Reviewer's report

Title: Agricultural, socioeconomic and environmental risk factors for Verotoxigenic Escherichia coli (VTEC) infection in humans in Finland

Version: 1 Date: 30 December 2010

Reviewer: Nicole Kemper

Reviewer's report:

The manuscript concerns a clear application of a hurdle model for the analysis of possible risk factors based on a dataset composed with advanced laboratory methods: VTEC from human samples (taken over an adequately long time period of ten years) were characterised in detail. Moreover, possible variables for risk factor analysis were assessed.

The topic of the study is not novel, but the model application is innovative, and this and the results, though restricted to Finland, are of high interest for the scientific community. Laboratory material and methods are according to the status quo of methodologies, results are presented in a good way and illustrations fit well in the context. In general, discussion and conclusions are sound but need to be slightly restructured.

However, the manuscript urgently needs to be improved with regard to the language as mentioned below.

- Major Compulsory Revisions

The manuscript should be improved grammatically with the help of a native speaker. Without mentioning any single mistake in the manuscript, generally following aspects ought to be considered:

- use of articles (in some parts, ‘the’ or ‘a’ is missing, for instance in the abstract, “Background: …are reported annually to the National Infectious …”)
- correct use of Past Tense or Present Perfect (for instance in the abstract, “Background: …generating positive counts only was applied for datasets …”)
- punctuation, especially commas
- use of singular or plural (E. coli as plural…)
- avoid repetitions, for instance in the Results, Descriptions of the cases, first paragraph “enrolled”, third paragraph “symptoms:…had…had…had”

After detailed and careful corrections, the content and the message of the manuscript should be better to understand and, in this way, the decision on publication can be performed.

- Minor Essential Revisions
Besides the general major improvements, following comments should be taken into account:

- explain abbreviations in the text (E. coli, NIDR, THL…)
- latin names in Italics (Campylobacter)
- Abstract, Results: “from 70 (17%) of xy Finnish municipalities.” Number should be added.
- Background “haemorrhagic” instead of “bloody”, also later in the text
- Methods: Please mention number and origin of the examined E. coli strains
- Results, Descriptions of the cases, third paragraph “younger…older” instead of “less…more”
- Is there a possible explanation why ‘bulls per human population’ were identified as risk factors? Why not milking cows or calves?
- The occurrence of STEC in cattle in Northern countries should be mentioned in one or two references to get an impression of the importance of this reservoir, for example Aspán&Erricson 2010 or Boqvist et al 2009.
- the Discussion should be restructured with regard to clarity. A suggestion: general statement (as it is), use and restriction of material and methods, identified risk factors against the background of other studies, prevention measures

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

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.