Reviewer's report

Title: Measles transmission from an anthroposophic community to the general population, Germany 2008 Effect of early intervention on size and duration of measles clusters in school and kindergarten settings

Version: 2 Date: 13 December 2010

Reviewer: Jean-Luc Luc Richard

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An outbreak of measles in four counties of Bavaria post-import from an anthroposophic school in Austria provided the opportunity to evaluate the outcome of two strategies aiming at the containment of measles transmission in schools and nurseries: school eviction for not immune persons after the first reported case in a the school (intervention A) and school eviction after the second reported case (intervention B).

This interesting study offers rare outcome data about two variants of a standard intervention to control measles outbreaks in institutions such as schools and nurseries. By proving that “the faster is the better”, this well written manuscript is very useful for public health policy makers and field officers in the current context of measles elimination from Europe by 2015.

Major Compulsory Revision:

1. “Results: Effect of differently applied control measures in schools and kindergartens, and Discussion”: you compared the median number of measles cases in the schools with intervention A (school exclusion of non immune persons immediately after the first reported case) to the median number of cases in schools with intervention B (school exclusion after the second reported case). Besides the different reactivity of each intervention, these numbers depend also on the size of schools, specifically on the number of pupils or students not immune for measles. As mentioned in the discussion, it would ideally be necessary to compare attack rates (with an odds ratio and CI). This analysis was not performed because the population at risk was not well known (end of discussion). Could we not assume that all non-immune individuals attending these schools are the population at risk (this information is known since it was necessary for intervention)? Even if we do not know the details of contacts between cases and non-immune individuals from each school, this seems a very reasonable approach given the high infectivity of measles (also by aerosols). In the worst case, it seems all the same useful to calculate an attack rate per school, and globally for schools A respectively B considering all pupils regardless of their immune status, with discussion of the limitations of this approach in the discussion section.

2. “Results: Effect of differently applied control measures in schools and kindergartens, and Discussion”: since the purpose of this article is to compare
the outcome of two interventions, and in particular the advantage of strategy A compared to strategy B, it would be more specific to provide the number of measles cases in the clusters and their durations AFTER onset of intervention. Accordingly, the index cases of clusters A and the first two cases of cluster B should not be counted, and the calculation of the duration of the cluster should start with the intervention.

Minor Essential Revisions
1. “Outbreak background”: indicate immunization coverage for measles in the four counties most affected by the outbreak.
2. “Data collection and descriptive analysis”: specify what are the criteria and the official notification deadline for measles.
3. “Data collection and descriptive analysis”: specify which test was used to compare medians.
4. “Methods: Clusters”: describe here the definition of a cluster (and not in results).
5. “Methods: Control measures”: describe here the two interventions (and not in results).
6. “Methods: specify if the teachers and staff of schools and kindergartens were included in the study (as subjects to intervention, cases of measles, denominators).
7. “Results: Outbreak description”: “25 cases were hospitalized”: precise 25 of 217 or 161 cases and give the corresponding percentage. If it is 25/161, reverse paragraphs 4 and 5.
8. “Results: Effect of differently applied control measures in schools and kindergartens”: a double overlaid figure showing the epidemic curve for the 6 A schools and the curve for the 4 B schools (in distinguishing each school / kindergarten in both cases) would be useful, permitting to assess the dynamics of the introduction of measles in each institution. Interacting with the intervention this dynamic can influence the final number of cases (for example in the strategy B, the final outcome would probably differ if the second case occurs two days after the index case (multiple introduction by almost concomitant cases of the same generation) or whether it occurs 12 days after (second generation)).
9. “Discussion”: the duration of the school clusters may also depend on the number of cases and hence of pupils in each school. This also needs to be mentioned among limitations in the discussion.
10. “Discussion” “Our study confirms that health professionals should use all opportunities...”: I agree, but reformulate (“confirm”) because this was not the topic of your study.

Discretionary Revisions
1. “Results: Outbreak description”: consider also providing the average incidence of measles for the four most affected counties and for the whole of Bavaria.
2. “Results: Outbreak description”: “Vaccination of two of the five persons were
laboratory confirmed”: unclear for me; do you mean that measles of 3/5 vaccinated persons was laboratory confirmed?
3. “Results: Outbreak description”: give in brackets the percentage of the main reasons for not being vaccinated.
4. “Results: Clusters”: Add a note in the table 4 indicating the three schools where the same school bus played a role in transmission of measles.
5. “Discussion” “Our results are not statistically significant… This may be explained by the low number of cases”: in your results, the median number of cases was significantly lower with intervention A. Moreover, should you not rather speak of a low number of clusters (instead of cases)?
6. “Discussion” “with low to moderate vaccination coverage”: consider to delete “low to” because school exclusion is difficult to implement and unfruitful where vaccination coverage is low.

Minor issues not for publication
See PDF-File, and pay special attention to references.

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

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests