Reviewer’s report

Title: Risk factors for secondary transmission of Shigella infection within households: implications for current prevention policy

Version: 3 Date: 23 August 2012

Reviewer: Dirk Werber

Reviewer’s report:

Major compulsory revisions:

1. Aim of the study

The authors’ state that the aim of their study was “to evaluate the appropriateness of current disease prevention guidelines in the Netherlands by determining the characteristics of primary case patients and of “high risk” household contacts that are associated with secondary transmission” High risk households were those where the primary patient was younger than 16 years or one or more contacts in the family were younger than 16 years.”

However, the manuscript does not present secondary transmission rates in high-risk households where the primary case-patient is 16y or older. Consequently, the reader misses an evaluation of the appropriateness of considering these households as being at high-risk. Strictly speaking, if one was to evaluate the appropriateness of this disease prevention guideline, one would need to compare secondary transmission rates in high-risk households with that of low-risk households. I understand that this was not possible, but this limitation should at least be made explicit, or, preferably, the aim of the study should be rephrased.

Are there any data on “household outbreaks” that might be used as an indicator for the risk of secondary transmission in low-risk households?

2. Statistics/Study design

a.) What was the unit of analysis, and how exactly was household clustering taken into account in the (univariable and multivariable) analysis? Please make the model in that respect more explicit.

b.) Analysis of the primary cases’ age is conducted using age as a categorical variable with three classes. The discussion however, often compares <6y to #6y implying that the two younger age strata being collapsed. This seems justified based on the similar IRRs. It would be coherent though to collapse the categories in multivariable analysis as well.

c.) I haven’t understood the rationale for conducting a multivariable analysis that controls for factors associated with the primary case and the household. Could you kindly elaborate?

c.) How was “diarrhea in a household contact” defined (particular in respect to the temporal relationship with diarrhea in the primary case)?
4. Nature of contacts’ relationship

It is a crucial finding that most secondary cases were siblings or mothers of primary cases. This should/could have implications for targeted screening and this result should be discussed (and maybe also investigated in more detail, eg, what is the age-distribution of siblings in secondary and non-secondary cases). Furthermore, this result is consistent with studies that looked at secondary transmission in STEC O157 cases (eg., Werber et al, CID, 2006), and this should be mentioned as it strengthens this result and seems to make it somewhat generalizable.

Minor compulsory revisions:

1. Hospitalizing the primary case patient
(Immediately) hospitalizing the primary case patient is a suggested measure for reducing secondary spread in illnesses caused by STEC O157. Here, hospitalizing the primary case was associated with a reduced risk for observing a secondary case. This should be discussed.

2 Differentiating different types of cases
A clear definition of primary, co-primary, and secondary cases is given in the Methods section. However, in the text this distinction of cases is often missing rendering some parts of the manuscript difficult to understand. Please amend where appropriate.

Discretionary Revision:

1. Introduction
The frequency, incidence and case-fatality of shigellosis in the Netherlands, for which the prevention guidelines are formulated, would be informative to the reader and should be mentioned. This information is more important than the situation of shigellosis in developing countries.

Level of interest: An article of importance in its field

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.