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Pesticide toxicity and the developing brain

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Organophosphate (OP) pesticides are widely used in agriculture and homes and organochlorine pesticides are still used in many countries of the world for malarial control and in agriculture. Animal studies suggest that even moderate doses of many of these chemicals are neurodevelopmental toxicants, but there are few studies in humans.

Previous

literature documents children's exposure in utero and during development. Associations with

neurodevelopment will be summarized from studies being conducted worldwide. In addition, we will present the work of the CHAMACOS study, a longitudinal birth cohort study of Mexican-American children living in the Salinas Valley of California, the “salad bowl” of the United States. In this study, we investigated the relationship of prenatal and child OP urinary metabolite levels and the relationship of maternal serum levels of DDT/E

with children's neurodevelopment. We have examined their association with children's performance (n~400) on the Brazelton Neonatal Assessment Scales and at 6, 12, and 24 months on the Bayley Scales of Infant Development [Mental Development (MDI) and Psychomotor Development (PDI) Indices] and mothers report on the Child Behavior Checklist (CBCL). Generally, we report adverse associations of prenatal DAPs, but not postnatal exposure, with mental development and pervasive developmental problems at 24

months. In addition, we report association with DDT levels and child performance. These results will be presented and compared and contrasted with the results of previous and current studies.