

REPORT 5 OF THE COUNCIL ON SCIENCE AND PUBLIC HEALTH (A-11)

Bisphenol A

(Resolution 408-A-10)

(Reference Committee E)

EXECUTIVE SUMMARY

Objective. To evaluate and summarize existing data on the biological mechanisms of bisphenol A (BPA), in vitro and in vivo effects of low doses of BPA, its metabolic disposition, and the extent of population exposures. In addition, results obtained from epidemiologic surveys on BPA exposure and human health are briefly noted.

Methods. English-language reports on studies using animals and human subjects were selected from a PubMed search of the literature from 1990 to March 2011 using the substance terms “bisphenol A/phenols/estrogens, nonsteroidal/endocrine disruptors,” in combination with the MeSH terms “risk assessment,” “toxicity,” “environmental exposure,” “environmental monitoring,” “blood/urine,” “food contamination,” “food packaging,” “pregnancy,” “fetus/drug effects,” “prenatal exposure,” and “pathophysiology.” When high-quality systematic reviews and meta-analyses were identified, they formed the basis for summary statements. Additional articles were identified by manual review of the references cited in these publications. Further information was obtained from the Internet sites of the US Environmental Protection Agency, US Food and Drug Administration, National Institute of Environmental Health Sciences, and Safer States.

Results. More than 2 billion pounds of BPA enter US commerce annually, entering the food chain and water stream from various sources. Most human exposure is thought to be based on dietary intake. BPA is firmly established as an endocrine disruptor, interacting with various estrogen-related cellular pathways with a high sensitivity, and demonstrating epigenetic influences. Biomonitoring studies of urine and blood samples reveal nearly ubiquitous human exposure; free concentrations of BPA are in the range associated with cellular effects. These results are at odds with most formal government-sponsored risk assessments, which deem BPA to be safe and devoid of harm at current exposure levels. Nevertheless, several states and municipalities in the US have banned the sale of BPA-containing baby bottles and cups. Recently, the FDA concluded that some concern exists for the potential of BPA to cause harmful effects on the brain, behavior, and prostate gland in fetuses, infants, and young children.

Conclusion. Better understanding of the routes and extent of human exposure to BPA are needed. Additionally, confirmation of animal models that are relevant for modeling human exposure and for establishing valid endpoints for risk assessment of low doses is needed. This will assist in addressing uncertainties surrounding the spectrum of BPA’s mechanisms of action, the tissue-specific impacts of exposures, and the critical windows of susceptibility during which target tissues are sensitive to BPA. In the meantime, measures should be taken to reduce BPA dietary exposures and industry should pursue safe alternatives to BPA. Consumers can voluntarily take action to reduce dietary exposures.

It is important that the FDA actively incorporate current science into the regulation of food and beverage BPA-containing products, and such incorporation should be transparent. In addition, a critical need exists for the EPA to make the risk assessment of environmental chemicals more efficient and responsive to emerging data. The development of new technologies and a strengthened legislative platform for action will assist in this endeavor.

## RECOMMENDATIONS

The Council on Science and Public Health recommends that the following statements be adopted in lieu of Resolution 408-A-10 and the remainder of the report filed.

1. That Policies H-135.942 and D-135.982 be reaffirmed. (Reaffirm HOD Policy)
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3. That our AMA support a shift to a more robust, science-based, and transparent federal regulatory framework for oversight of bisphenol A (BPA). (New HOD Policy)
4. That our AMA encourage ongoing industry actions to stop producing BPA-containing baby bottles and infant feeding cups, support bans on the sale of such products, and urge the development and use of safe, nonharmful alternatives to BPA for the linings of infant formula cans and other food can linings. (New HOD Policy)
5. That our AMA recognize BPA as an endocrine-disrupting agent and urge that BPA-containing products with the potential to increase human exposure to BPA be clearly identified. (New HOD Policy)