Reviewer's report

Title: Characteristics and risk factors for Giardia lamblia infections in Germany

Version: 1 Date: 2 July 2009

Reviewer: Ryan Lennon

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Major Compulsive

1) Page 15 - Limitations
The fact that women and people living in rural areas were more willing to participate should be in the Results section, quantified if possible. How many controls refused and were replaced by other controls? These limitations are important enough to receive more attention than a few sentences in the Discussion, but should not be considered a barrier to publication.
It is arguable that the study should have matched the controls based on both age and sex, since they are both non-modifiable factors. This would have precluded an analysis of the association between sex and infection, yet oversampling of women in the controls also sheds doubt on the significant association of gender seen in the this analysis. This should be more clear in the limitations.

2) Table 1 - Residency
The levels for this category are mutually exclusive, hence this represents a single ordinal variable. A rank sum test should be used to test for the difference and produce a single p-value (instead of 4 highly correlated p-values).

3) Table 1 - Reason for laboratory examination
Similar to "Residency" this should be a single hypothesis test due to mutually exclusive categories. However, this is not an ordinal variable, so a Pearson chi-squared or exact test would be appropriate.

4) Table 2 - Residency
Again, this is a single variable. The analyst should select "<5000" as the reference category and then the odds ratios for the other
categories would be referenced against that level. A single p-value for this variable may be calculated using conditional logistic regression with three indicator variables for three of the four residency levels. The overall model p-value is then the p-value of interest. The authors may have to re-do their multiple regression model (Table 3) depending on the single p-value for this variable.

Minor Essential
5) Page 10 - "p=0,011"
   Change to "p=0.011" for consistency.
^) Page 10 - "> 100.000 inhabitants"
   change "." to "," for consistency.

Discretionary
7) Page 8 - "Controls were matched by county of residence..."
   Matching for county of residence might have been too strict as a rule. It would seem that any case that lived in a city>100,000 would be very likely to have a control also in that same city, since the city population might dominate the county. (Perhaps selecting within some distance radius, e.g. 100km. As a result, the association between residence and infection might be underestimated. This is also complicated by the fact that rural controls were more likely to participate, which pushes the bias in the opposite direction.

8) Page 9 - "Of all notified cases, 326 (65%)..."
   Change "notified" to "confirmed" since the 505 confirmed cases must be the denominator. I took notified to mean the 597.

9) Page 14-15 - "Finding travel to the Indian subcontinent..."
   The authors imply that travel to Indian is a risk factor for Giardia-infection. However, they would have to compare their percentages to the percentage of all travels with India as its destination. If 21% of all travels are to India, then there is no evidence of additional risk in such travel.

10) Table 2 - "MOR"
   What does "MOR" stand for? Matched odds ratio? Mantel-Haenszel odds
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.