



Committee: Education, Energy, and the Environment

Testimony on: SB0158/HB0319 – Pesticide Registration - PFAS Testing - Requirements

Position: Favorable

Hearing Date: February 2, 2023

Submitted on behalf of the student chapter of Chesapeake Physicians for Social Responsibility (CPSR). CPSR is a statewide evidence-based organization of over 940 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, social, and racial justice.

We strongly support SB0158/HB0319, which would prohibit the Secretary of Agriculture from permitting mosquito controlling pesticides in the state of Maryland by January 1, 2024, unless the distributor demonstrates the product has passed certain tests attesting to it being below detectable levels of PFAS or fluorine content. It would prohibit the Secretary of Agriculture from permitting any pesticide containing PFAS beginning January 1, 2026, as defined in [the text of the bill](#).¹

Per- or poly- fluoroalkyl chemicals (PFAS) comprise thousands of man-made compounds that persist in the environment, contaminate water and soil, and bioaccumulate in humans and animals. The dangerous health effects of these chemicals are summarized below (Table 1).² Last year, PFAS were eliminated from firefighting foam, food packaging, rugs, and carpets in Maryland. Eliminating these chemicals in pesticides is a necessary next step, and still only the start to limiting human exposure to these compounds.

Effects of PFAS on Human Health²
Altered thyroid hormones
Kidney cancer
Increased total and LDL cholesterol levels
Liver inflammation and fat deposition
Testicular cancer
Reduced response to vaccines
Low birth weight

Recent studies have revealed that from 2015 to 2020, nearly 70% of pesticides in the global market contained PFAS or related chemicals.³ The use of PFAS in pesticides leads to contaminated crops, and subsequent PFAS exposure affects agricultural workers as well any communities consuming these crops. Bifenthrin, a related compound considered PFAS by some organizations other than EPA, is a fluorinated pesticide that has been found in produce in recent years, including collard greens, eggplants, spinach, cherry tomatoes, sweet potatoes, and peaches, in amounts exceeding EPA safety levels. In addition to harming human health, research has found that PFAS-containing pesticides are also an environmental pollutant, with potential to inflict ecological damage, such as causing increased mortality of honeybees crucial to pollination and agriculture.⁴ Given the widespread use of pesticides in our environment and potential for bioaccumulation in humans, it is vital to eliminate PFAS from pesticides.

The continued manufacturing, use, incineration, and landfill disposal of these compounds pose an increasing threat to public and environmental health. It is a step in the right direction to address PFAS as a class of chemicals, rather than individually, as there are thousands of compounds in this class and their collective impact from exposure in-utero to adulthood likely causes the greatest harm to human health. PFAS chemicals have been detected in blood, urine, breast milk, umbilical cord blood, lungs, kidney, liver, and brain tissue.⁵

Before starting medical school, I, Vennela Avula, worked as a scientific researcher examining the effects of various environmental contaminants on human health in the Gillings School of Global Public Health. I specifically studied the effects of PFAS on maternal and child health as well as on national public health and published these findings.^{6,7} In this research, we summarized the numerous negative health outcomes PFAS can have on pregnancy and birth outcomes. We also demonstrated, using national data, that PFAS were associated with higher risk of viral and parasitic infections, exhibiting their effect of dysregulating the immune system. The greatest increase in risk was found among adolescents, showing that this may be a vulnerable population. In the paragraphs below, we delve deeper into further research studies that have noted similar findings related to the human health effects of elevated PFAS serum levels.

Immune system dysfunction and infection susceptibility. The U.S National Toxicology Program, the Centers for Disease Control and Prevention, and the Agency for Toxic Substances and Disease Registry have all recognized that PFAS chemicals have the potential to adversely alter the human immune system and increase our risk of developing hypersensitivity disorders (e.g., asthma, eczema) and infectious diseases.⁸ In terms of the COVID-19 pandemic, a growing body of science has shown that high levels of PFAS exposure may decrease vaccine efficacy and increase susceptibility to infections in both adults and children. Furthermore, high levels of certain PFAS have been associated with a greater likelihood of hospitalization and progression to intensive care or death due to COVID-19.⁹ As we attempt to prevent the spread and severity of COVID-19 as well as future pandemics, protecting the public from further exposure to harmful PFAS chemicals plays an important role.

Health and development of the fetus, infant, newborn and children. Studies have consistently demonstrated that PFAS easily circulates from maternal blood through the placenta to the developing fetus.¹⁰ Particularly concerning is the suggestion of PFAS-induced improper placental development and function, which could negatively impact maternal and fetal acute and latent health outcomes such as hypertensive disorders of pregnancy and low birth weight. In addition, children born to mothers with elevated umbilical cord blood PFAS levels were noted to be at increased risk for infectious diseases such as throat and airway infections and diarrheal illnesses.^{11,12}

Cancer susceptibility. PFAS chemicals, particularly perfluorooctanoic acid (PFOA), have been suggested to increase the risk of various cancers. The World Health Organization (WHO) International Agency for Research on Cancer (IARC) has classified PFOA as a possible human carcinogen. A review of multiple research studies found that the increase in cancer risk per 10 ng/mL serum PFOA was 16% for kidney cancer and 3% for testicular cancer.¹³ Other studies of individuals with high exposures to PFOA, such as those living near chemical and manufacturing plants, have also found associations between PFOA and testicular, kidney, prostate, and ovarian cancers, as well as non-Hodgkin lymphoma.^{14,15} The National Institutes of Health (NIH) is continuing to study the risks posed by PFAS on ovarian, endometrial, prostate, and thyroid cancers, and childhood leukemia.¹⁶ Given the considerable potential for PFAS to be linked to mechanisms underlying the development of cancer, supported by numerous laboratory and epidemiological studies, it is crucial to minimize and ultimately eliminate our exposure to PFAS.

As medical student members of the healthcare community, we strongly support and urge favorable action on SB0158/HB0319 which aims to mitigate the wide-ranging health concerns associated with PFAS exposure, starting with restriction of these harmful chemicals in pesticides. Passage of this bill will protect the health and well-being of all Maryland residents, especially those at highest risk of harm: our agricultural workers, the elderly, and pregnant women, newborns, infants, and children.

Respectfully submitted,

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References

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