

A Community Intervenes

Reducing Children's Pesticide Exposure



Fred Hutchinson Cancer Research Center

At a home health party, a *promotora* (lay health educator) demonstrates ways to reduce pesticide exposure.

Beti Thompson
Gloria D. Coronado

Agricultural workers' concerns about pesticide exposure don't stop at the orchard fence and aren't limited to their own health. Their children's health is also threatened by the pesticides used in the orchards and farms where the parents work.

Educating parents and children about reducing their pesticide exposure is crucial. To pinpoint effective interventions with agricultural families, a two-year research project conducted by the Center for Child Environmental Health in the Department of Environmental Health at the University of Washington studied a variety of community-based activities in the Yakima Valley in Eastern Washington.

Yakima Valley growers produce an abundance of Washington's well-known agricultural products, including apples, pears, peaches, cherries, grapes, and hops. These crops require a great deal of hand labor. About 50,000 workers, primarily Hispanic, harvest, prune, thin, and care for the Yakima Valley crops throughout the growing and harvesting seasons.

Many of these farmworkers are exposed to pesticides as part of their work. The organophosphate pesticides, which are currently the most widely used insecticides in the United States, are considered a high-risk group of pesticides because of their known ill health effects.

Infants and children are especially sensitive to health risks posed by pesticides because their internal organs are still developing and maturing. Pesticides may harm a developing child by blocking the absorption of important food nutrients necessary for normal healthy growth. In addition, exposure to a toxin during a critical developmental period can permanently alter the way an individual's biological system operates.

Children of farmworkers are likely to be exposed to pesticides through several pathways.

Children living near farmland are exposed to pesticides that drift into their yards and are tracked indoors. Adults exposed to pesticides at their workplace can carry those compounds into their homes on their clothes and skin. The pesticide residues lodge in the homes where they are unlikely to rapidly degrade because they are not exposed to sunlight or rain. In addition, farmworkers who pick up or play with their children before changing their clothing or showering may pass pesticide residues directly to children. And finally, children playing on floors or carpets are exposed through skin contact, and may ingest toxic residues if they place their hands or toys in their mouths.

Collaborative community response

To combat the exposure of children of farmworkers to pesticides takes a community-wide effort. Between 1999 and 2004, the project staff conducted a large, randomized, controlled trial in 24 communities (12 communities were randomized to intervention and 12 to control) in the Lower Yakima Valley to find out what kinds of interventions work best in agricultural migrant communities.

The project (funded by the National Institutes of Health) took a community-based participatory organization approach not only to testing interventions but to designing the study itself. Community-based participatory research engages the people affected by a problem in finding solutions to the problem. In order to involve all the people affected by agricultural pesticides, the authors, with the help of community members, conducted an initial community analysis (including conversations with various individuals, focus groups, and secondary data analysis), which led to the formation of a Community Advisory Board. Membership included farmworkers, growers and their associations, regulatory agencies, the health

department, the Department of Agriculture, the Department of Labor and Industries, the local Environmental Protection Agency, local media including the Spanish-speaking radio station, the farmworkers union, local farmworkers clinics, and farmworker advocates.

The Advisory Board was actively involved in all aspects of the project. It was responsible for hiring project staff to work in the Valley, contributed to the research design, and recommended a number of intervention strategies. Throughout the project, the Advisory Board made recommendations on how and when the data collected from the project be conveyed to the community, the media, and peer-reviewed journals.

Multiple activities at multiple levels

The two-year, comprehensive intervention plan included activities at the community, organization, small group, and individual levels. Intervention components were based on current literature and recommendations of the Advisory Board.

Community efforts. Health fairs are a common event in the Valley, and the project created a road-ready booth that could be erected and staffed at intervention community health fairs, community festivals, and block parties.

Staffers of the booth provided information on the risks of pesticides for children, symptoms of pesticide exposure, information on protecting oneself and one's children from pesticides, and an overview of the project.

Local media spread messages about the project and pesticide protection. Children's coloring books, balloons, and other small items also conveyed the pesticide messages. A pesticide puppet show, developed by a local university, was shown at block parties and festivals. The puppet show emphasized the importance of avoiding fields where pesticides were used and ways that children could protect themselves from pesticides.

Organization efforts. A number of groups were targeted for pesticide messages. These included elementary schools, where a calendar contest was held annually to promote pesticide protection messages; churches, where infants were given a package containing pesticide protection messages and a bib reading "Keep me pesticide free" and where after-mass coffees promoted the pesticide protection messages; English as a Second Language and citizenship classes, where messages about protecting one's family from pesticides was included in the curriculum; and preschools such as HeadStart, where a preschool curriculum was developed and taught in all intervention-community preschools.

Other organizational venues were orchards, farms, and other worksites, farmworkers clinics,

and the farmworkers union. In many organizations, group discussions were held on the dangers of pesticides, especially for children. Sample packets of detergent, clothes sorting bags, bins for storing boots outside, and shower kits were distributed in organizations.

Small group efforts. Lay health educators (*promotoras*) spread messages about pesticides. A popular small group activity was the home health party. A home health party was a small gathering of friends and relatives in the home of a host, or person who agreed to hold the party. Typically, a trained promotora guided a 30- to 45-minute discussion about a specific pesticide topic. The promotora used simple charts and props to give information about ways to reduce pesticide risks. The small group format fostered discussion and opportunities to obtain more information. In the two-year intervention period, more than 1,100 home health parties were held.

Individual efforts. Volunteer promotoras and staff talked to individuals about protecting their families from pesticide exposure. A volunteer training handbook was developed. Volunteers

Exposure to a toxin during a critical developmental period can permanently alter the way an individual's biological system operates.

went door-to-door and spoke at grocery stores and other places frequented by farmworkers. They also distributed laundry kits, shower kits, and other samples created by the project.

Interventions can change practice

Over the two-year intervention period, the project conducted a total of 1,959 activities. Research data are still being analyzed but initial analysis highlighted some of the activities that had a significant affect on individual practices. For example, a study of the efficacy of home health parties revealed that participants of such parties were more knowledgeable about pesticide harms and engaged in more pesticide safety practices in the home than those who had not attended such parties. In addition a pesticide curriculum has been adopted by the state HeadStart organization, and materials to train farmworkers about pesticide safety are in use at many orchards.

Pesticide-related health issues are a nationally recognized public health problem for farmworkers and their children. Community participation can be an effective strategy for developing culturally appropriate materials on pesticide safety for farmworkers and their children as well as for finding and using effective venues for promoting pesticide safety for farmworkers. And effective community-based interventions to reduce the take-home pathway of pesticides will protect the health of agricultural workers' children. ■

Authors

Beti Thompson, PhD, is a full member at the Fred Hutchinson Cancer Research Center and a professor in the Department of Health Services in the School of Public Health and Community Medicine at the University of Washington. Gloria Coronado, PhD, is an assistant member at the Fred Hutchinson Cancer Research Center.