Reviewer's report

Title: Diarrhea incidence and intestinal infections among rotavirus vaccinated infants from a poor area in Brazil: a spatial analysis

Version: 1  Date: 28 February 2014

Reviewer: Juana Angel

Reviewer's report:

The authors present a local (Laranjeiras, Sergipe, Northeast, Brazil; a low income agricultural area producing sugar cane) prospective study describing the association of spatial and environmental conditions and the incidence of acute diarrhea and intestinal infections of young children vaccinated against rotavirus.

Major Compulsory Revisions

1. The description of the management of stool samples is confusing; it involved: the central health department building, the laboratory of the Federal University of Sergipe (FUS), and the Central Laboratory of Sergipe (LACEN). Thus, evaluation of the proper management of the samples was difficult: is the low rate of pathogens identified in diarrhea stool samples (15.1%) due to improper conservation of samples?

2. A complete description of pathogens identified in diarrhea stool samples is necessary.

3. Table 2. Showing the total percentage of microorganisms identified by quarter will help the interpretation of the results.

4. Figure 1. Adding a more detailed identification of study sites (urban center, rural village, for example) in the first map will help the interpretation of the results.

5. In the discussion section the authors state: “During the 12 months of follow-up, 32 (25%) children were reinfeected by parasites (protozoa or helminths), with 15 (47%) by A. lumbricoides more than once”. To identify reinfections a demonstration of the disappearance of the prior infection and the reappearance of a new infection is necessary.

Discretionary Revisions

1. During clinical trials of both licensed rotavirus vaccines the rates of gastroenteritis-related hospitalization from any cause were reduced by more than 40% (greater than expected, based on the prevalence of rotavirus infection), suggesting that the real incidence of rotavirus disease could have been underestimated, or that the vaccines might provide non-specific protection against other enteric pathogens. Since the authors have been studying this community for some time, they could reanalyze the data to establish if reduction of the incidence of total diarrhea is greater than the one expected based in the
previously observed incidence or prevalence of rotavirus infection in this community.

"Minor issues not for publication"

1. The notion that stool samples were collected every month is repeated twice in the methods section of the abstract.

2. Please revise the following sentence of the last paragraph of the introduction: “After vaccine introduction, diarrhea epidemiology have definitely changed, but there very few studies, if any, evaluating…”

3. Correct spelling, “spacially” in the abstract, last paragraph of the introduction

4. First paragraph of methods: “522 (6%) with any protective system”. Do the authors really mean “any” or they mean “no”?

5. Please complete this sentence of the results: “Figure 2 shows that in the 1st quarter of the study there is case intensity of protozoa infection from moderate to intense in the urban area, …”

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

**Quality of written English:** Acceptable

**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