Reviewer's report

Title: Hand hygiene instruction decreases illness-related absenteeism in elementary schools: a prospective cohort study

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Reviewer: Wolf-Peter Schmidt

Reviewer's report:

General:
The authors compared absenteeism in children from classroom that had received a hand hygiene intervention with those from classrooms that did not receive an intervention. Hand hygiene hardware (hand sanitisers) and simple promotion materials (posters) were available to all children, i.e. the study aimed at estimating the additional effect of hand hygiene instructions given adequate hardware. This is an interesting and important research topic. The authors found no impact on absenteeism, except for the period during the influenza season.

This article has a number of major flaws that need to be addressed prior to publication.

Major concerns
1. This was a cluster allocated trial, although the allocation procedure is unclear. “Systematic sampling was used to assign classrooms to an intervention or control group by grade.” Can you explain in more detail what you mean by this? How did you allocate classrooms to intervention and control? And most importantly, what was the number of classrooms allocated? This seems like a major omission in the description.

2. I strongly recommend to follow established CONSORT guidelines for reporting cluster randomised trials in research articles, even if allocation was not strictly random.

3. If an intervention is allocated at cluster level (classroom) then the analysis MUST take this clustering into account. Get expert statistical help for this. Almost inevitably, the p values will increase, which may impact on the interpretation of the findings. This is a major flaw that must be addressed. Otherwise this article would be unsuitable for publication.

4. When dealing with count data and incidence rates, you should use Poisson regression, not the t-test, unless you analyse classroom level rates. How exactly was absence rate defined? How were multiple absence episodes in a child treated? Why do tables 2a and b report a percentage (a risk), and not a rate (e.g. incidence per person time, or mean number of episodes per individual)?

5. What was the primary outcome of this study as specified in the protocol prior to the study? If it was not the difference of absence during the influenza season, then this finding should not be the main conclusion, and not emphasised in the
abstract.

Minor:
1. For non US readers the term “Bimonthly” may not be easy to understand. Does it mean every two months? Or twice per month?
2. Please explain for non-US readers the acronym “IL“.
3. „As hands are the primary mode of transmission of infectious disease among schoolaged children,“ I would disagree that this is as clear cut as this. There is an ongoing debate on the relative importance of droplet, airborne or contact transmission for the transmission for example of respiratory pathogens, especially influenza.
4. “evidence-based curriculum was used“ what evidence?

Level of interest: An article of importance in its field

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