Author's response to reviews

Title: Brucella spp. infection in large ruminants in an endemic area of Egypt: cross-sectional study investigating seroprevalence, risk factors and livestock owner's knowledge, attitudes and practices (KAPs).

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Author's response to reviews: see over
Dear Editor,

We would like to thank all three reviewers for taking the time to read and comment on our manuscript. We appreciate all their feedback and have taken their comments on board in order to improve the manuscript. We have tracked all the changes we have made to the manuscript and added line numbers, which we refer to below, in order to make our edits apparent.

Yours Sincerely,

Hannah Holt

Reviewer’s report: 1
Reviewer: Henk Lucas Smits

Reviewer’s report:
The manuscript by Holt and co-workers report on the seroprevalence, risk factors and livestock owner’s KAPs of brucellosis in a villages in Egypt. The high seroprevalence of brucellosis in livestock in Egypt is in line with previous studies reporting on brucellosis in cattle, goat and sheep.

Whereas knowledge of the seroprevalence of brucellosis in cattle is important the study lacks to report on the seroprevalence of brucellosis in sheep and goat in the same villages as keeping of small ruminants was found as the major risk factor.

We agree with the reviewer that seroprevalence estimates in the sheep and goat population would have been useful, however our study focused on the large ruminant population as the main source of milk and dairy products in the area. Our research group has recently published a large scale study that provides seroprevalence estimates for the sheep and goat population of 40 villages in a neighbouring governorate of the Nile Delta (Hegazy 2011). In the revised version of the manuscript we refer to the results of this study, to give an indication to the readers of the seroprevalence of small ruminant brucellosis in other parts of the Nile Delta region (line 447-454).

Related to this the study would have been more complete if the organism would have been isolated and typed to confirm the species.

Again, the reviewer makes a good point and it would have been good to have isolated the species. However, we have referred to previous studies that clearly point at B. melitensis as the main cause of infection not only in small ruminants but also in large ruminants – which may act as “spilover hosts”. In the absence of isolation of the organism from the studied animals we think it is reasonable to assume that most large ruminant infections in the area are due to B. melitensis. The finding of the presence of sheep and goats in the household as a risk factor for seropositive status in large ruminants supports this. In the revised version we try to make clearer this limitation and our assumption to the readers (line 411-429).

Interviewing livestock owners revealed that most owners would ask the local veterinarian for advice if brucellosis is suspected in cattle or when aborting. As the
owners would not separate the aborting (or suspected) animal but rather sell the animal it would be of interest to know the advice given by the veterinarian.

We would like to thank the reviewer for this suggestion, two of the authors have experience working as, and with, Egyptian veterinarians and we have added a few of sentences detailing the advice veterinarians give; in their experience veterinarians will fatten suspected animals in order to send them to slaughter and not recommend reporting the animal for testing, however, they will leave the final decision to the farmer (line 493-495).

In addition we have added some further comments as to reasons behind this (line 496-500; line 503-504)

To better appreciate the seroprevalence rates reported it would be important to know the cut-off value use in ELISA.

This has been added as follows: The manufactures instructions for performing the ELISA, the cut-off for classifying samples as positive/negative was calculated as 10% of the mean optical density of eight positive control wells and was 0.062 (line 167-169).

Figures 1.1 and 1.2 may be deleted and the reported values in the text suffice.

We have taken the reviewers advice and now removed these figures and made changes to the text accordingly (line 272-284)

The authors report on the importance of waste water and water sources as a potential mode of transmission. Did the authors consider dogs as they might become infected after contact with abortion materials?

We would like to thank the reviewer for this suggestion, as it was not something we had previously considered. We found a paper which investigated the presence of B. melitensis in dogs and rats in Damitta governorate in 2004/06 and have added a few sentences into the paper to mention this. (Line 516 to 522)

Presentation of Table 3 in the format of a figure could be considered.

We have changed table 3 into a graph (Figure 1.3)

B. melitensis is more infectious than B. abortus but is it also more pathogenic (stated in the background section)?

Thank you to the reviewer for bringing this to our attention. We have changed this sentence as follows; B.melitensis poses the biggest public health threat due to its high pathogenicity and infectiousness (Line 85 to 86).

Reviewer's report: 2
Reviewer: Georgios Pappas
Reviewer's report:

The present manuscript holds an interesting premise and delivers an important message related to public health, but this message is lost in the overflowing information added about epidemiology and seroprevalence and the overall length of the manuscript.

We would like to thank the reviewer for taking the time to review our article and the useful feedback. As indicated below, we have tried to reduce and synthesize the sections of the manuscript dealing with the epidemiology and seroprevalence but we had to be careful not to omit information that is needed for full understanding of the methods by the readers. The statistical reviewer has commented positively on the design and analysis of the study we have tried to shorten these sections without compromising clarity – more details are given below.

The authors should focus on the questionnaire, knowledge of, and attitudes towards the disease, which are the major aspects here and demonstrate a significant surveillance issue. Information about epidemiology in the specific village, as well as statistical details, can be dealt with in a few lines and not overburden the manuscript. The main issues here are that despite knowledge, milk is not boiled prior to making cheese for example, and that sick animals are sold for convenience reasons. This is actually the way the disease continues to circulate in endemic areas, and this is why it is a public health (and not simply veterinarian) issue.

We thank the author for this suggestion; as mentioned above, we have tried to reduce some of the manuscript regarding the epidemiology and seroprevalence so that this does not over burden the manuscript while keeping clarity and all relevant information for the readers. We agree with the reviewer that it is important that brucellosis is presented as a public health, and not just veterinary, issue.

Specific changes have been introduced in the paper to reduce the weight of the epidemiology / seroprevalence element (lines 42-45; lines 84-86; lines 128-135; lines 256-261; lines 277-279; lines 286-307; lines 416-418; lines 436-441). We have also deleted Figures 1.1 and 1.2, which presented the distribution of simulation results. In addition we have deleted Table 2.1 and 2.2 which presented the results of the univariate analysis, we feel these tables are not necessary because the results were all non-significant we have replaced this with a table of the multivariate results.

We agree that it is important to emphasize that brucellosis is a public health and veterinary issue and we try to make this clear to the readers (lines 30-32; line 49-50; line 104-106; line 395-396; line 401-404; line 438; line 528-530; line 563-564)

Previous questionnaire surveys on knowledge and attitudes of patients towards brucellosis existing in the literature should be sought out and results compared.

We thank the reviewer for this suggestion; although studies on the KAPs of brucellosis are scarce, we add some information on where they have been carried out previously in the introduction. In the discussion we compare our findings to a KAP study by Pappas et al (2006), which also found that participants were reluctant to allow veterinary authorities to investigate brucellosis in their herd (line 104-106; line 486-490).
Reviewer's report: 3
Reviewer: Patrizio Pezzotti
Reviewer's report:
The study is very well designed and the statistical analysis is extremely precise. I have only minor comments for the authors.

We would like to thank this reviewer for his comments and for taking the time to review the statistics for our paper.

Figure 1.1 and figure 1.2 are not extremely useful given that they provide only the distribution of the simulation results. I suggest to provide in place of these two figures a table reporting descriptive statistics per animal and per household with the results of the tests. This table should report the results observed based on the tests.

We have taken the reviewers advice and now removed these figures; however, we think that this information is now all provided in the text and a table is not necessary (line 276-278; line 283-285).