

## PFAS FREQUENTLY ASKED QUESTIONS (FAQS): GENERAL INFORMATION

### WHAT ARE “PFAS” OR “PFOA” OR “PFOS”?

- Per- and polyfluoroalkyl substances (PFAS) are man-made chemicals that do not naturally occur in the environment. Some examples of PFAS are perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA), Perfluorodecanoic acid (PFDA), Perfluoroundecanoic acid (PFuDA), hexafluoropropylene oxide (HFPO) dimer acid (also referred to as “GenX”), and Methyl-perfluorooctane sulfonamide (MeFOSAA).
- PFAS have been used in thousands of consumer, commercial, and industrial products since the 1950s. PFAS are used in a wide range of products because these chemicals have properties that repel oil and water, reduce friction, and resist temperature changes. Because many PFAS break down in the environment very slowly, they have been referred to as “forever chemicals.”
- Because of the wide range of products where PFAS was used, nearly all people in the United States (US) have had exposure to PFAS.
- PFOS, PFOA, and PFHxS exposure is decreasing in the US population, in part because of chemical production phase-outs.
- On January 14, 2023, the Pennsylvania PFAS Maximum Contaminant Level (MCL) Rule was published in the [Pennsylvania Bulletin](#). This rule establishes the state-level drinking water MCLs for two PFAS: PFOA (14 parts-per-trillion [ppt] or nanograms per liter [ng/L]) and PFOS (18 ppt).

### HOW CAN SOMEONE BE EXPOSED TO PFAS, IN GENERAL?

- The primary route of exposure is ingestion (eating), which can include ingestion of PFAS-contaminated water, eating food (e.g., meat, dairy, and vegetables) produced near places where PFAS were used or made, using PFAS-containing cookware (e.g., non-stick cookware/pans), eating fish caught from water contaminated by PFAS, eating food packaged in PFAS containing, grease-resistant paper (e.g., popcorn bags, fast food containers, pizza boxes, and candy wrappers), and incidental ingestion of contaminated soil/dust.
- Other exposure sources include workplaces that manufacture, use, or handle PFAS such as some factories, airports, military bases, wastewater treatment plants, farms where sewage sludge was used for fertilizer, landfills, and incinerators.
- Some non-food sources include stain resistant carpets, upholstery, and other fabrics, water resistant clothing, cleaning products, personal care products and cosmetics (e.g., shampoo, dental floss, nail polish, and eye makeup), and paints, varnishes, waxes, and sealants.
- Inhalation is another possible route of exposure to PFAS in occupational settings. Residents living near fluorochemical plants or incinerators can also be exposed to PFAS via inhalation (breathing). For more information on occupational exposures, please visit the National Institute for Occupational Safety and Health (NIOSH) PFAS [webpage](#) here.
- PFAS are not well absorbed by the skin or do not migrate through skin easily; therefore, dermal exposure, through handwashing, showering, or swimming and wading in water that contains PFAS, is not considered a significant route of exposure.

- PFAS can transfer to the fetus during pregnancy (transplacental exposure) and in infancy through breastfeeding or formula made with contaminated water.

