Reviewer's report

Title: Comparison of the burden of diarrhoeal illness among individuals with and without household cisterns in northeast Brazil: a cross-sectional study

Version: 1 Date: 11 June 2012

Reviewer: Seter Siziya

Reviewer's report:

1. Major Compulsory Revisions
   1.1 Methods
   1.1.1 Section "Statistical analysis",
   1.1.1.1 Paragraph 2: The subgroup analysis on children less than five years old is not addressing any of the stated objectives for the study in the last paragraph of the Background section. Instead of stratifying the analysis, adjust the analysis for age.
   1.1.1.2 Paragraph 3: Cannot determine incidence rate in a cross sectional/comparative study
   1.1.1.3 Paragraph 4: It is not recommended to report the mean, median and range altogether. Depending on the distribution of the variable, report mean and its standard deviation if normally distributed; and report the median and 1st and 3rd quartiles if skewed.
   1.1.1.4 Last paragraph: It is adequate to report the estimate and its confidence interval only. There is no need to report the standard error as well.

1.2. Results
   1.2.1 Section "Response rates and descriptive statistics": What was the response rate at the individual level? The response rate for households was 789/816 and not 100%.
   1.2.2 Weighing could have improved the estimates of the confidence intervals.
   1.2.3 Section "Symptomology, during and health care": The range for number of days had diarrhoea is reported 1 to 30 days. It is hard to believe that a person could have had diarrhoea for 30 days and survive!!!
   1.2.4 Better to report OR (95% CI) than prevalence rates and their confidence intervals for the two groups.

1.3. Discussion
   1.3.1 Paragraph 1: The reported 40% reduction is based on the RR. It should be based on the OR which is 45%
   1.3.2 Discuss the limitation for non random selection of participants. A sampling frame could have been constructed given that "The number of households visited in each community was proportional to the number of cisterns that had been built


in the community". The number were there that could have been used to construct a sampling frame.

1.3.3 section "Survey methods", paragraph 1, last sentence. 15 years was use a consenting age but the consenting age is 14 years in Brazil!

1.4. Tables

1.4.1 Tables 1 & 2: Choose which statistic between the mean and the median to report. See comment 1.1.1.3.

2. Minor Essential Revisions

2.1 Title could be change to "Association of ownership of household cistern and diarrhoea: a cross sectional study"

2.2 Abstract: Cut down the number of words from the current 360 to not more than 350.

2.3 Methods’ section: Subsection "Analysis", 1st paragraph: This section is labelled "Data storage" but its contents include coding, data editing and ethical issues. Put all matters relating to ethical issues in one paragraph.

2.4 Results’ section: report all p values to 3 decimal places.

2.5 Discussion section: do not report 95% confidence intervals in this section.

2.6 Discussion section, Paragraph 4: Report that collection vessels in kenya reduced the risk of diarrhoea; and report RR=0.70, 95% CI [0.52, 0.95]. The result could be stated as "... significantly reduced the risk of diarrhoea by 30%.”

2.7 Discussion, last paragraph: Did the cistern store enough water all year round?

2.8 In the tables, report all p values to 3 decimal places, as well.

2.9 Table 3: delete columns 5 (S.E.) and 7 (p-value). The information in the S.E. and p value is contained in 95% CI.

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