Español

Per- and Polyfluoroalkyl Substances (PFAS) and Your Health

Per- and Polyfluoroalkyl Substances (PFAS) and Your Health

Per- and Polyfluoroalkyl Substances (PFAS) and Your Health Home

PFAS Progress Newsletter — May 2023

Welcome to the May 2023 edition of the PFAS Progress newsletter! In this newsletter, you will learn about

- Updates to the exposure assessments, Pease Study, and Multi-site Studies
- ATSDR's health consultation in response to per- and polyfluoroalkyl substances (PFAS) contamination in the Fairfield area of Maine
- The launch of CDC/ATSDR's PFAS Blood Level Estimation Tool
- A new interactive map of ATSDR PFAS sites

Thank you for reading the newsletter! Please share with us ideas for future newsletters or ways we can improve our newsletter.

Activities Updates

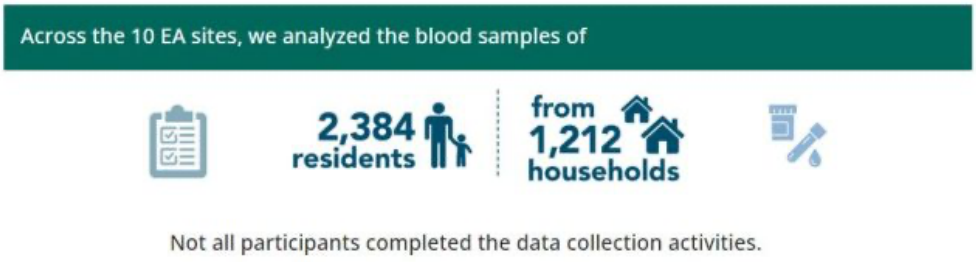
Exposure Assessments (EAs)

Final PFAS Exposure Assessment Report

An exposure assessment (EA) is a way to look at whether people in a community might have been exposed to a certain type of substance in their environment. People are tested to see whether they have been exposed to that substance and answer questions to help identify possible sources.

The Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR) conducted EAs in 10 communities known to have had PFAS in their drinking water, including two pilot EAs conducted in partnership with the Association of State and Territorial Health Officials, the Pennsylvania Department

of Health and New York State Department of Health and eight ATSDR-led EAs. In September 2022, CDC/ATSDR released a final, aggregate report that summarizes the findings of analysis of data from all 10 EA sites.



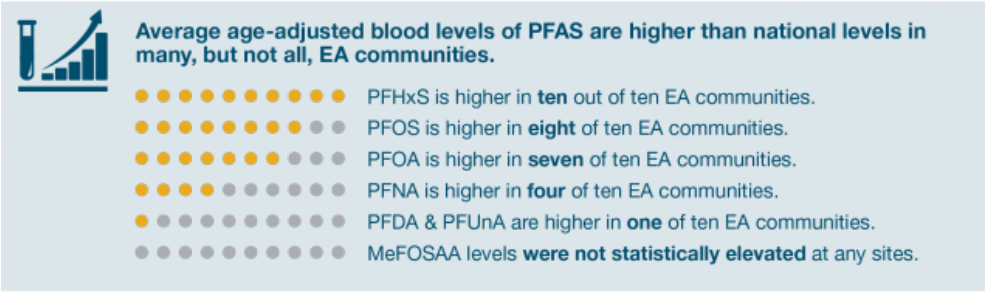
Each EA focused on a specific geographic area in which known or expected PFAS exposure occurred from use of products such as aqueous film forming foam (AFFF).

When selecting ATSDR-led EA sites, ATSDR considered the following:

- The extent of perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) contamination in drinking water supplies
- The duration over which exposure might have occurred
- The number of potentially affected residents

Key takeaways from the EAs included the following:

- Average age-adjusted perfluorohexane sulfonic acid (PFHxS) blood levels are higher than national levels in all EA communities
- Average age adjusted PFOS and PFOA blood levels are higher than national levels in most EA communities
- Elevated blood levels may result from past drinking water contamination in those communities
- Some demographic and lifestyle characteristics are linked with higher PFAS blood levels



All tap water samples collected during the ATSDR-led EAs were below the Environmental Protection Agency's 2016 health advisory and state public health guidelines for PFAS in drinking water. Two tap water samples had concentrations of PFOS above ATSDR's environmental media evaluation guide for PFOS in drinking water.

