010 survey compared to the 2004 survey, it is incumbent on the authors to use all available data, such as the unpublished demographic and behavioral risk and perhaps microspatial ecological data such as proximity to streams or piggeries, animal contacts and
husbandry data, to help explain this evident emergence. Does human or animal population density data exist to help their search for explanations? Without these attempts to explain the serovars or the emergence of new ones to more specific ecological or socio-demographic factors the report is very descriptive.

- Minor Essential Revisions

1. In the Methods description about taking the highest titre serovar as the positive serovar, there should be a citation to support this procedure and decision.

2. In the Discussion the seroprevalence for the unpublished 2004 survey are compared to the current data, but there is no description of the sampling distribution used in the 2004 survey.

- Discretionary Revisions

None

Recommendation to Editor

Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest

Quality of written English - acceptable

Statistical review – additional statistical methods are needed to help evaluate statements made. If the authors revise then a statistical review can be done, along with the assessment of this reviewer’s competence to do so.

Declaration of competing interests - I declare that I have no competing interests.

Open peer review – I understand that this review will be posted on the BMC Infectious Diseases website.