Reviewer's report

Title: A prospective study of rural drinking water quality and acute gastrointestinal illness

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Reviewer: Dr Eugene Rice

Level of interest: A paper whose findings are important to those with closely related research interests

Advice on publication: Accept after revision, which I do not need to see

This manuscript describes a study designed to determine if a relationship exist between the consumption of untreated private well water and gastrointestinal disease. Although the sample size of the study was relatively limited; the conclusions appear to be supported by the data. The findings in general are in agreement with the limited number of other studies which have been conducted on this topic. It would be of interest if more information had been provided on the individual wells themselves. Summary tables compiling chemical characteristics of the subject waters as well as physical characteristics such as well depth, hand dug or drilled, protected well head, etc. would have augmented the bacteriological data. The sanitary bacteriological results would have been enhanced had analyses also been conducted for levels of total heterotrophic bacteria--particularly owing to the discussion regarding "background organisms." (pages 5 & 8).

Specific suggestions:

1. Provide a more detailed description of the microbiological methods used to analyze for total coliform bacteria and Escherichia coli. This is of particular interest since the role of background organisms is presented as an important factor in the analysis (page 4).

2. Please explain the basis for choosing 150 CFU/ 100 ml as the parameter used in censoring data for the logistic regression model (page 5 & 6). Traditionally heterotrophic plate count levels above some number such as 500 CFU/ml have been used to determine if background organisms may inhibit coliform growth. More information regarding how the background levels were determined is necessary.
3. It is assumed that the E. coli levels in the first paragraph on page 9 is a misprint, and should read:
"...at least 1CFU/ 100ml)"

**Competing interests:**

None declared.