Author's response to reviews

Title: The social ecology of water in a Mumbai slum: failures in water quality, quantity, and reliability

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Author's response to reviews: see over
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Dear BioMed Central Public Health editors,

We are pleased to resubmit our manuscript (#2559614616833909), originally entitled “Failures in the quality, quantity, and reliability of water provided through an informal distribution system in a slum in Mumbai, India.” The manuscript has been revised for the third reviewer’s (Dr. Richard Guerrant’s) comments. In addition, we have addressed Dr. Guerrant’s specific feedback below. We have already submitted two prior rounds of revisions in response to previous reviewers’ comments.

We would also like to change the title of the manuscript if this is possible to the following:

“The social ecology of water in a Mumbai slum: failures in water quality, quantity, and reliability”

Thanks again for considering this manuscript, and we look forward to your final decision.

Sincerely,

Ramnath Subbaraman, M.D.
On behalf of the entire study team

Below the reviewer’s comments are in italics, and our responses are in regular font.

*This is an excellent and thorough report in the very important area of water availability and quality.*

Thank you for these kind words regarding our paper. We tried to perform a comprehensive evaluation of water-related issues in this community, and we believe that our findings have implications for urban slum dwellers in India and in other countries.

**Relatively minor comments include:**

1. **Can more information be provided on the actual quantities of coliforms detected (ex in Table 6), instead of just present or not?**

We did provide some information on coliform counts in Table 5, in which we provide the mean and standard deviation in each season for coliform counts in contaminated household water samples.

It would be difficult to integrate quantities of coliforms detected into the analysis in Table 6, because Table 6 shows the outputs of a logistic regression, whereby the dependent
variable (i.e., coliforms present) is binary (y/n). To examine the impact of certain independent variables (e.g., season) on the actual quantity of coliforms, we would have to redo the analysis as a linear regression. While this is possible (and we had previously considered such as analysis), our general sense of the coliform counts is that there was not major variation in coliform counts – that is, nearly all the counts suggested mild or moderate, but not gross, contamination. So our general sense was that the linear regression was likely to be a low-yield exercise which would not add too much information on top of the already performed logistic regression analysis.

2. **Is there any opportunity to assess anthropometry (especially HAZ scores) relative to water availability and contamination?** (see Dillingham, Guerrant. "Childhood stunting: measuring and stemming the staggering costs of inadequate water and sanitation". The Lancet 363: 94-95, 2004)

This is an excellent suggestion. We actually did perform a separate anthropometrics study in the community, in which we gathered height, weight, and age on nearly every child less than five years of age (n=811), and so we will be able to calculate HAZ scores for the population. Based on preliminary analyses of the data, it looks as if there is a higher proportion of children who are underweight (based on weight-for-age Z score) in Kaula Bandar as compared to other slum households in Mumbai captured in India’s official DHHS survey (for more details on this study, please see the following journal article: Subbaraman R, O’Brien J, Shitole T, Shitole S, Sawant K, Bloom DE. Off the map: the health and social implications of being a non-notified slum in India. Environment and Urbanization. 2012;24(2):643-63). We still have to fully evaluate the HAZ scores, though I anticipate we will find the same trend.

The problem with the anthropometrics data is that they are not linked to the data from our water study. In other words, we do not know the specific HAZ scores for children in the households that were captured in the water study, so we will not be able to perform an analysis looking for associations between low water quantity (in liters/capita used per day) or microbiological contamination and HAZ scores. While it is likely that poor water and sanitation access are contributing to higher rates of undernutrition for children in Kaula Bandar, we are unable to do a formal analysis of this question.

Examining the association between water quantity, quality, and HAZ scores would be a very interesting study to perform in the future. In fact, given that we have a relatively easy rapid survey method for capturing water quantity in these communities and, given that height and age data are easy to obtain, it would be fairly easy to perform such a study at the household level focusing on quantity of water consumed for a fairly large sample size. This is a future research possibility that we will keep in mind as we try and expand our work on water in urban slums.