The PFAS EAs provide evidence that past exposures to PFAS in drinking water have resulted in accumulation of PFAS in people's bodies. PFAS are eliminated from the body over a long period. This allowed ATSDR to measure PFAS even though exposures through drinking water were mitigated, or lowered, years ago.

You can find more information about the EAs on the final aggregate report webpage and the individual site locations webpage.

Pease Study

CDC and ATSDR are continuing to study health effects from drinking PFAS-contaminated water at the Pease International Tradeport and from its supply wells in the Portsmouth area of New Hampshire.

The Pease Study is the first site of the PFAS Multi-site Study (MSS), which looks at human health effects experienced by residents exposed to PFAS-contaminated drinking water in 10 communities across eight states. The MSS aims to expand the scientific understanding of PFAS by looking at the association between certain health outcomes and PFAS exposure from drinking water.

The Pease Final Report, which describes the study design, methods, a cohort description, and some statistical analysis is currently undergoing review and will be available at the conclusion of that process. Additional analyses of study data are also in process and will be made available in the peer-reviewed scientific journals.

The Pease Study website will be updated with information as it becomes available and will inform the community when the final report is released. The Pease Study team will hold a community meeting after the final report is released.

Multi-site Study (MSS)

In 2019, CDC and ATSDR announced partnerships with seven study teams to carry out the MSS in communities across the nation. The overall goal of the MSS is to learn more about the relationship between PFAS exposure from drinking water and health outcomes among differing populations. Study partners' outreach and recruitment efforts include connecting with local officials, school systems, water providers, and health care providers. Study partners also work closely with community advisors to develop and tailor study communication materials. Those materials include postcards, videos, newsletters, press releases, and podcasts.

With these efforts, the Pennsylvania site (which includes 11 townships near the military bases in Bucks and Montgomery counties) has reached its adult recruitment goals and has ended the recruitment period.

To assist in recruitment for the other sites and keep the public up-to-date regarding developments to the MSS, the MSS team has developed social media messages that were released in December 2022. These messages have been distributed through ATSDR's social media platforms, with the overarching goal to increase participation in the study.

To date, more than 3,800 people have completed all MSS activities, including more than 3,600 adults and 175 children.

Additional information on the study partners activities can be found on their respective websites:

- Colorado School of Public Health
- Silent Spring Institute
- Michigan Department of Health and Human Services
- Rutgers School of Public Health
- University at Albany, SUNY, & New York State Department of Health
- RTI & Pennsylvania Department of Health
- University of California – Irvine

Other CDC/ATSDR Activities

Fairfield, ME, Health Consultation

ATSDR is in the beginning stages of a health consultation in the Fairfield area of Maine. In May 2021, ATSDR was petitioned by a local community group to assess PFAS contamination and any related health effects. The PFAS contamination in Fairfield is from a historical application of treated municipal wastewater residuals (i.e., biosolids) to agricultural lands. The state of Maine and the Fairfield community were unaware that the biosolids were contaminated with PFAS. PFAS are now present in private well drinking water, surface water, soil, and plant and animal life in the area.

Maine has taken a number of reactive mitigation actions since PFAS were discovered in Fairfield. In January 2021, the Maine Department of Environmental Protection (ME DEP) began installing filtration systems on private wells for which test results exceeded the state's interim drinking water standard. Bottled water was offered to affected homes until a filtration system could be installed. In November 2021, the Maine Department of Inland Fisheries and Wildlife issued a deer consumption advisory, which recommended that residents not eat deer harvested around Fairfield due to PFAS health consumption concerns. ME DEP is also collecting soil and surface water samples to characterize PFAS contamination.

In September 2022, ATSDR staff members made a site visit to Fairfield. They met with officials from ME DEP and the Maine Center for Disease Control and Prevention to discuss ongoing efforts to mitigate PFAS and to confirm the timeline of events.

In addition, ATSDR presented an outline of the health consultation process at Fairfield's town council meeting and hosted two public availability sessions. Since the initial site visit in September 2022, ATSDR staff members have been collecting and screening data. Maine's extensive sample database has results for drinking water, surface water, soil, and plant and animal life in the area. After the drinking water data have been screened, other exposure pathways will be assessed.

