Reviewer's report

Title: Occupational risk for cytomegalovirus, parvovirus B19, and varicella-zoster virus in women working in child day care

Version: 1 Date: 15 January 2012

Reviewer: Jennifer S. Albrecht

Reviewer's report:

Major Compulsory Revisions

1. The DCW data set contains data that are clustered, i.e. women were sampled from the same day care centers. However, it appears that clustering was not taken into account in the analysis, leading to an underestimation of the standard errors of the odds ratios. These data should be reanalyzed using a technique that will account for clustering (see below).

2. The data from the general female population was collected using frequency stratification. Turks and Moroccans were oversampled. This stratification must be accounted for in the analysis so that the sampled population is representative of the target population. If the authors have done so, they should indicate this in the methods.

3. Because the prevalence of seropositivity (of CMV, B19 and VZV) is greater than 10%, odds ratios will overestimate the prevalence ratios. An analysis using a log binomial regression model with the day care center id as the clustering variable would provide more precise estimates of the prevalence ratios and their standard errors.

4. A cross sectional study can’t establish risk because there is no temporal link. All references (including title) to the occupational risk of infection should be replaced with wording that discusses the increased prevalence of seropositivity among DCW, accounting for confounders. While this increase in seropositivity could be due to working as a DCW, it could also be due to unmeasured confounding.

Minor Essential Revisions

1. The methods section should include more information on the sampling scheme used in the cross-sectional study on the general female population, the methods used in obtaining target population estimates for that study, the methods used for accounting for clustering in the DCW set, and the methods used for the selection of the final regression model.

2. The citation for the original study on the DCW is missing. Were the authors responsible for that study?

3. The DCW data set includes information on women aged 16-44 while the other
study contains information on women aged 18-44. Can the authors comment on the lack of inclusion of information on the women aged 16-18?

4. On page 12, the authors should limit themselves to commenting on what the data indicate.

5. In the Discussion, the authors should indicate that it is not possible to establish risk in a cross-sectional study. This is the largest limitation of the study, yet it is not mentioned.

8. Also in the Discussion, the authors state that the ‘sampling data of the populations differed’ but it is not clear how they differed. Please provide a more detailed explanation.

9. The authors state that the DCW are at risk of infection with CMV, but these results suggest that they are at decreased risk of infection because they have increased immunity.

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

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