## HOW CAN SOMEONE REDUCE THEIR EXPOSURE TO PFAS?

- Due to their widespread use, PFAS have been detected in the blood of people and animals throughout the world, as well as air, water, fish, and soil. **There is no medically recognized method of reducing PFAS levels in the human body.** Reducing exposure to PFAS will reduce the level in your body over time.
- While PFAS are ubiquitous in the environment, there are some ways to reduce potential exposure. These include:
  1. Evaluate your primary drinking water source.
    - Public water source – if you are on public water, contact your water utility for recent PFAS reports or discuss their plans to sample and provide PFAS results.
    - Private well water testing – if you are on private/well water, consider testing your water for common contaminants (e.g., bacteria, metals) and PFAS. To find accredited laboratories that can test for PFAS, see PA Department of Environment Protection (DEP) list [here](#).
    - Consider in-home water treatment with methods certified to remove PFAS if contamination is present.
      - [EPA resources](#) to reduce PFAS in drinking water with treatment technologies.
      - The National Sanitation Foundation (NSF) developed and provides continuous maintenance of the NSF/American National Standards Institute (ANSI) requirements to remove PFOA and PFOS in water - NSF/ANSI 53: *Drinking Water Treatment Units – Health Effects* or NSF/ANSI 58: *Reverse Osmosis Drinking Water Treatment Systems*. For more information visit the [NSF webpage](#).
  2. Avoid eating fish from water bodies or streams impacted by PFAS.
    - See DEP study regarding recent [surface water analysis](#) conducted on 161 PA streams.
    - Review current [PA fish consumption advisories](#) by river basin
  3. Reduce the consumption or use of consumer products containing PFAS. Most products will not list if they contain PFAS chemicals. However, generally, these types of products may contain PFAS:
    - Food contact products, such as take-out food packaging, grease-resistant paper, pizza boxes, microwave popcorn bags
    - Stain-resistant coatings on clothing, carpets, and furniture
    - Water resistant clothing
    - Paints, varnishes, and sealants
    - Personal care products for hair, dental floss, makeup, and nail polish

- There are two resources from non-profit groups that attempt to provide a comprehensive database of PFAS-containing and “PFAS-free” products. PA DOH cannot speak to the accuracy or representativeness of the databases.
  - <https://pfascentral.org/pfas-free-products/>
  - <https://pfas.chemsec.org/>

## WHAT HEALTH EFFECTS ARE ASSOCIATED WITH PFAS EXPOSURE?

- Research is ongoing to understand the mechanisms of PFAS toxicity. The epidemiological evidence suggests associations between increases in exposure to (specific) PFAS and certain health effects. Some of the health effects of long-term exposure over many years include:
  - Increases in cholesterol levels (PFOA, PFOS, PFNA, PFDA)
  - Small decreases in birth weight (PFOA, PFOS)
  - Lower antibody response to some vaccines (PFOA, PFOS, PFHxS, PFDA)
  - Kidney and testicular cancer (PFOA)
  - Pregnancy-induced hypertension or preeclampsia (PFOA, PFOS)
  - Changes in liver enzymes (PFOA, PFOS, PFHxS)
- The risk of health effects associated with PFAS depends on:
  - Exposure factors
    - Dose – how much or what concentration is someone exposed?
    - Frequency – how often is someone exposed? Example – 5 days a week for 40 weeks/year
    - Route – ingestion (eating), inhalation (breathing)
    - Duration – How long has someone been exposed? Example 1 year versus 30 days.
  - Individual factors, such as underlying health conditions
  - Other determinants of health (e.g., access to safer water and quality healthcare)
- Given the many factors that determine the risk of a health effects when exposed to PFAS, exposures from a single known exposure (e.g., consuming water with PFAS at low levels or levels above the [DEP](#) maximum contaminant levels [MCLs] of 14 ppt PFOA and 18 ppt PFOS or [US Environmental Protection Agency](#) MCLs of 4.0 ppt PFOA, 4.0 ppt PFOS, 10 ppt PFHxS, 10 ppt PFNA, and 10 ppt GenX) does not guarantee a person will develop the health outcomes associated with PFAS.
- For more information regarding health effects and resources, **please call 1-877-PA-HEALTH (1-877-724-3258)**

[FAQ continued on next page]

## **PFAS FAQS: SCHOOL-SPECIFIC**

MY CHILD ATTENDS A SCHOOL WITH ELEVATED PFOA AND/OR PFOS. THEY ARE IN THE FIFTH GRADE AND HAVE ATTENDED THIS SCHOOL SINCE KINDERGARTEN. HOW WILL THESE PFAS WATER RESULTS IMPACT MY CHILD'S HEALTH?

