Reviewer's report

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

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Reviewer: Kong Boo Phua

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This study aimed to describe environmental conditions and analyze spatially the acute diarrheal and intestinal infection among rotavirus vaccinated infants from Laranjeiras-Sergipe, Brazil. Much effort has been put into this prospective study. The result confirms the efficacy of rotavirus vaccine in preventing severe rotavirus diarrhoea. The finding of parasitic infestation in this age group is interesting. It merely confirms the known fact that good sanitation and clean water supply do reduce gastrointestinal infection.

The English language used in quite a few areas can be improved. Also, the text is rather long and can be shortened.

The authors acknowledged that collection of stool samples was one of the limitations. "Stool samples collected during the 12 months of follow-up were 1,113, with 1,033 samples not associated and 80 associated with episodes of diarrhoea. The average number of stool samples collected from each child over the 12 months was of 6.4 ± 3.5". For 130 enrolled children, if 12 stools were collected as planned, even without diarrhoea, the number of stool collection can reach a maximum of 1560. The number of stool sample collected was only 66.22% of what was planned (1033/1560=66.22%). Whether this could have made any difference to the ultimate figure is not known.

Major Compulsory Revisions:

Under METHODS paragraph 1, "Sewage facilities are considered inadequate for the majority of the population, with 20% of the families (1,402 families) having untreated sewage and 5,480 (74%) families using cesspit and 522 (6%) with any protective system". Can authors explain the difference between 'untreated sewage' and 'any protective system'? Also the percentage having piped sewage system is not clearly stated unlike that in "Table 1: Sewage Piped: number 25, percentage 25/173=14%".

Under RESULTS, the number taken part in the study was 130 out of the total 222 children or approximately 59%. Were there any reasons why the first 49 children did not take part?

In DISCUSSIONS, paragraph 3, "We observed the increase of A. lumbricoides infection as the children get older, agreement with Roy et al. (2011) [23] in Bangladesh". However, in "Table 2 Ascaris lumbricoides: first quarter 11 (5.2 %), second quarter 7 (2.7%), third quarter 18 (5.5%), and fourth quarter 21 (6.8%) with a total of 57 (5.1%). No figure was provided to substantiate the statement of
A. lumbricoides infection as the children get older.

Minor Essential Revisions

INTRODUCTION paragraph 2 "Parasitic intestinal infections are considered important because of the frequency with which they produce disturbs, including some delay in physical and intellectual development, particularly in younger age groups [5, 6]". The authors may want to use another word, rather than disturbs, or reconstruct the sentence.

Discretionary Revisions

There are quite a few areas where the language can be improved. One example is: in BACKGROUND, RESULTS "3.8% of stool samples diarrhea-associated were positive for rotavirus and 11.3% were positive for helminths and protozoans." Changing to 'diarrhoea-associated stool samples' is more acceptable.

Level of interest: An article of limited interest

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.