Author's response to reviews

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

Authors:

Maria Wadl (wadlm@rki.de)
Anette Siedler (siedlera@rki.de)
Wolfgang Krämer (wolfgang.kraemer@stmug.bayern.de)
Maria E Haindl (Andrea.Fuchs@LRA-TS.Bayern.de)
Stephan Gebrande (Stephan.Gebrande@LRA-TS.Bayern.de)
Irene Krenn-Lanzl (irene.krenn-lanzl@lra-mue.bayern.de)
Annette Mankertz (mankertza@rki.de)
Wolfgang Hautmann (Wolfgang.hautmann@lgl.bayern.de)

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Author's response to reviews: see over
Dear Dr. Norton,

please find our comments to the Editorial Board and the Reviewers below.

We hope the revised version of the manuscript finds your approval!

With kind regards,

on behalf of the authors,

Dr. Maria Wadl
Editorial comments:

- My decision is to ask for minor revisions. I do not follow the recommendations from reviewer one regarding major compulsory revisions: the authors seriously took into account the recommendations from reviewers 1 and 2 and made extensive revisions in their paper. However, I recommend that the authors consider discretionary revisions recommended by reviewer 3 and consider minor and discretionary revisions recommended by reviewer 1.

The authors addressed all revisions, please see below.

- **Journal style:** the authors ensured that the manuscript conforms to the journal style of BMC Public Health.

General comments from the authors:

Comment 1

We rephrased a sentence in the results section.

**The manuscript reads now as follows:**

**Results (Page 12, last Paragraph):**

"Two of the five vaccinated persons, including the patient vaccinated twice were among the confirmed cases."

Comment 2

We realised that in the last version of the manuscript there was an error in the calculation of the mean attack rates, we apologize for that.

**The manuscript reads now as follows:**

**Results (Page 13, last Paragraph):**

"The mean attack rate in institutions was 2.7%. Stratification by intervention led to a mean attack rate of 1.9% (range: 1-16%) if intervention A was used and 3.3% (range: 1-21%) if intervention B was applied."
Reviewer 1

1. Comment

The article has strongly improved. The authors responded to most of my comments. The only major concern remains the vagueness about the denominators used to calculate the overall attack rate and the attack rate by type of intervention. Among the limitations of the study, it is now mentioned that "... information on the population at risk (number of susceptible contacts per school or kindergarten) was not sufficiently available. Therefore, attack rates were compared among all children and/or teenagers attending the affected schools and kindergartens". Above in the discussion it was also noted that "The compared attack rates should be interpreted with caution since the number of persons who were already immune against measles was not IDENTIFIED [my emphasis] in the clusters". But in the methodological section it is clearly suggested that the immune status of children attending nurseries or schools submitted to the intervention was assessed: "The trigger for exclusion of NON-IMMUNE [my emphasis] persons from the respective school or kindergarten (...). IMMUNE PERSONS WERE [my emphasis] those with at least one documented vaccination against measles a minimum of three weeks before disease onset, immunity confirmed by serology or anamnestic measles. (...) Vaccination cards in schools and kindergartens were checked by staff from the LHAs...". Accordingly, if the number of non-immune (or at least unvaccinated) children in each school or kindergarten is known, it would be more specific to use them as denominators in attack rates (instead of the whole number of children). On the contrary, if the authors were unable to obtain from local health authorities sufficiently reliable information about the number of non-immune children, please modify the above sentence containing the words "not identified", which seems to be in contradiction with the situation described in Methods.

The respective local health authorities assessed the immune status of children attending nurseries or schools, but did not systematically collect this data for the population at risk in order to be used for an analysis. Hence we follow the last recommendation of reviewer 1.

The manuscript reads now as follows:

Results (Page 16, Paragraph 3):
"The compared attack rates should be interpreted with caution since the number of persons who were already immune against measles was not available for the population at risk in the respective institutions."
2. Comment

You removed old table 4 of your article, neither without specifically mentioning it nor justifying it in any of your answers to the reviewers. However this table contained the main data and the central results of your research, in particular the number of cases and children in each kindergarten and school (i.e. numerators and denominators to calculate the attack rates). I expected on the contrary that you add the number of new cases that occurred post-intervention and the attack rates in this table. Currently, no figure making it possible to calculate these rates for both interventions is available in the article! Moreover, the attack rates appearing in the current version of the text do not correspond apparently to those that could be calculated from the old table 4 (21/1474 for A and 49/1730 for B intervention?). I would like this table is completed and reintroduced in the article.

We agree that we should have explained why we decided to remove Table 4. The reason for that was that we followed the major compulsory revision number 2 from the last revision process.

Excerpt:

“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.”

The authors addressed this comment.

The manuscript reads now as follows:

Methods (Page 9, Paragraph 3):

“In order to analyse the effect of the respective intervention we excluded the case with the first disease onset from all clusters in which intervention A was applied and the two cases with the first disease onsets from all clusters where intervention B was used. The duration of clusters by intervention was calculated starting with the onset of the respective intervention.”

As a consequence we needed to exclude the first (intervention A) and the two first cases (intervention B) from the total number of cases per cluster and to subtract the days between disease onset of the first and the second case (intervention A) as well as of the first two cases and the third case from the duration of clusters (intervention B). Illustrating this in Table 4 seemed to be a bit complicated. However, we tried to integrate this additional information in Table 4. We would appreciate a short comment from the editors whether or not Table 4 is comprehensive enough to be published. We agree that important results are shown in Table 4 but if the Table 4 is now too complicated we would also agree to omit it.
Reviewer 2

1. Comment
We have to clarify if we use the incidence rate or incidence (cumulative incidence). In my previous review I mentioned, that in case of incidence rate we should use number of new cases/100,000 person-time..., but person-time is just general ... in the real situation it means person-years or person-months..... according to the unit used. In the paper it is unclear. If we use just incidence, then we speak about number of new cases/100,000 population eventually number of new cases/100,000 persons...as you had written before and what finally might be clearer. We have to decide based on the denominator used. This comment relates to the text in RESULTS: Outbreak description: 1 paragraph, 3 paragraph; FIGURE 1 + title of the figure 1; FIGURE 3 + title of the figure 3. I apologize, if the explanation was unclear in the first review.

The authors addressed this comment.

The manuscript reads now as follows:
Results (Page 10, first Paragraph):
“In the outbreak period, the four counties had an average measles incidence of 32 cases per 100,000 population (range: 12-71) which was the highest among all Bavarian counties (overall: 2 cases per 100,000 population, Figure 1).”

Results (Page 10, third Paragraph):
“The incidence rate was highest in persons aged 10-14 years (170 cases/100,000 person-years), followed by those 0-4 years (150/100,000) and 5-9 years (140/100,000) of age (Figure 3).”

Figure 1 and 3 including the titles were adapted accordingly.

2. Comment
The p-value in the text might be written in small letter (p=...) instead of capital letter (P=...).

The authors addressed this comment.