Reviewer 1

The most valuable lesson from this study is that daily low dose chlorination of improved dug wells does not work as well as one might have expected when compared to the high dose chlorination monthly, although this later method also has its limitations in terms of implementation. The reduction of fecal coliform is impressive, but it is not entirely eliminated.

In addition to significant improvement of presentation and writing, the following methodological shortcomings limit the usefulness of the manuscript and should be clearly acknowledged:

1) Concentration of Clotech: A household bleach of 5.25% chlorine is used. However, the concentration of the chlorine is never independently verified. Numerous chlorination studies have found that because chlorine is unstable, in order to determine the dose, the concentration of the chlorine solution must be calibrated before each experiment. Most likely, the actual dose applied in this study are all lower than reported. However, because the initial chlorine concentration was never measured, it will never be known, and could have been the reason why the low dose did not work because it simply wasn’t enough. This is a significantly limitation.

2) Study Design: I looked very hard to see whether there is any overlap of monthly high dose treated well (Table of Figure 1, Table of Figure 2, Table of Figure 4) and the low dose treated wells in Pabna (Tables 1a, b, c and d). Because the nonnomenclatures of the wells are not well defined (Dug well, Indara well), it is unclear. It would have been much more desirable to have used the same wells that monthly chlorination had been applied in one year, and use those to further experiment. This is because the authors did not report any other water chemistry data that could affect the effectiveness of chlorination. Lack the control of the water chemistry, at least they could have kept that variable constant. Please clarify, and if this is not done, this severe limitation should be acknowledged.

3) Presentation: All figures are redundant of the tables and should be removed. The date in some tables are missing the year. All column headings should clearly indicate whether the parameter was measured before or after chlorination.

Abstract

- Expand the abstract. “shock chlorination has worked in all cases” but most of the paper is providing examples of its ineffectiveness, e.g. lasting only 1-3 weeks and the need for a better system.

Introduction

- The arsenic portion of the introduction seems unnecessary and tangential to this study. Yes, it partly explains process of arriving at chlorination as a focus, but that is not clear from outset. In addition, the As concentration used in the manuscript is entirely wrong. It should be ug/L or ppb, not mg/L or ppm!
Methods

- In discussing daily chlorination is chosen, references are needed to support the citation that point-of-use epidemiologic studies that found daily chlorination to be effective at the household level, but need to show supportive evidence of why it should work at the source. Authors mention that it seems more feasible to only have to teach the well caretaker how to chlorinate rather than 500 users individually but not why it would be as an effective method as point-of-use which has been successful elsewhere at reducing the incidence of diarrheal disease. Also by removing the users from the procedure they do not talk about possible contamination from storage container or unhygienic handling at point of use. In general the way they write it they seem overly confident about their proposed methods being ideal without the scientific support of at the source chlorination of wells.

- Aquacheck test does not seem to be very reliable

Results and Discussion

- At the end Authors wrote “indeed, suggestions from CDC experts and others were that direct chlorination in dugwells does not work.”...This appears to be rather inconsistent with the entire premise of the manuscript that chloration of well is a promising solution. It is puzzling why the authors still wanted to proceed with at a low daily dose (0.5 mg/L) (also since they were ignoring other aspects of water chemistry) but among the 4 test wells, the results show a requirement between 2-200 mg/L to get any residual chlorine. They acknowledge that such high doses would be unfeasible but do not discuss why it is a problem to have such high chlorine doses.

Conclusion

- Why recommend a continuation of monthly shock chlorination when the authors acknowledge its ineffectiveness after a certain period of time and difficulty in implementation? Ex: the well is unusable for first few days, it is soon contaminated and then highly contaminated by time of next treatment, and also caretakers are very unreliable. A more accurate conclusion that reflect that glass is half full (or half empty), e.g., presenting both the pros and cons of the methods, are more desirable.

Title should be changed to: A Comparison of High Dose Monthly and Low Dose Daily Chlorination of Improved Dugwells in Bangladesh.

Grammar/language/style requires major changes.

Conclusion needs further elaboration/clarification.

Reviewer 2

The paper is on chlorination of water, with no relevant information to merit publication in a journal devoted to publication of new findings.

Nevertheless I have some suggestions that could help to improve the manuscript:

1. The presentation has to be rearranged. Some sentences seem incompletes and difficult to understand.

2. Many sentences that should be included in the introduction are presented in methods and results.

3. What does it mean manuscript as a section of the introduction?

4. Refer the units of concentration consistently: L, l and per liter are used

5. The note on sodium hypochlorite solubility in water is obvious (and not completely correct); so better remove it.

6. Figures are excessive and disproportionate. Try to show just representative results. I suppose that
7. Some chemical formulas of hypochlorite need to be corrected. I suggest refer the concentration as residual free chlorine all long the manuscript.

8. The acid dissociation of hypochlorous acid should be corrected

9. Where in the text is explained figure 4?

10. Could the authors document that the low buffering capacity indicates that breakpoint is reached quickly.

11. The objective of the paper has to be clearly indicated.

Presentation needs revision.

Grammar/language/style requires major changes.

Figure many/Table many may be left out.

Conclusion needs further elaboration/clarification.

[Author:

1. Please give your response(s) under each comment of each reviewer and bold the changes you have made in the text

2. While revising the paper, ensure that you have properly followed the JHPN style.

3. Check the references for accuracy and ensure that the references are recorded as per the JHPN style

4. Please note that unpublished documents cannot be cited as references.

5. Information for Contributors is enclosed for your guidance]