

New approaches for controlling pesticide exposure in children

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Instead of relying too heavily on traditional pesticides, people should embrace “integrated pest management” measures, such as filling cracks in walls that let insects in and damp conditions that attract pests. Credit: Hemera/Thinkstock

New research on household pesticide contamination emphasizes the need for less reliance on pesticides and more emphasis on neatness, blocking cracks where insects can enter and other so-called “integrated pest management” (IPM) measures, scientists have concluded. Their study appears in the ACS' journal *Environmental Science & Technology*.

Chensheng Lu and colleagues cite previous studies showing that urban, low-income, multifamily, public housing dwellings are prone to severe pest infestation problems. Families in Boston public housing developments, for instance, rank pest infestation, pesticide use and pest allergies second only to crime as matters of concern. In an effort to

encourage use of IPM, which reduces reliance on traditional [pesticides](#), Lu's team studied exposure to 19 pesticides among children in 20 families in Boston's public housing.

They found pesticides in all of the homes, along with indications—such as sighting of live pests or pest debris—that traditional pesticides were not effective. "The results from the current study, as well as other recent studies, conducted in low-income public housing, child care centers and randomly selected homes in the U.S. should accentuate the need for alternative pest management programs," the report states. IPM focuses on eliminating the cause of pest infestations by minimizing access to food, water, hiding places, and sealing cracks and other openings in walls to prevent entry of pests.

More information: "Household Pesticide Contamination from Indoor Pest Control Applications in Urban Low-Income Public Housing Dwellings: A Community-Based Participatory Research" *Environmental Science & Technology*. [DOI: 10.1021/es303912n](https://doi.org/10.1021/es303912n)

Abstract

We designed this community-based participatory research (CBPR) project aiming to generate evidence-based research results to encourage residents living in urban low-income public housing dwellings engaging in a community-wide integrated pest management (IPM) program with the intention to improve their health and quality of life, as well as household conditions. We enrolled 20 families and their children in this study in which we utilized environmental exposure assessment (surface wipe and indoor air) tools to quantitatively assessing residential pesticide exposure in young children before the implementation of an IPM program. We analyzed those samples for 19 organophosphate (OP) and pyrethroid pesticides.

The most commonly detected pesticides were pyrethroids, particularly permethrin and cypermethrin with average concentrations of 2.47 and

3.87 $\mu\text{g}/\text{m}^2$, respectively. In many dwellings, we detected OPs, which are no longer available on the market; however, their levels are significantly lower than those of pyrethroids. None of the 20 families was free from pesticide contamination in their households, and pesticides were commonly detected in living room and children's bedroom.

The correlation among household hygienic conditions, the sighting of live pests/pest debris, and the degree of indoor pesticide contamination highlights the failure of conventional chemical-based applications for pest controls. The results from the current study, as well as other recent studies, conducted in low-income public housing, child care centers, and randomly selected homes in the U.S. should accentuate the need for alternative pest management programs that incorporate safer and more sustainable protocols for pest controls.

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