



**Committee: Environment and Transportation; Economic Matters**

**Testimony on: HB0232 Maryland Beverage Container Recycling Refund and Litter Reduction Program**

**Position: Favorable**

**Hearing Date: 2/14 at 1:30 pm (Environment and Transportation)**

Chesapeake Physicians for Social Responsibility (CPSR) is a statewide evidence-based organization of over 900 physicians and other health professionals and supporters that addresses existential public health threats: nuclear weapons, the climate crisis, and the issues of pollution and toxic effects on health, as seen through the intersectional lens of environmental, racial and social justice.

Healthy Climate Maryland (HCM) is a state-wide coalition of dedicated public health and medical professionals that seeks to address climate change and environmental challenges by focusing on their impacts on public health.

CPSR and HCM strongly support [HB0232](#), a bill establishing a beverage container deposit program in the State of Maryland at no added cost to the State (and with savings to waste management costs for local municipalities). By increasing recycling rates, this “Bottle Bill” will also yield public health benefits by reducing carbon emissions of new plastics production and decreasing environmental plastics.

Each year 2.6 billion plastic bottles litter Maryland’s roads, shores, and waterways or end up as landfill. These plastic bottles are made from fossil fuels and their production contributes to climate change. Due to exponential growth of plastics production, much of it in single-use plastics, the plastics industry accounts for a rising share of global carbon emissions (from 3.7% in 2015 to 5.3% in 2019).<sup>1-3</sup> If the plastic industry were a country, it would be the fifth most polluting country in the world. Most of the carbon emissions emerge from fossil fuel extraction and processing as well as from the production of the plastics building blocks (the hydrocarbon monomer and chemical additives).<sup>2</sup> One strategy of mitigating the climate impacts of plastics production is to increase plastics recycling in order to offset new plastic production.<sup>3</sup> This proposed bottle bill will increase Maryland’s bottle recycling rate from 25% to over 90%.

Moreover, we know that these plastic bottles do not biodegrade. Instead, they break up into tiny fragments, called microplastics, which readily disperse in our air, water, and land, contributing to widespread environmental pollution.<sup>4</sup> Once in the environment, they end up in our bodies through the air we breathe, the food we eat, and the water we drink.<sup>4</sup> Studies have detected microplastics in most human organs tested, including the brain, heart, lungs, intestines, testicles, and placenta.<sup>4-6</sup> Research shows that microplastics have negative health impacts. These health impacts emerge from the two components of plastics: the polymer building blocks, which come from fossil fuels, and the chemical additives.<sup>4,7</sup> Recent animal studies show that microplastic

polymers cause inflammation in every tissue they end up in, disrupt the microbiome in the gut, and cause abnormal protein folding in the brain consistent with dementia.<sup>4,7-9</sup> Decades of animal and human studies have identified plastics-related chemicals as endocrine-disruptors, implicating them in obesity, type 2 diabetes, preterm birth, decreased sperm count, early puberty in females, and neurodevelopmental conditions like ADHD, autism, and IQ loss.<sup>4,7,10-12</sup> Health economists estimate the economic burden of these health issues to be substantial, costing the United States \$920.6 billion dollars in healthcare costs, disability, and premature death from just three plastics-related chemicals.<sup>4</sup> Additionally, this past year, leading cancer researchers named microplastics and related chemicals as drivers of rising cancer rates in adults.<sup>13</sup>

Any bill that helps reduce the environmental burden of plastics is a net win for health of our Marylanders. We therefore urge you to vote in favor of the Bottle Bill.

Sincerely,

Chesapeake Physicians for Social Responsibility  
Healthy Climate Maryland

#### References:

1. OECD. *Global Plastics Outlook: Policy Scenarios to 2060*. OECD Publishing; 2022.
2. Karali N, Khanna N, Shah N. Climate impact of primary plastic production. Lawrence Berkeley National Laboratory Publications. 2024. Available at <https://www.osti.gov/biblio/2336721>
3. Zheng J and Suh S. Strategies to reduce the global carbon footprint of plastics. *Nature Climate Change* 2019; 9: 374-378.
4. Landrigan PJ, Raps H, Cropper M, *et al*. The Minderoo-Monaco commission on plastics and human health. *Annals of Global Health* 2023; 89(1): 23, 1–215.
5. Amato-Lourenço LF, Dantas KC, Júnior GB, *et al*. Microplastics in the olfactory bulb of the human brain. *JAMA Network Open* 2024; 7(9): e2440018.
6. Campen M, Nihart A, Garcia M, *et al*. Bioaccumulation of microplastics in decedent human brains assessed by pyrolysis gas chromatography-mass spectrometry. 2024 *Res Sq* [Preprint].
7. Ryznar E, Haase E, Lauterbach M. The plastics crisis: a neuropsychiatric problem hidden in plain sight. *Psychiatric Times* 2024; 41(9): 13-16.
8. Sofield CE, Anderton RS, Gorecki AM. Mind over microplastics: exploring microplastic-induced gut disruption and gut-brain-axis consequences. *Curr Issues Mol Biol*. 2024; 46(5):4186-4202.
9. Liu Z, Sokratian A, Duda AM, *et al*. Anionic nanoplastic contaminants promote Parkinson's disease-associated  $\alpha$ -synuclein aggregation. *Science Advances* 2023; 9(46).
10. Khan LG, Philippat C, Nakayama S, *et al*. Endocrine-disrupting chemicals: implications for human health. *Lancet Diabetes Endocrinol* 2020; 8: 703-18.
11. Woodruff T. Health effects of fossil fuel-derived endocrine disruptors. *New England Journal of Medicine* 2024; 390: 922-33.
12. Symeonides C, Vacy K, Thomson S, *et al*. Male autism spectrum disorder is linked to brain aromatase disruption by prenatal BPA in multimodal investigations and 10HDA ameliorates the related mouse phenotype. *Nature Communications* 2024; 15: 6367.
13. Mauri G, Patelli G, Sartore-Bianchi A, *et al*. Early-onset cancers: biological bases and clinical implications. *Cell Reports Medicine* 2024; 5: 101737.