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Kids And Chemicals

*What do our choices about toxins mean
for our children?*

Elizabeth Guillette posted Mar 31, 2003

The people of the Yaqui Valley of Mexico underwent a split when modern farming and pesticides were introduced in the early 1950s. Those in the valley floor embraced the use of insecticides, herbicides, and other agricultural chemicals. Spraying for insects also became common in their homes.

In the foothills, farmers preferred the traditional ranching and agricultural methods. This group shunned pesticides. Today, these communities are similar in the terms of modernization, diet, and lifestyle, although the difference in their use of pesticides continues. What have these choices meant for their children?

I recognized a research opportunity when I heard of the Yaqui Valley, where these distinctive paths highlighted consequences from the use of chemicals that otherwise are difficult to isolate.

At first I wanted to study cancer. I was still thinking in terms of dramatic, obvious disaster, like that found in laboratory rats subjected to huge amounts of chemicals. But the mothers in the valley insisted that I look at broader, more subtle effects. They suspected chemicals were affecting their children, but could not identify specifics. To uncover hidden impacts, I asked children, ages four and five, to perform a series of play activities representative of developmental levels. I found that the pesticide-exposed children were less proficient at catching a ball, reflective of poor eye-hand coordination. They had lower stamina levels, measured by jumping contests. When asked to recall a gift of a balloon and its color, many could not remember the gift, and very few remembered the color. The children who had grown up without exposure to agricultural chemicals always remembered the gift and usually its color.

Most striking were their drawings of people. The pesticide-exposed four-year-olds of the valley made scribbles and the five-year-olds frequently made a circle at the bottom of the paper and a line upward to represent the body. Others drew odd shapes with abstract divisions, where dots represented eyes and enclosed areas were body parts. The drawings of the children who lived in the foothills, on the other hand, accurately placed body parts and facial features.

Two years later, at ages six and seven, the children exposed to pesticides continued to lag behind. Their drawings were commensurate to those of four-year-olds who had not been exposed. Their stamina remained low, their coordination poor. Simple problem solving, easy for the foothill group, was difficult for the valley children. The exposed children exhibited symptoms of illness at a rate three to four times that of the others. They had a high rate of upper respiratory infection and other symptoms such as allergies and rashes.

The children who have grown up exposed to pesticides may never reach their full potentials as functioning members of society. In this, the Yaqui Valley is not unique. Contamination is global; every child is exposed to various pesticides to some degree. While the children I studied are highly exposed to a few toxins, probably more than the average American child, American children are exposed to multiple toxins. These can add up and interact, causing significant effects that we don't yet recognize.

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