

# How PFAS Chemicals Affect Women, Pregnancy, and Human Development

PFAS (per- and polyfluoroalkyl substances) are a class of thousands of “forever chemicals” constituting a global threat to public and environmental health.<sup>1</sup> For decades people have been exposed to multiple PFAS at a time, only a fraction of which have been monitored and studied. Thus, the level of harm from PFAS is likely greater than what is currently recognized.

## PFAS tend to share three problematic traits:

### PERSISTENT

**PFAS can take up to 1,000 years to break down** in the environment and some don't break down at all. Due to widespread use, PFAS are in our water, food, homes, and nearly all our bodies.

### HIGHLY MOBILE

**PFAS can spread quickly** from places of manufacture, use, or disposal to pollute the broader environment.

### TOXIC

**PFAS are linked to serious health impacts**, even at low levels of exposure. Firefighters and those living near PFAS producing plants are subject to much higher exposure levels than the general population. Health effects linked to PFAS exposure include kidney and liver damage, cancer, impaired fertility and immunity, and adverse pregnancy outcomes.<sup>2,3</sup>

**The PROBLEMS with PFAS**

**HOW DOES IT GET INTO OUR BODIES?**

- Cooking with nonstick pans
- Products containing PFAS
- PFAS-contaminated food and water
- PFAS in air and dust

**HEALTH PROBLEMS LINKED TO PFAS**

- Kidney and testicular cancer
- High blood pressure and pre-eclampsia
- Higher cholesterol
- Lower infant birth weights
- Decreased vaccine response in children

**PFAS**

- Short for per- and polyfluoroalkyl substances, chemicals used in products such as non-stick cookware, food packaging, water-resistant clothing, and stain-resistant carpeting
- Also called “forever chemicals,” they can take up to 1,000 years to break down in nature

**WHAT CAN WE DO?**

- INDIVIDUALS** – avoid products with PFAS and ask policymakers to limit or ban its use
- HEALTH PROFESSIONALS** – advise patients on how to avoid PFAS and support limits on its use
- BUSINESSES** – phase out use of PFAS and avoid non-essential uses
- POLICYMAKERS** – limit or ban PFAS

Logos for UCSF Office of Sustainability, UCSF Program on Reproductive Health and the Environment, HEAL, and FIGO.

## Exposure to PFAS threatens women, pregnant women, and children<sup>4</sup>

Globally, PFAS are nearly ubiquitous due to their widespread commercial use and extreme persistence in the environment. As a result, routes of exposure vary.

Workplace exposure happens in manufacturing, and through contact with PFAS in firefighter, textile, and cleaning products. Other exposures occur via ingestion of PFAS-contaminated water and food, inhalation of household dust, and from consumer products such as non-stick cookware, grease-proof food packaging, cosmetics, “water-proof” clothing, and stain-resistant furniture and carpeting. Many of the most-studied PFAS persist in human tissues for years and can take decades to exit the body. PFAS cross the placenta, are detected in cord serum, as well as can be transmitted to newborns and infants via contaminated breast milk.<sup>2</sup>

## PFAS exposure threatens fertility, reproductive health, and child development<sup>4</sup>

The growing list of harms from PFAS related to women's health, reproductive health, and child development, include low birthweight, thyroid disease, and asthma.<sup>2</sup>

## Protective policies are essential for health

The science is clear that nearly everyone is continuously exposed to rising numbers of PFAS, including through breast milk and in the womb, and these cumulative yet little-monitored exposures harm our patients.<sup>4</sup> Evidence is also emerging on the health harms from exposures to newer versions of PFAS. Our efforts to protect our patients' health are incomplete without advocating for policy change. **We must reduce the use, marketing, widespread contamination, and harm of these "forever chemicals" – today and into the future.**

## What can clinicians do?

### COUNSEL PATIENTS

- **Reduce possible exposure** to PFAS
- Avoid water-, grease- and stain-resistant products, including water-proof clothing, stain-resistant carpet, and grease-proof food packaging (such as fast-food packaging and microwave popcorn).
- Replace non-stick cookware with safer alternatives, such as cast iron and stainless steel.
- Beware "PFOS/PFOA-free" product labels in favor of the broader, more protective "PFAS-free" label.

### ADVOCATE FOR PUBLIC POLICIES

- **Support policies** that protect ourselves and our patients from current and future exposures to PFAS.

### ENSURE CLEAN WATER

- **Ask your government** or water provider to test for PFAS. If they have been found, demand installation of treatments that remove them, or provision of alternative water sources.

### LEAD BY EXAMPLE

- **Urge your clinic or hospital** to buy PFAS-free furniture, fabric covers, carpet, clothing, and food packaging.

#### References

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- 2 Agency for Toxic Substances and Disease Registry, "Toxicological profile for Perfluoroalkyls," <https://www.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=1117&tid=237> (January 29, 2021).
- 3 National Toxicology Program (NTP 2020). NTP Technical Report on the Toxicology and Carcinogenesis Studies of Perfluorooctanoic Acid (CASRN 335-67-1) Administered in Feed to Sprague Dawley (Hsd:Sprague Dawley® SD®) Rats. Technical Report Series No. 598. US Department of Health and Human Services. [https://ntp.niehs.nih.gov/ntp/htdocs/lt\\_rpts/tr598\\_508.pdf](https://ntp.niehs.nih.gov/ntp/htdocs/lt_rpts/tr598_508.pdf).
- 4 International Federation of Gynecology and Obstetrics. FIGO Statement: FIGO calls for the removal of PFAS from global use. 2021. [www.figo.org/figo-calls-removal-pfas-global-use](http://www.figo.org/figo-calls-removal-pfas-global-use)