Reviewer's report

Title: Collecting household water usage data: telephone questionnaire or diary?

Version: 3 Date: 10 September 2009

Reviewer: Kieran McCaul

Reviewer's report:

Minor essential revisions
First, the axes on the Bland-Altman plots need to have more values on them. Simply labelling the maximum and minimum values doesn’t help. Also the Y-axis should be labelled more informatively. The label “difference” should be “Difference: CATI – Diary”. Also the line of zero difference needs to be drawn on each figure.

Discretionary revisions
The increase in variance associated with increase in the average that can be seen in the Bland-Altman graphs is perhaps not that unexpected since the respondents are being asked to estimate a count. Counts follow a Poisson distribution and a characteristic of this distribution is that the mean and the variance are the same. Hence the variance-average relationship in the graphs is not unexpected.

You would probably get a better indication of what was going on if you took the natural log of these counts before computing the average and the difference.

What you should be focussing on is evidence of bias in the figures. If you fit regression lines to the points in these figures, you would be hoping to get a horizontal line near the zero difference line.

A regression line that was parallel to the zero-difference line, but above or below it, would indicate general bias in one of the instruments.

A regression that was not parallel to the zero difference line would indicate differential bias. This is what you see in Figure C.

To me, the results for washing machine loads and garden watering don’t look that bad, probably because these two activities tend to be done by one person in a household. The counts of toilet flushing suggest that the CATI response tends to underestimate the Diary response when the average count is high. In other words, in large households a single respondent underestimates the total flushes.

Level of interest: An article whose findings are important to those with closely related research interests

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