

## PRENATAL BPA BIOMARKER LEVELS AND NEURODEVELOPMENT IN THE MOUNT SINAI CHILDREN'S ENVIRONMENTAL HEALTH CENTER

**Stephanie M. Engel**, *Department of Epidemiology, University of North Carolina, Chapel Hill, Chapel Hill, NC USA.*  
**Mary S. Wolff**, *Department of Preventive Medicine, The Mount Sinai School of Medicine, New York NY, USA*

**Background & Aims:** Some studies have suggested that prenatal exposure to BPA negatively impacts child neurobehavioral development. We undertook an investigation of the relationship between BPA biomarker levels and child cognitive and behavioral development at 12 and 24 months, and 4-9 years.

**Methods:** The Mount Sinai Children's Environmental Health Study enrolled a multiethnic prenatal population in New York City between 1998 and 2002 (n= 404). Third trimester maternal urines were collected and analyzed for BPA metabolite level. Children returned for Bayley Scales of Infant Development assessments at ages 12 (n = 200) and 24 months (n = 276), and for behavioral assessments and psychometric intelligence tests between 4 and 9 (n = 169) years. Results were additionally analyzed according to creatinine tertile to examine sensitivity to urinary dilution.

**Results:** There were no associations between BPA metabolite levels and the MDI or PDI at 12 or 24 months overall. Within the most dilute strata of creatinine, a slight and imprecise negative association between BPA and MDI at year 1 was observed. Likewise, there were no overall effects with IQ domains. However in the most dilute and concentrated creatinine concentrations, there were suggestions of effects that went in opposite directions for verbal and perceptual reasoning. There were small and imprecise effects of BPA on the BASC aggression and atypicality domains overall. Stratified by creatinine concentration elevated effects were found in the most dilute and concentrated creatinine strata for a number of behavioral domains. For the four domains in which these elevated effects were found for both dilute and concentrated urines, the effect estimates switched direction in all cases.

**Conclusion:** We observed heterogeneity in BPA biomarker effect estimates according to urinary dilution on several instruments administered independently over several years. In many cases, the most extreme effects were observed in the most dilute tertile of creatinine. Urinary creatinine can fluctuate substantially within and between women over the course of pregnancy. Future studies should carefully consider urinary dilution when analyzing and interpreting their BPA biomarker data.