

Written Testimony of Jeanne Rizzo, CEO and President of the Breast Cancer Fund, Before the Connecticut General Assembly Environment Committee, March 2, 2009, Testimony in Support of **HB 6572: An Act Banning Bisphenol-A in Children's Products and Food Products and Prohibiting Certain Alternative Substances.**

On behalf of the Breast Cancer Fund and its 70,000 nationwide members, I submit this statement to urge you to support HB 6572. This bill acknowledges what the scientific community has long known: bisphenol-A is harmful to human health and has no place in our children's products or in our food. I applaud the Environment Committee's leadership on this issue and urge your aye vote.

The Breast Cancer Fund is a national organization committed to identifying and eliminating the environmental and other preventable causes of breast cancer. We work with advocates and decision-makers to encourage research and policy initiatives that seek to better understand, and respond to, environmental toxins that contribute to increased rates of breast cancer and other diseases. We have long been concerned with endocrine disrupting compounds like bisphenol-A due to their ability to act like estrogen in the body. Since a woman's lifetime risk of developing breast cancer is directly related to her exposure to estrogen, we are especially troubled by bisphenol-A's presence in our every day products.

Bisphenol-A and breast cancer

Bisphenol-A is one of the most pervasive chemicals in modern life. More than 2 billion pounds of BPA are produced in the United States each year. It is the building block of polycarbonate plastic and is also used in the manufacture of epoxy resins and other plastics including polyester and styrene. It is commonly found in the lining of metal food cans and in some types of plastic food containers, including baby bottles. Because BPA is an unstable polymer and is also lipophilic (fat-seeking), it can leach into infant formula and other food products, especially when heated. Once in food, BPA can move quickly into people—a particular concern for young children.

BPA was developed in the 1930s as a synthetic estrogen (also called xenoestrogen) so it is not surprising that it acts like an estrogen in humans, increasing the risk of breast cancer. Decades of research have shown that extensive exposure to estrogens, both natural and synthetic, increases breast cancer risk. Reducing exposure to estrogens appears to reduce the risk of breast cancer. For example, experts attribute the recent decline in breast cancer incidence to decreased use of postmenopausal hormone replacement therapy (HRT), following the major study that implicated HRT in increased risk of breast cancer. Studies of human breast cancer cells in culture show that BPA acts through the same response pathways as natural estrogen (estradiol), and induces cell growth and proliferation. In addition, BPA has been shown to mimic natural estrogen (estradiol) in causing direct damage to the DNA of cultured human breast cancer cells.

Exposure to BPA is ubiquitous in the United States and other developed countries, and the exposure begins before birth, when the risk of harm is greatest. BPA has been found in blood samples from developing fetuses as well as in placental tissue and the surrounding amniotic fluid, in umbilical cord blood of newborn infants¹² and in human breast milk. A number of animal studies show that prenatal and early life exposure to extremely low levels of BPA alters development of the mammary gland in ways that predispose the animals to cancer in adult life. Exposure also increases sensitivity to estrogen at puberty. Early exposure to BPA also leads to abnormalities in mammary tissue that can be seen during gestation.

Disagreements with scientific literature implicating BPA in a wide array of health effects have come almost exclusively from plastics industry scientists who claim they are unable to replicate studies showing that BPA can cause harm. An analysis by two leading experts reveals a clear pattern of bias in reporting of research findings. As of September 2008, a total of 222 studies of the health effects of

BPA had been published. None of the 14 studies funded by industry reported adverse effects at low-level exposure whereas 193 out of the 208 government or university funded studies conducted in academic laboratories in Japan, Europe and the United States did find adverse effects from low BPA levels. Moreover, most of the studies that showed no effect used two strains of rat that are not responsive to estrogen and are inappropriate to use to test BPA.

Protecting the most vulnerable from low dose exposures

For hundreds of years, it was thought that the “dose makes the poison”. In other words, many people think that a little bit of a toxic chemical won’t result in a harmful health effect. This theory assumes that exposure to one particular chemical through one particular route of exposure, in this case toys or child care articles, is the only chemical to which a person will ever be exposed. This theory furthermore assumes that all people have the same genetic responses to toxins and that children and infants have as sophisticated an immune and endocrine system as adults. These assumptions are scientifically outdated and must be addressed.

Moreover, as we see with bisphenol-A, lower doses can often have a worse effect than higher doses of the same chemical. While this may seem counterintuitive, it makes perfect sense when the chemical in question is an endocrine disrupting compound. The human endocrine system is triggered through exquisitely small doses of naturally occurring hormones. Hormone receptors are unable to distinguish between very low doses chemicals like BPA and naturally occurring estrogen while a larger dose of BPA would make that same receptor shut down.

Lastly, increasing evidence is mounting that, when it comes to chemicals and children, it’s not just the dose that makes the poison, but the timing of exposure also matters. Infants and children are not just smaller adults. They are still developing and are changing almost every day. Their endocrine systems are incredibly sensitive and are sending signals to the brain and vice versa to direct growth. Bisphenol-A interrupts this chemical conversation and while the effects may not show up for many years, this interruption can set children on a path for later life diseases such as prostate or breast cancer.

Banning the use of BPA could reduce the risk of breast cancer in our daughters and in generations to come. It is time to call a halt to this toxic hand-me-down chemical and move to safer alternatives.

Connecticut has an important opportunity to raise the bar for protecting children’s health and I urge you do so by supporting HB 6572.