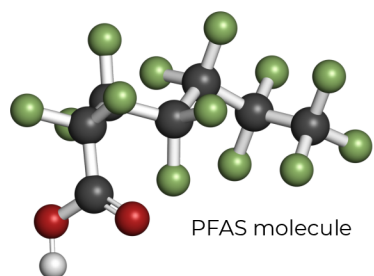


Research Highlight

PFAS Exposure Among Firefighters and Healthcare Workers

What are PFAS?



Per- and polyfluoroalkyl substances (**PFAS**) are a class of synthetic chemicals that are widely used in industrial and consumer products around the world, like firefighting foams, non-stick cookware, and stain-resistant clothing.

The Issue

- High **resistance** to biodegradation allows PFAS to build up in high concentrations in the environment
- PFAS are able to accumulate in the human body over time through **dermal contact, ingestion, or inhalation** of contaminated food, water, or air

The Research

A research team led by **Cedar Mitchell**, PhD, a CDC Epidemic Intelligence Service officer with Pima County Health Department, examined differences in blood concentrations of PFAS among various groups of frontline workers across Arizona. This team also included Kate Ellingson, PhD, and Jeff Burgess, MD, MS, MPH, a SWEHSC researcher.

What was Found?



Firefighters have higher concentrations of certain PFAS in their blood samples



Healthcare workers have more frequent detection of other specific PFAS in their blood samples

Why it is Important?

Firefighters and healthcare workers may be exposed to **unique sources** of PFAS. Firefighters specifically are known to have frequent contact with PFAS while on the job through their usage of firefighting foams and other sources, which puts them at a higher risk for developing PFAS-related diseases.



Long-term exposure to PFAS has been linked with **various health risks**, including:



Increased risk of kidney cancer



Increased risk of testicular cancer



Increases in cholesterol



Lower response to certain immunizations

This study is one of the first to assess PFAS levels in healthcare workers and to report moderately **elevated concentrations** of certain PFAS compounds and significantly **higher detection rates** of specific chemicals, such as Sb-PFOA and PFDoA, compared to individuals in other occupations.

Research Highlight

PFAS Exposure Among Firefighters and Healthcare Workers

Potential Sources of PFAS



- **Firefighters:** aqueous film-forming foam (AFFF), drinking water at some stations, and potentially exposures from fires and coatings used in their “turnout gear” jackets and pants.
- **Healthcare workers:** personal protective equipment (PPE), medical supplies (single-use surgical masks, surgical gowns, X-ray films).

Ways to Reduce Exposure

- Avoid use of PFAS-containing AFFF.
- Check for PFAS contamination of drinking water and use effective filtration as needed.
- Using PPE and medical supplies only as needed while working.

What's Next?

- Expand exposure evaluation among other occupations, including healthcare workers
- Procedures to limit contact with PFAS-containing foams and turnout gear
- Filtration of drinking water



Sign up for
our email list!



SWEHSC
Website

Paper Citation

Mitchell, C. L., Hollister, J., Fisher, J. M., Beitel, S. C., Ramadan, F., O'Leary, S., Fan, Z. T., Lutrick, K., Burgess, J. L., & Ellingson, K. D. (2025). Differences in serum concentrations of per- and polyfluoroalkyl substances by occupation among firefighters, other first responders, healthcare workers, and other essential workers in Arizona, 2020–2023. *Journal of Exposure Science and Environmental Epidemiology*, 35(3), 437–444. Article 110690. <https://doi.org/10.1038/s41370-025-00753-7>

