Author's response to reviews

Title: Risk factors for Contracting Watery Diarrhoea in Kadoma City, Mashonaland West Province, Zimbabwe, 2011

Authors:

Brian A Maponga Dr. (abmaponga@gmail.com)
Daniel Chirundu Mr. (dchirundu@me.com)
Notion T Gombe Mr. (gombokent@yahoo.com)
Mufuta Tshimanga Prof. (tshimangamufuta@gmail.com)
Gerald Shambira Dr. (gshambira@yahoo.com)
Lucia Takundwa Dr. (lucitaku@yahoo.co.uk)
Humphrey Ndondo Mr. (humphreyndondo@yahoo.co.uk)

Version: 5 Date: 21 August 2013

Author's response to reviews: see over
Responses to reviewers’ comments

Reviewer: Marzia Lazzerini [1]

Abstract

1. Kadoma City experienced an unexpected increase in watery diarrhea cases from 27 to 36: It is not clear what the numbers mean. I suggest to delete them

   *We have restructured the sentence to improve the clarity and changed 36 cases to 107 cases as this was an error.*

2. Between weeks 36 and 38 in 2011”: later in the abstract and in several points in the text, and Figure you use both week numbers and dates. This is confusing. I suggest using one system only. Maybe dates are clearer to everybody.

   *We have revised the way time is reported to use dates only both in the abstract and in the latter text to eliminate the confusion that was arising from use of week numbers and dates at the same time*

3. Ngezi and Rimuka townships: add this is in Kadoma City, Zimbabwe

   *We have revised the statement to read “…. Ngezi and Rimuka townships in Kadoma City, Zimbabwe”*

4. “EPI INFO statistical software was used to capture and analyse data”: I suggest deleting “capture”.

   *We have deleted “capture” so that the statement reads “Epi Info software was used to analyse data”.*

5. Factor significantly associated with diarrhea: I suggest to divide them in protective and risk factors (otherwise it is confusing to the reader)

   *We have revised the abstract to report protective and risk factors separately so that the reader does not get confused.*

   Municipal water tested was free of E. coli, 52% of shallow wells and 3/15 boreholes tested were *positive for E. coli”: please use absolute numbers (and % in brackets).*

   *We have used absolute numbers and percentages in reporting as advised by the reviewers*
TEXT

Background

Page 5 “In 2011, Kadoma City experienced an upsurge of watery diarrheal cases during week 36 in 2011. The total cases reported by City’s five clinics doubled from 27 to 53 cases between week 35 and 36. The cases further doubled from 55 to 107 between week 37 and week 38. The weekly watery diarrheal cases at the under 5 clinic crossed the action threshold line during week 36. The diarrheal cases at the under 5 clinic increased 7 fold from 7 cases to 50 cases, between weeks 35 and 38”: It would be good to reference a figure (Figure 2) and maybe draw the “action threshold line”.

If you do not draw the threshold, it would be good if you can specify how much it is, and where it comes from.

*We included a figure (Figure 1) and drawn the ‘action threshold line’. In addition we have provided a formula we used to calculate individual weekly action thresholds*

METHODS

8) “A control was a child who did not develop diarrhoea from 5th September 2011 to the day of the interview,”: define from when to when the interview where taken.

*We have defined a control as suggested by the reviewers and the sentence now reads: “A control was defined as a child less than five years old, who stayed in the same township who did not suffer from diarrhea”*

9) Sample size “Epi Info™ statistical software (CDC 2011) was used to calculate sample size. Assuming 30 % exposure in controls and 50% exposure in cases, using unchlorinated water, Odds Ratio of 2.4, 95% confidence level, 80% power, and 10% refusal rate the required sample size was, 106 cases and 106 controls. [8]” : Why is a study referenced here? Did you used the sample size of another study, or, as stated, did you calculate it yourself?

*We referenced a study to indicate the source of the Odds Ratio 2.4 used as one of our assumptions in our study to calculate our own sample size. We did not use the sample size of another study rather we calculated our own.*

RESULTS

10) Figure 1 is linked in the text, but it is absent. I guess that what it is now

Figure 1 should be Figure 2.

*We have revised as per your observation. Figure 1 is now Figure 2*
11) Page 8, last paragraph” All 33 municipal water samples were satisfactory”: do you mean that they were below the threshold for contamination. I suggest to write this explicitly.

We have revised the statement to now read: “All 33 municipal water samples were not contaminated with E.Coli”

12) Page 9, first paragraph” The demographic characteristics of cases and controls were comparable.” : I suggest to substitute “comparable” with “There were not significant differences “

We have substituted “comparable” with “There were not significant differences” Now the statement reads: “There were no significant differences in the demographic characteristics of cases and controls”

13) Multivariate analysis, first line” Independent risk factors for contracting diarrhoea was hand washing in a single bowel”: I guess you meant “single bowl”.

