Author’s response to reviews

Title: Seroprevalence of toxoplasmosis among veterinary staff: Implications for teratogenic risk

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Thank you for reviewing our manuscript, we have addressed the comments as best we can below. I think perhaps the reviewers misunderstood our main objective which was simply to assess the seroprevalence of toxoplasmosis in veterinary workers, to show that individuals who were intimately involved with many cats on a daily basis did not have a higher incidence of toxoplasmosis than the general population, thus reassuring pregnant women that cats were not a primary source of transmission and that they need not be afraid of their cats when pregnant. There were no comparisons and that is why we did not do the statistical analysis that was asked for by the reviewers.

Sincerely

Adrienne Einarson

Reviewer #1:

1. Comment: title should be changed to...
Action taken: Title has been changed, as suggested.

1.1 Comment: all participants were healthy?
Action taken: added a statement to that effect near the beginning of Results.

1.2 Comment: did any give birth to infected babies?
Action taken: None. It was not measured in this study; it was done previously (reference #10).

1.3 Comment: infection is more appropriate.
Action taken: altered key words to incorporate suggestions

2. Comment: suggested wording change in Abstract Introduction.
Action taken: altered wording to "Toxoplasma gondii infection is teratogenic..."

Action taken: Details added to abstract.

3.1 Comment: re-write results and conclusions.
Action taken: The question arises again. For our response, see comment 10, below.
4. Comment: should replace "toxoplasmosis" with "toxoplasma infection"
Action taken: changed toxoplasmosis to "toxoplasma infections" in most instances (i.e., not in the references).

5. Comment: set T. gondii in italics
Action taken: done in all cases.

6. Comment: toxoplasmosis should change to infection
Action taken: already done (comment 4)

6.1 Comment: how do you know women believe...?
Action taken: It was plainly stated that the information was received directly from those people who contacted our service. We explicitly stated that "many women have reported to us". We receive many calls each year and this theme is predominant among the callers who ask about toxoplasma. We are the largest service of this type in the world, receiving in excess of 40,000 calls annually at present, and the number increases each year. There is no better source of such information than the people themselves.

7. Comment: requests rewording/arranging on page 4 lines 1-17.
Action taken: paragraph has been re-arranged as requested.

8. Comment: wording change requested to add "who participated..."
Action taken: wording modified to incorporate the comment.

8.1 Comment: Appendix A not present in his copy.
Action taken: The Appendix was deleted (because the same material is presented in Table 1 and in Results), but the words were left in, by accident. We apologize for the oversight.

9. Comment: correct "aand"
Action taken: typo corrected.

9.1 Comment: requests details about type of machinery used in technical analysis.
Action taken: Specific details were not provided by the lab. We assume that, since the lab is operated by the government of Ontario for all of its citizens (population 11 million), that they would select a valid instrument with which to perform their assays. That is the point here - validity of the findings. We accept the reports from our government as valid. If the reviewer would like further details, she should contact the Provincial Health Laboratory in Toronto [http://www.gov.on.ca/]. No changes made.

10. Comment: what type of statistical software was used?
Action taken: The question is irrelevant because statistical tests are not necessary for such data. We are not hypothesis testing, rather, we are estimating a parameter in a population, which lies in the field of measurement, not statistics. We were aiming for a precision of between 5% and 10%, with an alpha error (Type 1) of 5%. With the sample size that we got, we had 6% precision in our estimate, which is quite acceptable. We had no intention of comparing rates between groups, since their jobs were comparable and exposure to cats was about equal. Therefore, there was no theory to prompt us to test whether those groups might be different. That is not a clinically relevant question.

10.1 Comment: Tables 1 and 2, re stats.
Action taken: A third column was added, giving overall values for the group. No statistics were used, as noted above in 10.

10.2 Comment: What criteria were used?
Action taken: We have removed all statistics except one, which was tested at a level of 5% alpha
error. We changed the wording to indicate that value.