- Because children's bodies are still developing, they may be more sensitive to the harmful effects of chemicals like PFAS. Children drink more water, eat more food, and breathe more air per pound of body weight than adults, which can increase their exposure to PFAS. ([EPA 2023](#))
- Research is also underway to better understand the health effects associated with low levels of exposure to PFAS over long periods of time, especially in children. ([EPA 2023](#))
- The health effects listed in the "What health effects are associated with PFAS exposure?" section of this FAQ are related to long-term (many years) of exposure.
- Prior to 2024, the school was likely not required to test for PFAS. Therefore, we do not know how long PFAS has been present in the drinking water at the school.
- Consuming water that contains PFOA or PFOS above the DEP MCLs does not necessarily mean that health effects will occur. These numbers were meant to represent the level at which scientists have found there to be a small to no risk of health effects in the people who are exposed, based on the science that was currently available at the time.
- PFOA and PFOS statewide drinking water standards from DEP are established for long-term (many years) of exposure. This consideration is over the course of a lifetime and a 5-year exposure is not considered to be a very long time.
  - We know that reducing or eliminating exposure is the best way to reduce your child's potential for these chemicals to cause harm to their health.
  - Additionally, it is important to consider the duration and frequency of exposure. Children attending this school are exposed during hours of a school day (e.g., 8:30 – 3:30), five days a week, for the duration of the academic school year (approximately 9 months). Therefore, the exposure duration and frequency are lower than the assumptions used in calculating the DEP [MCLs](#), which would be assuming the drinking water source is the only drinking water source 24 hours per day, 7 days per week, 365 days per year.

WHAT SHOULD I DO FOR MYSELF (ON-SITE FACULTY AND STAFF) OR MY CHILD THAT ATTENDS A SCHOOL WITH PFOA AND/OR PFOS LEVELS ABOVE THE MCL TO PREVENT EXPOSURE?

- Some ways to reduce exposure would be to use an alternate water source for drinking, preparing food and cooking, and brushing teeth.
  - Options include:
    - bring in or use filtered water from home – there are filters available for use at home (example – granulated activated carbon (GAC)) that are certified to filter PFAS from water. Visit EPA's website for treatment technologies that exist to remove certain PFAS, like PFOA, PFOS, GenX, and PFBS (<https://www.epa.gov/system/files/documents/2024-04/water-filter-fact-sheet.pdf>);

- It is worth noting that current NSF/ANSI standards are to remove PFOA and PFOS to be below 70 ppt.
- use water from home if you are on a public water source and it has been tested for PFAS (and is below state guidelines);
- use water from home if you are on a private/well and you have an in-home treatment/filtration system for PFAS or your well water has been tested for PFAS (and is below state guidelines);
- or use bottled water. Note that while FDA does not have any regulations in place for PFAS in bottled water, the DEP PFAS MCLs apply to bottled water bottled in PA and needs to be under the PFOA and PFOS MCLs.

### I AM A FACULTY OR STAFF MEMBER THAT IS BREASTFEEDING. SHOULD I BE CONCERNED?

- PFAS can migrate from a mother's blood into breastmilk, which would expose a breast-fed infant to PFAS. However, current science suggests the benefits of breastfeeding, including immune system benefits and protecting infants from illness, outweigh the risks of exposure to PFAS for infants in most cases. If you are concerned with consuming the water at the school, use an alternate source of water for drinking, food preparation, and cooking to reduce potential exposure.

### SHOULD I TALK TO MY (OR MY CHILD'S) PRIMARY HEALTHCARE PROVIDER ABOUT EXPOSURE?

- Discussing your environmental health/exposure concerns with your family clinician is important.
  - For clinician guidance related to PFAS, your healthcare provider will find the following resources useful:
    - CDC/ATSDR [PFAS Information for Clinicians](#) and [Factsheet](#)
    - The National Academies of Science, Engineering, and Medicine (NASEM) has produced a [physician's guidance report](#) that reviewed the PFAS body of literature (epidemiological and toxicological data) to identify health outcomes with sufficient evidence and limited or suggestive evidence of an association with PFAS exposure. The NASEM committee provided guidance on PFAS testing and patient follow-up. This guidance also provides actionable information in healthcare settings and opportunities for exposure reduction. Review the NASEM [Report Highlights](#) for Guidance on PFAS Exposure, Testing, and Clinical Follow-up (briefly summarized or excerpts provided in the bullets below)

### SHOULD I HAVE MY OR MY CHILD'S BLOOD TESTED FOR PFAS?

- Exposure to PFOS, PFOA and other PFAS like perfluorononanoic acid (PFNA), and perfluorohexane sulfonic acid (PFHxS) are widespread and have been detected in blood samples of the general U.S. population and wildlife. These chemicals have been detected in 95-100% of samples of people's blood in the years 1999-2000 and 2003-2004. Recent monitoring data show the levels of these chemicals in people's blood appear to be declining.
- Consult your family clinician about testing.
- CDC/ATSDR have provided the following guidance to clinicians on deciding if blood testing is warranted:
  - Benefits of PFAS blood testing might include:

- Providing information that could guide exposure reduction.
- Identifying PFAS-associated health effects
- Providing possible psychological relief from knowing one's PFAS blood level.
- Limitations of PFAS blood testing include:
  - PFAS blood test results do not identify sources of exposure.
  - Only certain PFAS can be tested in blood and these PFAS might not represent the PFAS a patient has been exposed to
  - Results do not indicate whether a current illness can be attributed to PFAS exposure.
  - PFAS blood test results do not predict future health outcomes.
  - Comparison of PFAS results across laboratories can be difficult (lab methods vary in how they test and what is included in the test),
  - How long test results remain clinically meaningful is not known.
  - Neither the utility of repeat PFAS testing nor the optimum interval for testing is known.
- Clinicians should consider an individual's exposure history, results of PFAS testing from the patient's water supply, food sources, or other exposure routes, and whether results can inform exposure reduction and health promotion.

## HOW CAN YOU REMOVE PFAS FROM WATER?

- In-home or building water treatments, like a filtration system, that are NSF/ANSI certified to remove PFAS are an excellent way to reduce the levels of PFAS in water.
  - If you are considering in-home water treatment, consult the [EPA resources](#) to reduce PFAS in drinking water with treatment technologies.
    - The National Sanitation Foundation (NSF) developed and provides continuous maintenance of the NSF/American National Standards Institute (ANSI) requirements to remove PFOA and PFOS in water - NSF/ANSI 53: *Drinking Water Treatment Units – Health Effects* or NSF/ANSI 58: *Reverse Osmosis Drinking Water Treatment Systems*. For more information visit the [NSF webpage](#).
- **Boiling water will not remove PFAS.**

## CAN I SHOWER, WASH MY HANDS, BATHE, OR WASH DISHES WITH PFAS CONTAMINATED WATER?

- Yes, it is OK to use water with elevated PFAS to do these tasks. Studies have shown that only a very small amount of PFAS can get into your body through your skin (referred to as dermal exposure).

## THERE ARE PFAS OTHER THAN THE ONES SUBJECT TO DEP MCLS (PFOA AND PFOS) LISTED ON THE LABORATORY REPORT/WATER TEST RESULTS SHEET. WHAT DOES THIS MEAN? ARE THESE LEVELS ALSO BAD OR ASSOCIATED WITH HEALTH EFFECTS?

- PFAS is a term used to describe a large category of chemicals with a similar chemical structure. However, the different PFAS are not all associated with the same health effects, do not have similar concentrations or levels that are associated with adverse health effects, and are not universally regulated by other states or the federal government. For some of these PFAS, there is not a lot of data available or information known about them.
- Health effects associated with PFAS that are **not** PFOA or PFOS include the following:
  - Increases in cholesterol levels (PFNA, PFDA)
  - Lower antibody response to some vaccines (PFHxS, PFDA)
  - Changes in liver enzymes (PFHxS)