Reviewer’s report

Title: Association of Trypanosoma cruzi infection with electrocardiographic abnormalities within a non-endemic state in Northeast Mexico

Version: 1 Date: 23 October 2013

Reviewer: Jennifer Manne

Reviewer’s report:

This is an interesting study on Chagas disease in Mexico, a country that has a substantial estimated burden of disease but for which limited data exists, especially recent data. In addition to this thematic strength, the study collected a variety of different primary data on prevalence of T. cruzi infection, risk factors and ECG findings.

MAJOR COMPULSORY REVISIONS

1. It is unclear what is meant by “systematic random household sampling...according to socioeconomic and cultural level information reported for each municipality in the database of INEGI.” It would be preferable if the authors were clear as to whether they sampled randomly. It at least appears that they initially stratified their sample based on a particular geography in order to represent the urban/suburban/rural populations. However, it is unclear if they also sampled based on particular SES features. If the sample was not completely random, more information should be given on how sampling was performed in the Methods or as an appendix.

2. In the discussion, the statement at the end of paragraph 1, “Thus, it appears that the prevalence of T. cruzi is increasing throughout Mexico” seems like an inappropriate conclusion given the data presented. Even though this study and other recent work may show a greater prevalence of Chagas disease, there may be aspects of study design or the population tested that differ. In addition, the study here is of a single state within Mexico.

3. The authors do not adequately address the limitations of the study. There should be a more thorough discussion of this aspect of the study.

4. It wasn’t clear whether the authors used multivariate logistic regression for the risk factor analysis. It would likely be advantageous to consider doing this if it was not performed. If it was, perhaps this could be clarified in the methods.

MINOR ESSENTIAL REVISIONS

1. The Methods section mentions that house sampling for triatomine infestation was performed by community members. It would be good to address the limitations associated with this approach in the discussion.

2. The concluding sentence states “In Nuevo Leon, Chagas disease remains
poorly recognized, and most physicians consider it to be an “exotic disease”, exclusive to South America.” Again, this statement seems unsupported by evidence. It would be preferable to reword this statement and if making this claim, provide supportive citations.

3. The title might have been reworked to better describe the various aspects of the study. Perhaps something like “Association of Trypanosoma cruzi infection with risk factors and electrocardiographic abnormalities in Northeast Mexico.”

DISCRETIONARY REVISIONS

1. Consider having light language editing to improve manuscript quality.

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.