For more information on the discovery of PFAS and mitigation actions, visit the Maine Department of Environmental Protection's Fairfield-area PFAS Investigation webpage.

New Resources

New PFAS Spanish Webpages

- Per- and Polyfluoroalkyl Substances (PFAS) and Your Health – English | Spanish
- What are the health effects of PFAS? – English | Spanish
- What are PFAS? – English | Spanish
- How can I be exposed? – English | Spanish
- PFAS Blood Testing – English | Spanish
- Understanding PFAS Exposure and Your Body – English | Spanish
- PFAS in the U.S. Population – English | Spanish
- What is ATSDR doing? – English | Spanish

CDC/ATSDR Launches New PFAS Blood Level Estimation Tool

The Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR) are pleased to announce the launch of the PFAS Blood Level Estimation Tool. The tool was developed to give residents of communities with exposure to per- and polyfluoroalkyl substances (PFAS) through drinking water more information about levels of PFAS that may be in their blood. The tool is not intended to replace actual PFAS blood testing.

New Interactive Map of ATSDR PFAS Sites

ATSDR recently launched the new PFAS interactive map on the PFAS website. This map shows where ATSDR is involved in investigating PFAS in the environment, with each PFAS site represented as a dot on the map. You can hover over a map dot for more information on a specific site, zoom in or out to make dots more visible in a particular area, and filter sites by site type (e.g., exposure assessment site, Multi-site Study site, other PFAS site, or PFAS Exposure Assessment Technical Tools pilot site). The site data are also available by state on the website in table format.

Frequently Asked Question

There are two studies suggesting that phlebotomy can lower PFAS blood levels (one from Canada and one from Australia). Are there any ongoing studies in the United States?

At this time, ATSDR is not aware of any ongoing U.S. study on phlebotomy or blood donation and influence on PFAS levels.

A few small studies in the United States have investigated the effect of blood donation on PFAS levels, but there is not enough data to evaluate the safety of phlebotomy as a therapy for people exposed to PFAS. ATSDR does not recommend phlebotomy as a method to reduce PFAS blood levels.

Featured Site

Pennsylvania PFAS Multi-site Study Site

CDC/ATSDR is funding researchers from seven states across the United States to study how PFAS affects health as part of a Multi-site Study (MSS). The Pennsylvania site includes 11 townships near military bases in Bucks and Montgomery counties.

CDC/ATSDR provided funding to researchers at RTI International, the Pennsylvania Department of Health, Temple University, and Brown University to study PFAS and possible health effects in people exposed to PFAS-contaminated drinking water in the Pennsylvania communities included in the study. The researchers and these institutions have a strong commitment to improving public health in the Pennsylvania communities. They also have a collaborative relationship with the community assistance panel, an entity that was created so the community could participate directly in ATSDR's health activities. The Pennsylvania site team hosts information sessions to update the public. These have included a Facebook Live session with Rep. Madeline Dean (PA). These sessions are generally well-attended.

Recruitment for the site ended in February 2023 and to date, more than 1,200 adults and about 55 children (aged 5–17 years) have completed all study activities meeting the overall enrollment goal for the number of adult participants. The establishment of a YouTube channel and development and distribution of informational postcards helped encourage enrollment and reach these goals. The Montgomery County Health Department, the Navy, the Air National Guard, local churches, Rotary clubs, and others in the community are also supporting the study with recruitment and through community engagement.

CDC/ATSDR continues to review PFAS levels, health measures such as thyroid hormone levels and liver function, and medical histories (including personal and family medical histories) for those enrolled in the study.

To learn more, visit the PA MSS Website or email papfashealth@rti.org.

Community Corner

ATSDR Staff Participate in Marine Corps PFAS Open House in Beaufort, SC

Please note: The alternative drinking water recommendation discussed here was implemented before the U.S. Environmental Protection Agency (EPA) announced proposed Maximum Contamination Levels (MCLs) for PFAS in drinking water. To learn more about EPA's proposed PFAS MCLs, visit the EPA's webpage .

ATSDR staff participated in the Marine Corps PFAS open house on December 8, 2022, at the Marine Corps Air Station (MCAS) in Beaufort, SC. The open house was held to provide information about PFAS from aqueous film-forming foam (AFFF) that was used at the base for training, firefighting, and other life-saving emergency responses.

