

Press Release

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New Study from the Bay Area Breast Cancer and the Environment Research Center (BABCERC) Finds Higher Levels of PBDEs, Pesticides and PCBs in Bay Area Girls

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A new study by the Bay Area Breast Cancer and the Environment Research Center (BABCERC) has found higher levels of chemicals that act like hormones in girls in the Bay Area than in a comparison group in Ohio. These include some brominated chemicals used as flame retardants (PBDEs), pesticides, and polychlorinated biphenyls (PCBs). Although research studies on these environmental exposures have not found clear effects on human health, concern about these chemicals is growing because they persist in the environment and may act like or interfere with hormones in the body. Hormones influence many physiologic functions, including the reproduction system and growth and development in children.

The study¹, led by Dr. Gayle Windham of the California Department of Public Health, compared levels of flame retardants (PBDEs) and pesticide metabolites such as DDE, and PCBs in Bay Area girls and girls in a similar study in Ohio. Study participants in both locations are part of the national Breast Cancer and the Environment Research Centers (BCERC) supported by the National Institutes of Health. “The research generated from our centers are beginning to answer important public concerns about the role of the environment in cancer” according to Dr. Robert Hiatt, Deputy Director of the UCSF Helen Diller Family Comprehensive Cancer Center and professor of epidemiology and biostatistics, who directs the BABCERC.

Blood samples from about 600 girls were analyzed at the national Centers for Disease Control and Prevention (CDC). Some chemicals were found in nearly all the girls, while others were less frequently detected by the laboratory. Girls in the Bay Area had higher levels of PBDEs, on average, than girls in Ohio, even when accounting for other factors.

Blacks had higher average PBDE levels than whites, and Hispanics had intermediate values. Additionally, PBDE levels were lower among more obese girls, but did not vary much by other factors. Unlike for PBDEs, blacks had lower levels of PCBs and DDE than whites in this study. Compared to the National Health and Nutrition

Examination Survey (NHANES), the average levels of PBDEs in all girls in the study were higher, while levels of PCBs and pesticides were similar.

“This study demonstrates that exposure to these chemicals are widespread,” said Dr. Lawrence Kushi, Associate Director for epidemiology at Kaiser Permanente Northern California. “While we do not know whether these levels are of concern, their widespread presence suggests the possibility of health effects.” Dr. Kushi is the lead researcher for the epidemiology project of the BABCERC.

PBDEs are used in household items such as furniture foam, plastics, electronics, wire insulation, and coating for draperies and upholstery to slow fire growth if ignited. Humans are exposed to these chemicals through diet, but PBDEs have also been found in dust, leading to exposure in young children who play on the ground and have more hand-to-mouth activities.

Pesticides are wide-spread in our environment and people can be exposed to them through diet, home use of pesticides, drinking water, and occupational exposures. PCBs are also persistent chemicals and were used as coolants and lubricants in electrical equipment, but have been banned in the U.S. They can be found in household items such as old fluorescent lighting fixtures and electrical appliances. Most exposure occurs through diet since these chemicals accumulate in the food chain; however, PCBs have also been found in the soil, drinking water, and dust.

Some health effects associated with exposure to these chemicals will be examined as the study continues. Janice Barlow, who heads the BABCERC’s Community Outreach project and serves as the Executive Director of Zero Breast Cancer, said “This preliminary research is an important first step in exploring to which chemicals our children are exposed and gives us the ability to make healthier choices.”

Unlike other states, California has a history of more stringent regulations regarding flammability of upholstered furniture that can only be met by the addition of flame retardants, such as PBDEs. PCBs and pesticides also tended to be found at higher levels in Bay Area girls than Ohio girls. Pesticide exposure patterns differ in countries outside the U.S. A larger proportion of immigrants (e.g. the parents) to California from countries where some of these pesticides are still used may partly explain higher levels of persistent pesticides in their offspring since they may be transferred during pregnancy or breast-feeding. However, the study did not measure levels in mothers.

1.) Gayle C. Windham, Susan M. Pinney, Andreas Sjodin, Raymond Lum, Richard Jones, Larry Needham, Frank M. Biro, Robert A. Hiatt, Lawrence H. Kushi, *Body Burdens of Brominated Flame Retardants and Other Persistent Organohalogenated Compounds and Descriptors in U. S. Girls*. Environmental Research 2010. [doi:10.1016/j.envres.2010.01.004](https://doi.org/10.1016/j.envres.2010.01.004). On-line pre-publication, expected in print in April or May.

The Bay Area Breast Cancer and the Environment Research Center (BABCERC) is one of four centers nationwide that studies the environmental causes of breast cancer by focusing on mammary gland development during puberty when the breast may be especially vulnerable to environmental influences. The Center is based at the University of California, San Francisco, under the leadership of Dr. Robert A. Hiatt, Director of Population Sciences, UCSF Helen Diller Comprehensive Cancer Center. The Center includes a basic science project, an epidemiology project, and the community outreach and translation core and is a collaborative project involving University of California, San Francisco, Kaiser Permanente Northern California, California Department of Public Health and Zero Breast Cancer. More information about the BABCERC can be found on its Web site: <http://bayarea.bcerc.org>

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