

# A META-ANALYSIS OF CORD SERUM CONCENTRATIONS OF PCB AND BIRTH WEIGHT

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**Background and Aims** Exposure to high concentrations of persistent organochlorines may cause fetal toxicity, but evidence regarding reproductive effects at lower concentrations is limited. Within the framework of the EC ENRIECO and OBELIX projects, we examined the hypothesis that polychlorinated biphenyls (PCBs) impair fetal growth.

**Methods** We used maternal and cord blood and breast milk samples in 7,990 women enrolled in twelve European birth cohorts from 1990-2008, and re-expressed all measurements as cord serum estimates of PCB 153. Using identical variable definitions, we performed linear regression analyses of birth weight on cord serum estimates of PCB 153 for each cohort. Analyses were adjusted for gestational age and a priori selected covariates. Summary estimates were obtained by meta-analysis.

**Results** The median concentration of cord serum PCB 153 was 134 ng/L (range of medians 20–485). In all cohorts except the two smallest, birth weight decreased with increasing cord serum concentration of PCB 153 after adjustment for potential confounders. The meta-analysis across all cohorts indicated a birth weight decline of 150 g (95% CI 50-250 g) per one µg/L increase of PCB 153, which is close to the range of exposure levels across the cohorts. The results did not change substantially in any of the sensitivity analyses in all or subsets of the cohorts. These included control for weight gain during pregnancy, restriction to full term babies, control for lipid concentration in serum and models based upon quadratic and loglinear transformations of exposure measures. Finally, we found no indication of effect modification of gender, tobacco smoking or concentration of the DDT metabolite p,p'-DDE.

**Conclusions** The findings suggest that low-level exposure to PCB or correlated exposures in Europe impairs human fetal growth.

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