Analysis of soil and groundwater samples collected by the Marine Corps was completed on December 21, 2021. Test results showed AFFF contaminated the groundwater with PFOA and PFOS ¾ two types of PFAS ¾ that exceeded 70 parts per trillion (ppt). As a precaution for nearby communities, the Marine Corps offered to test private, potable drinking water wells within 1-mile down gradient of the contaminated groundwater area. They will provide an alternative drinking water source for private drinking water wells that have 70 ppt or more of PFOA and PFAS in the water.

During the open house, ATSDR and South Carolina Department of Health and Environmental Control staff members answered questions about what PFAS are, how they can be exposed to PFAS, and potential health effects from drinking PFAS-contaminated water. People whose private drinking water wells were near MCAS and might be contaminated with PFAS were encouraged to have their wells tested for free by the Marine Corps. To support community members throughout the process, ATSDR offered to talk with people about their test results when received.

To learn more about the types of PFAS work ATSDR is supporting, explore the newly updated map of ATSDR's PFAS Sites.

Science Corner

Using Science and Modeling to Develop the PFAS Blood Level Estimation Tool

Over the last 10 years, interest has grown in the potential health effects of exposure to per- and polyfluoroalkyl substances (PFAS). Communities with exposure to PFAS through their drinking water want to learn more about the levels of PFAS in their blood. To help meet this need, CDC and ATSDR developed the PFAS Blood Level Estimation Tool for people who have consumed PFAS-contaminated drinking water and who have information about the levels of PFAS in the water. The tool is not intended to replace actual PFAS blood testing.

The PFAS tool is a web-based estimator for public use. People can use it to get personalized estimates of PFAS concentrations in their blood, based on measured PFAS levels in their drinking water. The tool is unique because it accounts for individual life histories when estimating potential changes to PFAS levels throughout the life cycle. The tool also provides comparisons to data reported in the National Health and Nutrition Examination Survey (NHANES).

The tool was created to help community members estimate their PFAS blood levels without having to undergo biological sampling. Researchers can also use the tool to explore the possible range of PFAS blood levels that might occur in a community of interest. It will also help researchers understand drinking water exposure and body burden in communities with known PFAS contamination.

How was the tool developed? A multi-disciplinary team of scientists, including NCEH/ATSDR Senior Health Scientist Rachel Rogers, consulted published literature, a range of water quality reports, and other databases to develop the tool. The team gathered data to estimate the amount of PFAS people are exposed to from drinking water sources and how long it takes for PFAS to leave the body. Collecting this toxicokinetic information exclusively among populations exposed to PFAS (including PFOA, PFOS, PFHxS, and PFNA) through drinking water allowed scientists to create a pharmacokinetic (PK) model that is specifically intended for use in communities with PFAS-contaminated drinking water. The PK model gives a mathematical description of how a chemical moves throughout the body. It generates personalized results based on the information entered by the user.

How does the tool work? The tool uses data from the user on consumption of contaminated drinking water and certain physiological parameters to generate an estimate of PFAS levels in a person's blood. Users are guided through a series of demographic and exposure questions focused on the users' drinking water sources. The tool turns these responses into model inputs that provide the user with personalized results. The tool also provides additional information to help the user understand the estimates and how the estimated PFAS blood levels compare with current national averages.

The PFAS Blood Level Estimation Tool is an example of how research, commitment, and collaboration can intersect to create tailored tools and resources to inform, educate, and protect communities from environmental hazards.

We hope you'll take the opportunity to explore the tool and spread the word! We are also sharing these resources with state, local, tribal, and territorial health departments (including APPLETREE partners), federal agencies, and other partners.

To learn more about the science and modeling used for the PFAS Blood Level Estimation tool, read *Bayesian Estimation of Human Population Toxicokinetics of PFOA, PFOS, PFHxS, and PFNA from Studies of Contaminated Drinking Water* .

Contact Us

Email	Website	Phone
pfas@cdc.gov	www.atsdr.cdc.gov/pfas	1-800-CDC-INFO (232-4636)
Email Form (English and Spanish) www.cdc.gov/DCS/ContactUs/Form		TTY 888-232-6348 Monday–Friday 8:00 a.m.–8:00 p.m. ET

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