

Tracing the toxic legacy of PBB contamination

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A granite marker was placed in front of the St. Louis chemical plant that accidentally shipped flame-retardant chemicals to livestock farms throughout Michigan. Credit: Mark Brush, Michigan Radio

In 1973, bags of a fire-retardant chemical called PBB, polybrominated biphenyl, were accidently mixed into livestock feed and sold to farmers throughout the state of Michigan.

The tragic mistake was not discovered until a year later, by which point



some 70% to 90% of people in Michigan had been exposed by eating contaminated meat, milk, and eggs.

Michele Marcus, a Rollins environmental epidemiologist, has been studying the effects of PBB contamination for the past 15 years. She knows that today, more than 40 years after the accident, some 80% to 85% of Michiganders still have elevated levels of PBB in their blood. Marcus' most recent study looks at how this exposure has affected the children and grandchildren of people who ate contaminated food.

Marcus found that women who were exposed to PBB were more likely to give birth to infants who scored low on Apgar tests—the first test of a newborn's health. Mothers who had been exposed before their own puberty were even more likely to have low-scoring babies.

The daughters born to highly exposed women had their first menstrual period a full year earlier on average than girls who were not exposed. When these girls grew into women, they suffered a high rate of miscarriages.

"We know from animal studies that some of these <u>hormone</u> disrupting chemicals can affect up to four and five generations down the line," says Marcus. "But it's one thing to be a scientist and study these statistics. It's quite another to have a mother approach you and tell you her daughter entered puberty at age five."

Marcus is currently assessing more of the reproductive health and hormone levels of <u>women</u> who were exposed in utero and childhood, and she is also starting to look at adult men who were exposed in the womb and in childhood.

Marcus and her research team have developed strong partnerships with registry members, some of whom formed the PBB Citizens Advisory



Board, as well as with the Pine River Superfund Citizens Task Force and the Mid-Michigan District Health Department.

Marcus maintains the Michigan PBB Registry, which was transferred to Rollins from the Michigan Department of Community Health in 2010. Because it is the only database in the nation containing historic exposures of hormone disruptors and multiple generations of participants, maintaining it is essential to advancing our understanding of PBB and other hormone disruptors.

Provided by Emory University

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