Reviewer's report

Title: Geographical differences in whooping cough in Catalonia, Spain, from 1990 to 2010.

Version: 3 Date: 30 November 2013

Reviewer: Alberto Eugenio Tozzi

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The manuscript studies the differences in incidence of pertussis between rural and urban areas. There are some issues in the interpretation of the results that may be addressed through a better description of the study design.

Major comments

1. Categorization of rural and urban areas around mean population density may not be completely efficient. In several countries the rural and urban communities are classified by a National statistic entities putting together several indexes. Does a similar classification exist in the area under study?

2. I understand that the setting in the entire area under study is pretty homogeneous. However I think it is very important to investigate a number of factors that may act as confounders in the analysis:
   - sociodemographics: it may be that the number of households differs between rural and urban areas thus affecting the matrix of contacts. Age may be different as well;
   - immunization coverage;
   - attitude to diagnose pertussis: it may be that lab resources are used more frequently in urban areas.

The Authors should include these factors in the models or at least provide some discussion on their potential effect.

3. Seasonality does not seem to follow a precise pattern. However the Authors may have tested seasonality by age group. I would expect a more pronounced seasonality in infants and children. Are these data available?

- 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 received grants for research by Glaxo SmithKline and Sanofi Pasteur MSD. Both vaccine manufacturers have pertussis vaccines in their portfolio.