Reviewer's report

Title: Impact of duration of structured observations on measurement of handwashing behavior at critical times

Version: 1 Date: 15 February 2013

Reviewer: Eric Lau

Reviewer's report:

Major Essential Revisions

1. In the methods section, please clarify in the short observation group, the morning observations were started between 8:00am – 1:00pm or 8:00am – 11:30am. In case of the former case, was the second observation delayed if the first observation started near 1:00pm?

2. Please clarify if it’s common to have very short break (e.g. within 15 minutes) between the two short observation sessions or if it happened to have a consecutive 180-min observation period.

3. In the discussion, the authors noted that the timing of short observation may affect the results. Please report the distribution of the start time in the first short observation.

4. Table 3 reported significant differences at different timing of observations. So the main conclusion of the paper that short observations had unexpectedly low mean number of observed opportunities may have been confounded by the timing of the short observations. Adjusting for the timing effect is important to separate these different effects.

5. Table 3, for better understanding, please report 2 significant figures for the mean opportunities observed. For example, mean number of defecation opportunities in the first 90 minutes of long observation is 0.0. It is not sure if it’s an absolute zero (which actually indicates a strong timing effect).

Minor Essential Revisions

1. page 4, under “data analysis” line 5, “in the long observation group” should be “in the short observation group”

2. For comparison between first 90 minutes and next 210 minutes under long observation in the same households, paired t-tests should be used.

Discretionary Revisions

The main concern of the conclusion is the confounding effect of the start time of the first short observations. A time-matched comparison between short versus long observations or additional comparison between the second short observation versus long observations may provide stronger evidence. If timing is crucial of observations of different activities, a presentation of observed
opportunities across different timing will be very informative for future design of similar studies.

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

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests