Committee: Education, Health and Environmental Affairs
Testimony on: SB0273 / HB0275 – Environment – PFAS Chemicals – Prohibitions and Requirements (George "Walter" Taylor Act)
Position: Favorable
Hearing Date: February 2, 2022

Chesapeake Physicians for Social Responsibility (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 SB273, which aims to prohibit the manufacturing, use, sale, and unsafe disposal of harmful per- or poly- fluoroalkyl (PFAS) chemical additives in firefighting foam, food packaging, rugs, and carpets. PFAS comprise thousands of man-made compounds that persist in the environment, contaminate water and soil, and bioaccumulate in humans and animals (Table 1).

Table 1. Sources of Human Exposure to PFAS[1]
• Surface, ground, public utility, and well water • Contaminated soil or dust—landfills, disposal sites • Food chain—seafood and livestock exposed to PFAS • Maternal to fetal transfer in utero, and breast milk and formula feeding in neonates and infants • Nonstick cookware • Cleaning and personal care products—shampoo, floss, cosmetics • PFAS-containing consumer food packaging—pizza boxes, fast food wrappers, microwaveable popcorn bags • PFAS-coated rugs, carpets, upholstery and fabrics • Workplace—Fire and Rescue, manufacturing and electroplating facilities

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. PFAS chemicals have been detected in blood, urine, breast milk, umbilical cord blood, lungs, kidney, liver, and brain tissue.[2] Although the toxicity and health effects of the vast majority of PFAS compounds have yet to be investigated or definitively identified, based on available research, there is reason to be concerned about the implications for short- and long-term human exposure to these chemicals (Table 2).

Table 2. Potential Effects of PFAS Compounds on Human Health[3]	
High Certainty	**Low Certainty**
Altered thyroid hormones	Inflammatory bowel disease
Increased total and LDL cholesterol levels	Low sperm count and mobility
Liver inflammation and fat deposition	Pregnancy-related high blood pressure
Kidney cancer	Decreased fecundity
Reduced response to vaccines	Obesity
Low birth weight	Accelerated puberty

In the paragraphs below, we highlight several areas in which research studies have noted concerning 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.[4] Relevant to 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.[5] 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.

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.[6] 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.[7,8] 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.[9] 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.

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]

Effect on Firefighters and the Community. Firefighters are more likely to die from cancer than a fire, and exposure to high amounts of PFAS, such as those found in firefighting foam and uniforms, is associated with adverse health outcomes including cancers. Before starting medical school, I, Angela Geiger, volunteered at my small mountain town's fire department, which routinely deployed firefighting foam to extinguish regularly scheduled real fire training sessions. Because of the department's proximity to my house, foam that was used in these training sessions drained directly into the ground and ultimately the wells that supplied drinking water to my house, my neighbors' homes, and residents downstream. I am sure that I am not the only person who finds this very disturbing, and I am deeply saddened by the thought that my family, community, and the people I worked with are at increased risk of cancer and other adverse health outcomes due to chemicals in firefighting foam and firefighter's gear.

As members of the healthcare community, we strongly support and urge favorable action on the George "Walter" Taylor Act (SB0273/HB0275) which undertakes smart, common-sense actions to mitigate the wide-ranging health concerns associated with PFAS exposure. Passage of this bill will protect the health and well-being of all Marylanders, especially those at highest risk of harm: our first responders, the elderly, and pregnant women, newborns, infants, and children.

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