

MAKING FOOD HORMONE HEALTHY

THE PROBLEM:

OUR FOOD IS CONTAMINATED WITH DANGEROUS ENDOCRINE-DISRUPTING CHEMICALS (EDCS)

From cradle to grave and womb to tomb, synthetic chemicals that are intentionally and unintentionally added to food contribute to chronic disease and disability by disrupting hormone function. These EDCs are found in a variety of plastics, can linings, grease-proof papers, and as antistatic agents or flame retardants.^{1,2} Studies have documented particularly strong evidence for endocrine disrupting effects due to:

1. phthalates
2. bisphenols
3. per- and polyfluoroalkyl substances (PFAS)
4. perchlorate
5. brominated and organophosphorus flame retardants.

Micro- and nanoplastics (MNPs) also contaminate the food supply and may magnify the effects of EDCs while independently contributing to heart disease and other chronic diseases.¹³

THE SOLUTION:

WE CAN PREVENT CHRONIC DISEASE AND REDUCE HEALTH CARE COSTS BY LIMITING THE USE OF EDCS FOUND IN FOOD, INCLUDING THOSE USED IN PLASTIC MATERIALS.

There are several regulatory actions that HHS can take which would quickly reduce exposure to hazardous EDCs and create immediate public health benefits.

- **Close the GRAS (Generally Recognized as Safe) loophole** and require toxicity testing before approval of food contact chemicals
- **Consider cumulative and mixture effects** for food additives in combination with other chemical exposures—consistent with requirements already in FFDCA

- **Modernize testing requirements** to cover endocrine and neurobehavioral effects, with additional safety factors for pregnant and breastfeeding women
- **Establish labeling requirements** for additives with limited data, or which have not been adequately reviewed for safety
- **Use the latest science** by establishing a process and requirements for prioritization and retesting of chemicals and additives already in use

HHS should also support legislation that would give FDA authority to collect information from companies about the use of food additives and require testing and data when gaps in knowledge are identified, and safety concerns are raised.

WE NEED TO ACT NOW:

In the US alone, \$250 billion/year in health care and other costs can be directly attributed to chemicals in plastics:³

- phthalates contribute to 5-10% of prematurity,⁴
- approximately 2% of childhood obesity in the US is due to bisphenol exposure,⁵⁻¹⁰
- mortality due to phthalates claims 50,000 US lives annually,¹¹ and
- disease and disability related to PFAS exposure costs the US \$5-62 billion.¹²

SCIENTIFIC RESEARCH SUPPORTS FDA ACTION:

A better safety review process will benefit from new and ongoing research. Increased funding for the **National Institute of Environmental Health Sciences (NIEHS)** and **National Toxicology Program** will help identify hazards from EDCs using the latest tools and sensitive methodologies developed by independent academic scientists free from conflicts of interest. NIEHS also needs funding to support biomonitoring studies to evaluate the current body burden and impact of interventions such as the **Environmental Influences on Child Health Outcomes** program.

¹Diamanti-Kandarakis E., Bourguignon J-P., Giudice L.C., et al. Endocrine-Disrupting Chemicals: An Endocrine Society Scientific Statement. *Endocrine Reviews*. 2009;30(4):293-342.

²Gore A.C., Chappell V.A., Fenton S.E., et al. EDC-2: The Endocrine Society's Second Scientific Statement on Endocrine-Disrupting Chemicals. *Endocrine Reviews*. 2015;er20151010.

³Trasande L., Krithivasan R., Park K., Obsekov V., Belliveau M. Chemicals Used in Plastic Materials: An Estimate of the Attributable Disease Burden and Costs in the United States. *Journal of the Endocrine Society*. 2024;8(2):bvad163.

⁴Trasande L., Nelson M.E., Alshawabkeh A., et al. Prenatal Phthalate Exposure and Adverse Birth Outcomes: a Prospective Analysis of U.S. Births and Estimates of Attributable Burden and Costs. *Lancet Planet Health*. 2024, accepted.

⁵Malits J., Naidu M., Trasande L. Exposure to Endocrine Disrupting Chemicals in Canada: Population-Based Estimates of Disease Burden and Economic Costs. *Toxics*. 2022;10(3).

⁶Attina T.M., Hauser R., Sathyanarayana S., et al. Exposure to endocrine-disrupting chemicals in the USA: a population-based disease burden and cost analysis. *The Lancet Diabetes & Endocrinology*. 2016;4(12):996-1003.

⁷Jacobson M.H., Woodward M., Bao W., Liu B., Trasande L. Urinary Bisphenols and Obesity Prevalence Among U.S. Children and Adolescents. *Journal of the Endocrine Society*. 2019;3(9):1715-1726.

⁸Trasande L. Further limiting bisphenol a in food uses could provide health and economic benefits. *Health Aff (Millwood)*. 2014;33(2):316-323.

⁹Trasande L., Attina T.M., Blustein J. Association between urinary bisphenol A concentration and obesity prevalence in children and adolescents. *JAMA*. 2012;308(11):1113-1121.

¹⁰Legler J., Fletcher T., Govarts E., et al. Obesity, diabetes, and associated costs of exposure to endocrine-disrupting chemicals in the European union. *J Clin Endocrinol Metab*. 2015;100(4):1278-1288.

¹¹Trasande L., Liu B., Bao W. Phthalates and attributable mortality: A population-based longitudinal cohort study and cost analysis. *Environ Pollut*. 2022;292(Pt A):118021.

¹²Obsekov V., Kahn L.G., Trasande L. Leveraging Systematic Reviews to Explore Disease Burden and Costs of Per- and Polyfluoroalkyl Substance Exposures in the United States. *Expo Health*. 2023;15(2):373-394.

¹³Marfella R., Praticchizzo F., Sardu C., et al. Microplastics and Nanoplastics in Atheromas and Cardiovascular Events. *The New England Journal of Medicine*. 2024;390(10):900-910.