Reviewer's report

Title: Maternal exposure to polychlorinated biphenyls and the secondary sex ratio: an occupational cohort study

Version: 2 Date: 26 January 2011

Reviewer: Germaine Buck Louis

Reviewer's report:

The many notable differences in female characteristics and sex ratios across plants is an important observation that requires careful attention relative to exposure assessment and the outcome. Still unexplained is the reason why sex ratios are reversed (female excess) for 2/3 plants relative to what would be expected for populations, particularly for young or primaparous women. The different sex ratios observed across plants argues for a model that includes plant irrespective of change in estimates to account for possible residual confounding. Also, some of the potential confounders noted do not all meet modern criteria for confounders, which may impact model specification. The selection of women for inclusion in the sample is somewhat confusing, in that it is restricted to primaparous women in the plant after PCB exposure was introduced. It would be informative to know the distribution of gravidity for these women (assuming they are not all G1 P0), as the sex ratio is affected by maternal age which is strongly correlated with birth order as the authors state. [Paternal age is an independent determinant, with smaller purported impact, at the population level.] This distribution also would help inform whether pregnancy loss is a competing risk for the outcome. Still unclear why live births had to be be 7 months gestation for inclusion as the sex ratio is not affected by gestational age at delivery.

Editorial corrections

Abstract, logistic regression technically is not suited for ratio (sex ratio) outcomes. I think you mean male birth (yes/no).

page 6, reference 32 had individual serum PCB concentrations not fish consumption.

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

NONE