

## **Reviewer's report**

**Title:** Immune cell counts and risks of respiratory infections among infants exposed pre- and post-natally to organochlorine compounds: a prospective study

**Version:** 1 **Date:** 22 September 2008

**Reviewer:** Glinda Cooper

### **Reviewer's report:**

The analysis by Glynn et al. examines prenatal and post-natal levels of PCBs and p,p'DDE in relation to history of respiratory infection, white blood cell counts and lymphocyte subsets among 3-month old infants in Uppsala, Sweden. The data are of high quality, and include a maternal blood sample taken during weeks 32-34 of the pregnancy, seven days of milk samples, and for approximately half of the infants, an infant blood sample taken at age 3 months. History of infections was ascertained by a structured in-person interview with the mother 3 months after delivery, and a detailed lactation history was also obtained at this time. The authors anticipated and answered questions that could be raised, such as the difference between the subset of infants with and without a blood sample, and the correlations between different types of organochlorines (e.g., PCB 28, 52, and 101 versus the mono-ortho and di-ortho congeners). The analysis, presentation, and discussion were relatively clear and thorough.

The crucial issue raised by this study is "What does it mean?" Infection risk is the more clinically relevant, but also the most subject to misclassification, of the endpoints examined. The association between one of the subsets of PCB congeners (28, 52 and 101) with infection history was also seen with white blood cell counts, which I think offers additional support for the findings. Could the association with infection history actually be more closely related to timing of infection (i.e., how recently an infection occurred) and thus with white blood cell count)? If so, what does that mean? What was the a priori expectation or hypothesis regarding each of the other immune markers? More discussion of how we should be interpreting the various lymphocyte measures would be useful.

The authors do a good job of discussing this study within the context of previous literature

### **Minor Essential Revisions**

**Abstract:** It would be helpful to include the definition of mono-ortho and di-ortho PCBs (i.e., which congeners are included)

**Background, 1st paragraph.** What do you mean by "immunotoxic"? Can you be more specific – i.e., is this literature predominately focusing on immunosuppression, or is it broader? Similarly, in the 2nd paragraph, you mention "alterations in markers of immune function". What kind of changes (direction) are seen, and is there any consistency?

Methods: It would be clearer if you explicitly stated in the methods section that women who did not breast feed were included in the study and that in these cases, postnatal exposure was assumed to be zero.

The details of the information about infection history are a little unclear to me. It would be useful to provide the specific questions that were asked.

I'm not sure of the value of summing across the different exposure groups. Are there other examples of this kind of analysis in the literature, and if so, is this method (summing categories) the usual procedure that is used? I'm not sure how to interpret this summation variable.

Results: page 11 – white blood cell and lymphocytes analysis – Although Figure 1 is a clear visual display of the relevant data, it doesn't allow the reader to easily describe the results. Please provide the actual data values for each of the PCB 28+52+101 categories corresponding to the bars in Figure 1 by adding this information to the figure legend, or to a table, or to the text.

Table 2. It would also be useful to add a descriptive label, such as “Study Population” for the columns

Table 4. Another column, including the data for the PCB 28+52+101 congener grouping would be useful.

Tables 4 and 5. It would be easier to follow if the order of the columns was consistent with how the data have been presented previously (i.e., the 228+52+101 group, then the di-ortho group, then mono-ortho, then p,p'-DDE).

Table 5. Footnote c is missing – is it a definition of the categories? If not, it would be useful to include that information a footnote.

#### Discretionary Revisions

page 9 – spelling error (navel infection instead of nasal infection)

**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 declare I have no competing interests.