Indeed we meant bowl and we have revised and the statement now reads: “These were: hand washing in a single bowl...”

14) Multivariate analysis, first line: there are some dots that need to be deleted.

We have deleted the dots at the end of the paragraph

DISCUSSION

15) In general, this could be somehow shorter. Rather than addressing each factor one by one, I suggest to discuss what these associations, taken together, mean. It seems to me that 1) This is faecal contamination; 2) This is coming from poor water sources, in absence of good municipal water. You could also add some reference on studies on improved municipal water, to comment how this may have an impact on diarrhoea, and reduce cost for care.

We have discussed the independent factors together and included references accordingly

16) Page 10, first paragraph “The multiple peaks, 3 to 5 days apart, suggest the incubation period of the causative organisms to be between 3 to 5 days. The causative organisms that were isolated, (Rotavirus, Salmonella, Shigella and E.coli) fit into the average incubation period of 3 to 5 days”: Add a comment on whether this is typical from faecal contamination. Add reference as needed.

We have added a comment and reference to support that this is typical of faecal contamination.

17) Page 11, second paragraph” In Kadoma city”: add “in this epidemic”
We have added “in this epidemic” and now the statement reads: “In Kadoma city, in this epidemic, the use of municipal water was protective…”

18) Page 13, first line “Some of the limitations for this study include the following:

Some children”: delete capital letter from “Some”

We have deleted the capital letter from “Some” and replaced it with “some”

CONCLUSION

19) first line “The outbreak was propagated; water washed and affected all therresidential areas in Kadoma City.”: Substitute semi comma with comma.

We have substituted semi comma with comma as suggested by the reviewer

RECOMMENDATION

20) Maybe you could number the recommendations.

We have numbered the recommendations as suggested.

PUBLIC HEALTH ACTIONS TAKEN

21) “Health education on importance of practicing good personal hygiene, boiling and treating water with water purification tablets before drinking and long term benefits of exclusive breastfeeding should continue. All municipal clinics now have weekly updated diarrhoea thresholds “: Why “weekly updated diarrhea thresholds” Do you mean weekly updated reports?

We have revised the statement and now reads, ‘All municipal clinics now have weekly updated diarrhoea thresholds charts. The charts are regularly updated and monitored to ensure early detection of outbreaks.

22) “In view of the protective effects of municipal water, the installation of dedicated electricity power lines was expedited by the Zimbabwe Electricity Supply Authority”: make more explicit why electricity is important (I guess to pump the water)

We have revised the statement so as to be more explicit and now the statement reads: “In view of the protective effects of municipal water, the installation of dedicated electricity power lines was expedited by the Zimbabwe Electricity Supply Authority, to maintain continuous pumping of water”.
Reviewer's report [2]

Title: Risk factors for Contracting Watery Diarrhoea in Kadoma City, Mashonaland West Province, Zimbabwe, 2011

Version:2

Date:17 June 2013

Reviewer: Giancarlo Ripabelli

Reviewer's report:

The paper describes a case-control study in Ngezi and Rimuka townships (Zimbabwe) about the occurrence of acute watery diarrhea in children aged less than 5 years in the period from 5/9/11 to 1/10/11. The study aimed to identify riskfactor to develop diarrhea by using a structure questionnaire administered to caregivers of both cases and controls.

Comments:

Before publishing the manuscript, minor essential revisions are required.

1)Abstract:
- please, check eighty two percent, it should be eighty-two percent;

We have checked and corrected as suggested

- please, modify the sentence “a case was a person below 5 years” into “ a case was defined as a child aged less than five years old”;

We have modified the sentence and it now reads: “A case was defined as a child less than five years old”

- please, modify the sentence a control was...” into “a control was identified as child aged less than five years”;

- please, delete the word capture;
We have deleted the word capture and now the sentence reads: “Epi Info™ statistical software was used to analyse the data”

- please, revise the sentence “the municipal water tested was free of E.coli”, into resulted not contaminated by”;

- please, check the italic form for each cited microorganism;

We have checked and corrected accordingly

- keywords should be one word.

We have revised the keywords

2)Background section:

- please, verify the consequential order of the references; there is reference 1and 3 but between them reference 2 is missing;

We have verified the order and we have included reference 2

- please, format the reference “Census 2000 Estimates” as the other references reported as number;

We have formatted the reference as suggested to match other references reported as number

- please, check the capital format for the cited microorganisms.

We have checked and revised accordingly

3)Methods section:

- please, avoid to repeat into the study in the sentence “children whose caregivers agreed to...”;

We have revised the statement to avoid repetition and now the statement reads: “Children whose caregivers agreed to participate in the study were recruited into the study. Children who had passed diarrhoea for more than 14 days were excluded from participating in the study

- please, format the reference “CDC, 2011” as the other references were reported as number.

