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## **Strategies for assessing children's organophosphorus pesticide exposures in agricultural communities.**

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### **Source**

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### **Abstract**

Children can be exposed to pesticides from multiple sources and through multiple pathways. In addition to the standard pathways of diet, drinking water and residential pesticide use, children in agricultural communities can be exposed to pesticides used in agricultural production. A research program on children and pesticides was established at the University of Washington (UW) in 1991 and has focused on two major exposure pathway issues: residential proximity to pesticide-treated farmland and transfer of pesticides from the workplace to the home (paraoccupational or take-home exposure). The UW program selected preschool children of agricultural producers and farm workers in the tree fruit region of Washington state as a population that was likely to have elevated exposures from these pathways. The organophosphorus (OP) pesticides were selected as a common class of chemicals for analysis so that issues of aggregate exposure and cumulative risk could be addressed. This paper provides an overview of key findings of our research group over the past 8 years and describes current studies in this field. Soil and housedust concentrations of OP pesticides were elevated in homes of agricultural families (household members engaged in agricultural production) when compared to non-agricultural reference homes in the same community. Dialkyl phosphate metabolites of OP pesticides measured in children's urine were also elevated for agricultural children when compared to reference children and when compared to children in the Seattle metropolitan area. Proximity to farmland was associated with increased OP pesticide concentrations in housedust and OP pesticide metabolites in urine. Current studies include a community-based intervention to reduce parental transfer of pesticides from the workplace, and a systematic investigation of the role of agricultural spray drift in children's exposure to pesticides.

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