11. Comment: paragraph on response rate seems inadequate, not discussed much.
Action taken: More discussion added in Discussion section.

12. Comment: numbers of males and females should be stated.
Action taken: Numbers of males and females was inserted into the text in the Results section. It does not seem useful to insert the male positive data in the table, since there are no differences between the assistants (100% females) and the vets (3/4 females) on any of the parameters. Since women comprised over 80% of the sample, data from the men would have little impact overall. We did not change that.

13. Comment: paragraph should be moved.
Action taken: We disagree; it presents results that are interesting and illustrate a point that we would like to stress - that perceptions often differ from reality. Since we had planned that contrast a priori, we have expanded that part in the Methods.

13.1 Comment: insert number and stats.
Action taken: The numbers of participants has been inserted in the text and Table 1, as requested and the stats.

14. Comment: italics (repeat comment)
Action taken: done = all italicized, as requested.

15. Comment: add "in Canada"
Action taken: done.

Action taken: Revised to explain the rate and circumstances surrounding it.

17. Comment: eliminate sentence.
Action taken:

Action taken: All of the published studies referred to were referenced (references 1, 4, and 11-14). The reference to seropositivity in Canada in the Introduction specifically states in the text that it was a personal communication. We can do no more.

19. Comment: References not correct.
Action taken: All references have been scrutinized and altered into standard format. NB: It would have been more helpful for the reviewer to have indicated specifically what was wrong and what would be right, rather than simply stating that it is wrong.

20. Comment: Table 1 and 2 should be rewritten.
Action taken: Tables were altered substantially in format and content. NB: this is another example of a comment that is not very helpful. The reviewer does not indicate what she thinks is wrong or what needs to change.

20.1 Comment: Reference 14 should indicate French, with English abstract.
Action taken: Wording added, as requested. Note: Several of the authors speak French and two bilingual counsellors are on staff in our service at all times.

21. The suggestion that we calculate odds ratios for all variables is really not warranted. The sample size is too small to produce meaningful results. As well, there is a great danger of false positives due to multiple hypothesis testing. If we found rates that were much higher than expected, perhaps
exploratory analyses would be warranted.

Reviewer #2:

A. Comment: no discussion of "low" response rate.  
Action taken: We have expanded the discussion the indicate why the results appeared to be low.

B. Comment: Response rate greater with technicians. Why? 
Action taken: Actually, the exact number of vet. Assistants was not known as they were included among the "auxiliary" people. Thus, the "response rate" for them was unknown. It may well have been equal (or greater than?) that of the veterinarians. We added some explanation in the Results section.

C. Comment: no P values  
Action taken: We did not intend to contrast the two groups, as stated in our comments to the other reviewer. There was no reason to contrast them (and there were no differences found). The tables were altered to combine the data, but we would not test for differences because that test would add little.

Numbered comments:  
1. Comment: The use of the word "teratogenic". We agree that the word usually refers to developmental disorders, but not always. Examples include cancers, undescended testes (actually a developmental delay that may require surgery to correct), and hypospadias (some are extremely minor and do not interfere with normal life). We have changed the term to "embryotoxic" in the text.

2. Comment: prevalence of toxoplasma titres and comparability of US and Canadian data. 
Action taken: We have included further data from the NHANES study showing the values for the midwest (Pennsylvania, Ohio, and Western New York state are all within one hour of Toronto). Also added more references with prevalences from comparable places (e.g., Stockholm).

3. Comment: potential selection bias 
Action taken: we addressed this issue in the Methods and the discussion sections, clarifying the issue.

4. Comment: chi square between observed and expected values. 
Action taken: It appears that the writing confused the reviewer. We apologize for that. We did not mean to compare between the expectations of the two groups, but between their expectations (as a whole = about 54% overall thought that they would test positive) and what was actually found (i.e., only 14% did test positive). The P value is indeed