This did not need referencing as we were merely mentioning the type of statistical software we used to calculate our sample size so we have removed “CDC, 2011”.

4)Results section:

- please, note that Figure 1 reported in the paper does not describe the geographic distribution of diarrheal cases, which were probably reported in the figure 2; hence, figure 1 is missing;
Figure 1 actually describes the weekly diarrheal thresholds and we have included it in the revised manuscript. Figure 2 shows the epidemic curve for Kadoma City for the period 1st September to 3rd November 2011.

- please, in the multivariate analysis paragraph mention the table 4 which describe the results; moreover, in the same paragraph, clarify and state for which variable or variables OR was adjusted:

*We have mentioned table 4 in the paragraph on multivariate analysis. We adjusted for distance of water source from home and other unknown confounders.*

- no results are present for Ngezi township.

*The results for Ngezi Township are included in this report. 78 cases (71%) were from Rimuka and 31 cases (28%) were from Ngezi and similarly for controls. Refer to Table 1.*

5) Discussion section:

- please, better state the first sentence of discussion;

*We have revised the first paragraph so it reads better.*

- please, avoid to repeat again the obtained results;

*We have revised the discussion and removed elements of repetition of results*

- no discussion is present for Ngezi township.

*This has been discussed as part of the whole study. See revised discussion*

6) References:

- ref. 13: the year of publication is missing;

*The year has now been included and it is 2008*

- ref. 16: pages are missing.

*The pages have been included and now the reference reads: “Curtis V and Cairncross S. Effect of washing hands with soap on diarrhea risk in the community: a systematic review. THE LANCET Infectious Diseases Vol. 3 May 2003: 275-280”*

7) Figure:

- Figure 1 should be the figure 2, because is missing the figure 1 regarding the geographical distribution of the cases.
This has been corrected as suggested. Figure 1 is now Figure 2

8) Tables:

- Table 1, table 3: please, check (Col%);

*We have checked and corrected*

- please, change 1.00 as >0.99 (the same for the other tables);

*We have changed 1.00 as >0.99 for all tables*

- please, specify what Q1 Q2 and Q3 are meaning.

*We have specified as follows: *Q1= First quartile; Q3= third quartile*
Reviewer's report [3]

Title: Risk factors for Contracting Watery Diarrhoea in Kadoma City, Mashonaland West Province, Zimbabwe, 2011

Version: 2

Date: 24 June 2013

Reviewer: Daniele Lantagne

Reviewer's report:

This is a solidly designed paper with interesting results. The authors are to be Commended for their work. However, there need to be revisions before publication.

Compulsory Revisions

1) The language around "threshold" for reporting is confusing to the reader - please define and explain what the threshold is and who manages that.

   We have illustrated the threshold in figure 1. A formula used for threshold calculation has been provided. Health care workers at health centre level including nurses and Environmental Health Technicians manage these thresholds.

2) There are some language use issues throughout the submission - for example figures and tables are inanimate objects - they don't do actions - Figures don't show, for example. It is recommended an editor for the journal review the paperto ensure language is appropriate.

   We have revised the language in our submission to ensure its appropriateness

3) There is no information in the paper about how the water testing was completed (methods) or what indicator was used, or what the numerical results of the water testing were (aside from positive). Please greatly expand on these results, and discuss their meaning.

   We have included information in the paper about how the water testing was done and we have also included the results in the results section.
4) It is not clear to me from the epi-curve that this is water-washed - how did the authors come to this conclusion? Please justify.

*Water-washed diseases are infections that are caused by poor personal hygiene resulting from inadequate water availability. Multiple peaks as shown in the figure 2 are suggestive of person to person contamination. We have revised this in our discussion after we noted that this was in fact a propagated outbreak suggestive of person-to-person transmission.*

5) Were the breastfeeding data run only on infants <6 months of age - or some other age group, or the whole group of children <5? If the whole group of children under 5, the results are not adequately interpreted, as exclusive breastfeeding would be an indicator then of something else - maternal care, SES, etc. If only < a certain age, indicate in methods. Revise conclusions, etc, to reflect this.

*Breastfeeding data was run for infants ≤ 6 months. We have indicated this in the methods and revised the interpretation of the results.*

6) There are errors in the references, with people being referred to in the paper by first name, remove these, and with wrong dates. Review and confirm all references.

*We have reviewed and confirmed all references*

7) Water tablets were seen as protective - but was this self-reported use or confirmed use of tablets? Can you talk about (if it's self-reported) the bias of self-reported data and whether it's the tablets that offered the protection, or bias among those who said it was the tablets?

*This was self-reported use of water tablets. We have acknowledged the limitation of using self-reported data in our report that of ascertainment bias.*

In general, the results are well delineated, but there are questions as to the meaning and interpretation of the results, and what that means for policy!