

**Wisconsin Nurses Association
2011 Reference Report # 5**

Subject: **Plastics in the Environment and the Impact on Personal Health**
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WNA Core Issue: **Patient Safety and Advocacy**

Summary: Bisphenol A (BPA) is a compound that was originally studied in the 1930s as a synthetic estrogen; but after the introduction of Diethylstbesterol, a potent synthetic estrogen, in the 1940s, BPA was no longer considered for that purpose. In the 1950s, BPA was found to form a hard plastic that was stronger than steel and was as clear as glass (Vogel, 2009). With these properties, BPA quickly found its way into the manufacturing of electronics, safety equipment, automobiles, food and beverage containers, linings of metal food cans, water supply pipes, children's toys, personal care products, pharmaceuticals, medical and surgical gloves, IV tubing, dental sealants, and many other common products used around the home and workplace (Crinnion, 2010; DHHS, 2010; FDA, 2010; Galvez, Graber, Sheffield, Forman, & Balk, 2009; Vogel, 2009). Plastics are considered to be stable compounds, but scientists have known for many years that the chemical bonds between the BPA molecules are unstable. The bonds between the molecules are easily broken when BPA is exposed to heat and acidic or basic conditions, thereby releasing BPA into the food products and beverages stored in the plastic containers. BPA is also found in air, dust, water, and soil.

There is a large body of scientific literature that indicates there are adverse effects of BPA on humans at levels that were previously determined to be safe, that there is a high rate of leaching of BPA into foods and beverages stored in plastic containers, and that the median BPA blood level in humans is higher than the level that caused adverse effects in laboratory studies (Environment California, 2011). Studies have found BPA in every urine sample tested. However, it is difficult to interpret any findings related to BPA reported in the literature due to the lack of consistency in the experimental elements and designs of the studies (FDA, 2010; National Institute, 2011).

Adverse effects of BPA in laboratory animals with virtually identical sensitivity to BPA as humans include behavioral changes, decreased maternal response to offspring, insulin resistance, early puberty, reduced sperm count, breast cancer, prostate disease and cancer, altered immune function, brain damage, and changes in brain chemistry (Environment California, 2011). Adverse effects in humans include miscarriage and polycystic ovary disease in women, infertility, altered testicular development, obesity, asthma, allergies, intellectual impairment, and alterations in immune response (Chalubinski & Kowalski, 2006; Crinnion, 2010; Environment California, 2011). Children are especially susceptible to the effects of BPA due to their longer exposure over their lifetime (as their exposure begins at conception), their greater exposure per pound of body weight than adults, and their greater physiological susceptibility to the effects of the BPA.

In 2008, Canada classified BPA as a toxic substance and is considering banning its use (Vogel, 2009). In 2008, the US FDA concluded that BPA was safe as currently used, but an expert panel found that the FDA had failed to consider the full body of evidence. The FDA is in the process of reconsidering the effects of BPA (Galvez, Graber, Sheffield, Forman, & Balk, 2009). The US has had a voluntary ban on phthalates (BPA) in children's toys since 2002. In 2009, California and New York banned phthalates in toys and products marketed for children under the age of three, and six baby bottle manufacturers have discontinued the use of phthalates in their products.

In 2009, WNA lobbied for the legislation banning the sale of infant bottles and "sippy cups" containing BPA. This legislation was signed by the Governor, part of Wisconsin Act 145.

Recommendations: That the Wisconsin Nurses Association will...

1. Work proactively to inform the general public of the dangers of BPA exposure and to instruct them on how to reduce their exposure.
2. Work proactively to reduce the use of BPA in food and beverage storage containers, children's toys, dental sealants, and all other products that would be a reservoir or portal of entry for BPA.

WNA Goals:

Goal 1: Collectively and collaboratively advocate for access to comprehensive quality health care services for all people.

Goal 2: Assure that the registered nurse is an essential provider in all practice settings through education, research, workplace advocacy, legislation, and regulation.

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