Reviewer's report

Title: Waterborne microbial risk assessment: a population-based dose-response function for Giardia spp (EMIRA study)

Version: 2 Date: 17 February 2006

Reviewer: Paul Hunter

Reviewer's report:

General

The authors have written a worthwhile paper based on a very valuable study (The EMIRA study). This paper is certainly worthy of publication, though there are areas of the paper which need revision as I think the authors have assumed a degree of understanding by the reader which may be too great. This makes it very difficult to follow their argument at times.

One scientific issue was that although the authors demonstrate a different slope for the Rendtorff model and their own, given that the slopes were well within the 90% confidence intervals do they actually need to postulate abatement factors? Is it not just as likely that the two models represent to samples of the same population?

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Abstract

"The estimated dose of Giardia combined declared drinking water intake and the Logarithm of cysts concentrations" is not a sentence

"one unit increment of dose" needs to be clear what this means (?for each additional cyst consumed)

"germ" should not be used in a scientific paper

Methods

The abatement factor needs to be explained better. Does 1/5=20%=It was assumed that 20% of cysts were non-infectious

Results

The last paragraph of the methods section requires quite a bit of re-reading to understand. What is a 1/1 abatement factor? ?50% infective, all dead. In any event I am not entirely happy with the use of abatement factors (see above)

Discussion

To a certain extent the discussion considers why the authors' own model may have a shallower slope than the Rendtorff model. In part this debate may be sterile as the two slopes appear to be within the confidence intervals of each. Assuming the difference in slope is real, I can think of explanations that the authors have not considered. The first is prior immunity. For example, Giardia levels in the water samples appear higher than I would have expected and so it is possible that the study population had higher levels of immunity and so a shallower slope.
Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Discretionary Revisions (which the author can choose to ignore)

What next?: Accept after minor essential revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

I declare that I have no competing interests