

The Michigan PBB Research Registry

Information for Clinicians



60% of recently tested Michiganders have PBB levels above the US population 95th percentile*

Michigan PBB Contamination – Quick Facts

In early 1973, the Michigan Chemical Company accidentally shipped polybrominated biphenyls (PBB), a fire-retardant chemical, to the Farm Bureau instead of magnesium oxide.

- The PBB was mixed into livestock feed and consumed by cattle, pigs, and chickens. Contaminated milk, beef, and other farm products were sold throughout the state until the accident was discovered about a year later.
- The major acute health effects reported were skin rashes, hair loss, and memory problems, though these effects were mainly transient.
- PBB is stored in adipose tissue and remains in the body for many years. PBB has endocrine modifying properties and has been shown it to mimic estrogen, to block androgens, and interfere with thyroid function in animal models.

Michigan PBB Research Registry

To study the long-term health effects of the PBB exposure, the Michigan Health Department created a registry of more than 4,000 people who consumed the contaminated farm products.

- The Michigan PBB Registry now also includes many of their children who may have been exposed to PBB in the womb and through breast milk.
- The health effects of PBB are still being investigated but research has identified several notable findings among the exposed population. (Health Effects and Research Findings listed on second page.)
- Most of the findings are based on studies that compared PBB registry members with high blood levels of PBB to those with low (or non-detectable) levels of PBB.
- Other risk factors for the health outcomes were considered in analyses and adjusted for, when possible.

*The CDC last tested blood samples for PBB153 in 2003-2004 as part of the National Health and Nutrition Examination Survey. The Michigan PBB Research Registry tested 867 individuals between 2012 - 2015.

***For more information please visit
www.PBBregistry.emory.edu***

Health Effects and Research Findings related to the Michigan PBB Contamination

- Male workers at the Velsicol chemical plant were more likely to be hypothyroid than controls.¹
- Children born to women with high exposure to PBB were more than twice as likely to have lower Apgar scores at birth.²
- Women with high PBB exposure and recent weight loss had shorter menstrual cycle lengths and longer bleed lengths than women with low exposure. Notably, the recent weight loss is likely to have released more PBB from adipose tissue into circulation.³
- Women highly exposed to PBB were about three times more likely to be diagnosed with breast cancer than lower exposed women.⁴
- PBB can cross the placenta and has been detected in the breast milk of highly exposed mothers. Children born to highly exposed mothers were more likely to have PBB detected in their blood than children of mothers with lower exposure. Those who were breastfed for more than 5 months were six times more likely to have PBB detected in their blood than children who were not breastfed.⁵
- Breastfed daughters exposed to high levels of PBB in utero had an average age at menarche of 11.6 years, approximately one year earlier than breastfed daughters exposed to low levels of PBB in utero or daughters who were not breastfed. These highly exposed daughters were more than three times as likely to experience early menarche compared with lower-exposed daughters.⁶
- Daughters exposed to higher levels of PBB in utero, now of reproductive age, were three to four times more likely to experience miscarriages compared to daughters with low in utero exposure. Exposure during infancy to PBB-contaminated breast milk further increased this risk.⁷
- Sons of women highly exposed to PBB were twice as likely to report a genitourinary condition (hernia, hydrocele, cryptorchidism, hypospadias, or varicocele), than sons of the least exposed women.⁸

References

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