# American Academy of Pediatrics issues policy statement on pesticide exposure in children

December 20 2012, by Elizabeth Sharpe

A child picks flowers during a walk outdoors. Credit: Marcy Harrington

(Medical Xpress)—Increasing evidence shows urban and rural children are regularly exposed to low levels of pesticides that can have serious long-term health effects, according to a report issued by the American

Academy of Pediatrics.

The technical report and an accompanying policy statement on pesticide exposure in children appear in the December 2012 issue of *Pediatrics*.

Dr. Catherine Karr, an environmental health pediatrician in the UW School of Public Health and the School of Medicine, co-authored both papers, which recommend public and professional approaches to the issue of childhood pesticide exposure.

Pediatricians don't get this information or training in their routine medical education and are likely not aware of the wealth of studies that have been published up to now on the subject, said Karr, who served on the American Academy of Pediatrics' Council on Environmental Health from 2005-2011. She believes doctors can play a significant role in protecting children's health by recognizing, treating, and preventing exposure to pesticides.

The ubiquitous chemicals are as varied as their uses. For example, lawns are treated with weed killer, sprays or foggers kill fleas indoors, and pesticides control coddling moths that can destroy large-scale apple production.

Karr observed that the product label, "while providing some information on acute toxicity, doesn't inform consumers or workers about chronic toxicity, such as whether the product contains a carcinogen or whether it is linked to reproductive or developmental toxicity."

Epidemiological studies associate both acute and chronic pesticide exposures in children with pediatric cancer and neurodevelopmental disorders. Pesticide exposure has even been implicated with attention deficit hyperactivity disorder and low-birth weight.

A little girl at play in a garden. Credit: Alice C. Gray

Children are more vulnerable to the harmful effects of pesticides than are adults because of their smaller size and faster metabolism. Youngsters can be exposed by breathing the chemicals in the air, getting them on their skin, or unintentionally ingesting the pesticides. Kids crawl or play on surfaces that may have chemical residues, and they often put their fingers and other objects in their month.

The dietary contribution from food residues provides cumulative, chronic exposure.

"For most kids in the United States, it's probably the major component," said Karr. She pointed to a study on children's diet by alumnus Chensheng Lu, who received a Ph.D., in 1996 from the UW in industrial hygiene and safety. He is now on faculty at Harvard University. His study was conducted with researchers in the Pacific Northwest Agricultural Safety and Health Center at the UW.

For five days, the researchers substituted most of children's conventional diets with organic food items. They measured the metabolites for organophosphorus pesticides in the children's urine and compared the levels before and after changes in diet. They found the metabolites disappeared after the organic diet was introduced and remained undetectable until the conventional diet was reintroduced.

These results shouldn't be interpreted to mean non-organic food is bad. Karr notes a recent American Academy of Pediatrics review on organic foods found no evidence that the nutritional content varies, and the health benefits of fresh fruits and vegetables in children's diet are clear.

"Given the often increased expense, some families might choose to be selective in choosing organic foods, she said. "The levels of pesticide residues tend to be lower in some conventionally grown fruits and vegetables and consumer guides are readily available on these topics."

She also recommends thoroughly washing produce. Karr published tips for parents on reducing their child's exposure to pesticides in food and from other common sources.

Of the numerous recommendations to doctors and policymakers in the published statement, one resonates very clearly for Karr.

"I think we could make a big difference if all healthcare providers who take care of children felt they had a basic knowledge base on pesticides

that enabled them to include pesticide safety counseling in routine health visits and to think about pesticide exposure in relevant sick visits," said Karr, who also put together a guide for pediatricians on how to talk with parents about pesticides. It's available on AAP's website.

The technical report details the major classes of pesticides, their adverse health effects, and evaluation and treatment. Symptoms of pesticide exposure might not be easily recognized, explained Karr. In one case, a child might have a rash or a headache. In another case, a child might be vomiting or have diarrhea.

"Having pesticide exposure in your mind as a possibility," she noted, "requires an index of suspicion which you develop only when you know a little bit about pesticides and what you can do."

Healthcare providers might also be interested in a local resource. Karr directs the Northwest Pediatric Environmental Health Specialty Unit based at the UW. The unit provides expertise and training for health professionals, trainees, and the public on environmentally related health effects in children, including pesticide exposure. In collaboration with the UW Center for Child Environmental Health Risks Research led by Elaine M. Faustman, professor of environmental health, and with corresponding research center partners in California, the Northwest Pediatric Environmental Health Specialty Unit is creating an educational module on pesticides. It will be available in the next year.

Provided by University of Washington