

My name is Dr. Elizabeth Ryznar and I am testifying in support of Montgomery County's Bring Your Own Bag Bill given my capacity as a physician. It is estimated that humans use 160,000 plastic bags per second around the world, and Americans use 365 disposable bags a year. Unfortunately, these plastic bags are made from fossil fuels and chemicals. They are not biodegradable or recyclable. These plastic bags end up in landfills as trash or in waterways as pollution. There, they break up into tiny fragments called microplastics and nanoplastics. Microplastics and nanoplastics are so small that they readily disperse in our air, water, and land, contributing to widespread environmental pollution. Once in the environment, they end up in our bodies through the air we breathe, the food we eat, and the water we drink. Studies have detected microplastics in most human organs tested, including the brain, heart, lungs, intestines, testicles, and placenta. They are even found in meconium, which is a baby's first stool after birth.

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. 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. 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. Additionally, this past year, leading cancer organizations and doctors named microplastics and related chemicals as drivers of rising cancers in adults.

Any bill that helps reduce the environmental burden of plastics is a net win for health of our constituents. However, to ensure maximum effectiveness of this bill, loopholes need to be closed and an alternative approach to support low-income shoppers needs to be devised. Thank you.

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Author: [Neuropsychiatric Implications of Plastics Pollution](#) in *Psychiatric Times*