Reviewer's report


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Reviewer: Hugh Sturrock

Reviewer's report:

This is a well written manuscript describing the spatial and temporal variations in human brucellosis in Azerbaijan over the last 15 years. It is obviously an important piece of information relating to an under described disease. One recurring issue I have is that the authors repeatedly refer to there being a higher number of cases following the collapse of the Soviet Union. However, as the number of cases before the collapse are not know (or at least not stated) I think this should be played down. I appreciate that this may well be the case, but it is just not supported by data. The majority of my comments are minor. I commend the authors on their clear figures.

Major Compulsory Revisions
1. Discussion, para 2. Whilst it is true that the greatest number of cases were reported in period 1, which immediately followed the collapse of the Soviet Union, without knowing the number of cases reported before 1991 I’m not sure any link can be made. Following on from that, it is misleading to state that there was elevated reporting of disease during this period as the baseline number of cases reported before the collapse is not stated. Is there any data from pre 1991?

Minor Essential Revisions
2. Introduction, para 2, sentence 2 – I would add ‘the collapse of the Soviet Union in 1991 have…’

3. Methods para 3, sentence 3 – It isn’t clear to me what is meant by ‘Spatial information relating the ages of all the individuals back to their home district were not available’. Do you mean it was not possible to match individuals, along with their age, back to district? i.e. the individual level data and district level data were separate?

4. Methods – Spatial Autocorrelation, para 2. ‘Where Ii is the statistic for a district I, Zi is the difference between the brucellosis risk at I and the mean brucellosis risk for…’

5. Results – sentence 4 ‘To simplify the description’

6. Discussion, para 4, sentence 4 – Are there any citations to suggest that alterations in cultural and food production practices occurred more in the west over period 2 and 3? Otherwise this is fairly speculative.

7. Discussion, para 4, sentence 7 – It would be useful to give a little more
information and discussion about these studies and how they relate to Azerbaijan. Did these studies suggest that occupation was the reason for the observed differences in prevalence between males and females? Could there also be reporting biases between genders? What interventions might be suitable?

8. Limitations – Perhaps you could briefly state whether there are likely to have been general temporal variations in reporting. Have diagnostic methods improved at all over the last 15 years?

9. Figure 4. I would consider reorganizing this figure to help see temporal trends. Given that there is very little difference between crude and smoothed incidences, one could be dropped. This would make interpretation far easier. Alternatively I would consider reorganizing the columns so that year 1-3 using crude estimates are next to each other and then year 1-3 using smoothed estimates are next to that. As a third alternative(!), could each column consist of 3 boxplots each showing the incidence over the 3 time periods for each region.

Discretionary Revisions

10. Discussion, para 4, sentence 5 – For clarity I would alter this sentence to ‘Additionally, the conflict with Armenia, which shares a border with the west of the country, has…’

11. Figure 2. Perhaps you could colour those districts with 0 cases in a contrasting colour (i.e. blue) to help differentiate those from districts with 1-30 cases.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests