PFAS Resources for Health Care Providers

For use by health care providers in counseling patients reporting risk of heavy exposure to PFAS or those who are highly concerned with known occupational, environmental, and residential exposures.

What are PFAS?

Per and polyfluoroalkyl substances (PFAS) are a large group of human-made chemicals used in a variety of modern industrial processes. Exposure to these compounds has been associated with a variety of health effects. These compounds build up in people's bodies over time, are highly resistant to degradation and persist for many years in people.

Where are PFAS found?

Historically these compounds have been used in many consumer products, most commonly in non-stick, water-, oil- or stain-resistant products, and cleaning products. There have also been significant groundwater contamination events in many locations in the United States, including Minnesota. Releases that have affected local communities are associated with manufacturing and fire-fighting foam.

Which of my patients have been exposed?

When tested, most Americans have detectable levels of PFAS (and related substances) in their blood. People who live in communities with drinking water contamination - regardless of whether it comes from groundwater or surface water sources - or with a PFAS manufacturing facility had been found to have elevated serum levels. Sources of exposure include occupational exposures for firefighters and living near landfills or farms where biosolids have been applied. Some of your patients may receive letters informing them that they live in communities known to be affected by contamination.

Which of my patients are at highest risk?

It is currently not known if there is a "safe" level of PFAS. While the long-term effects of low level exposure are not well understood, it is clear that exposure to higher levels of PFAS leads to more consistent and severe outcomes. Generally, patients with occupational exposures and those living in communities known to be contaminated will be most at risk.

What are the known risks of exposure?

PFAS have been associated with a wide variety of health effects.

Research shows there is sufficient evidence (i.e., high confidence that there is an association) for decreased antibody response, dyslipidemia, decreased fetal and infant growth, and increased risk of kidney cancer.

There is limited or suggestive evidence (i.e., moderate confidence that there is an association) for increased breast cancer, liver enzyme alterations, increased risk of pregnancy-induced

hypertension, increased risk of testicular cancer, thyroid disease and dysfunction, and increased risk of ulcerative colitis.

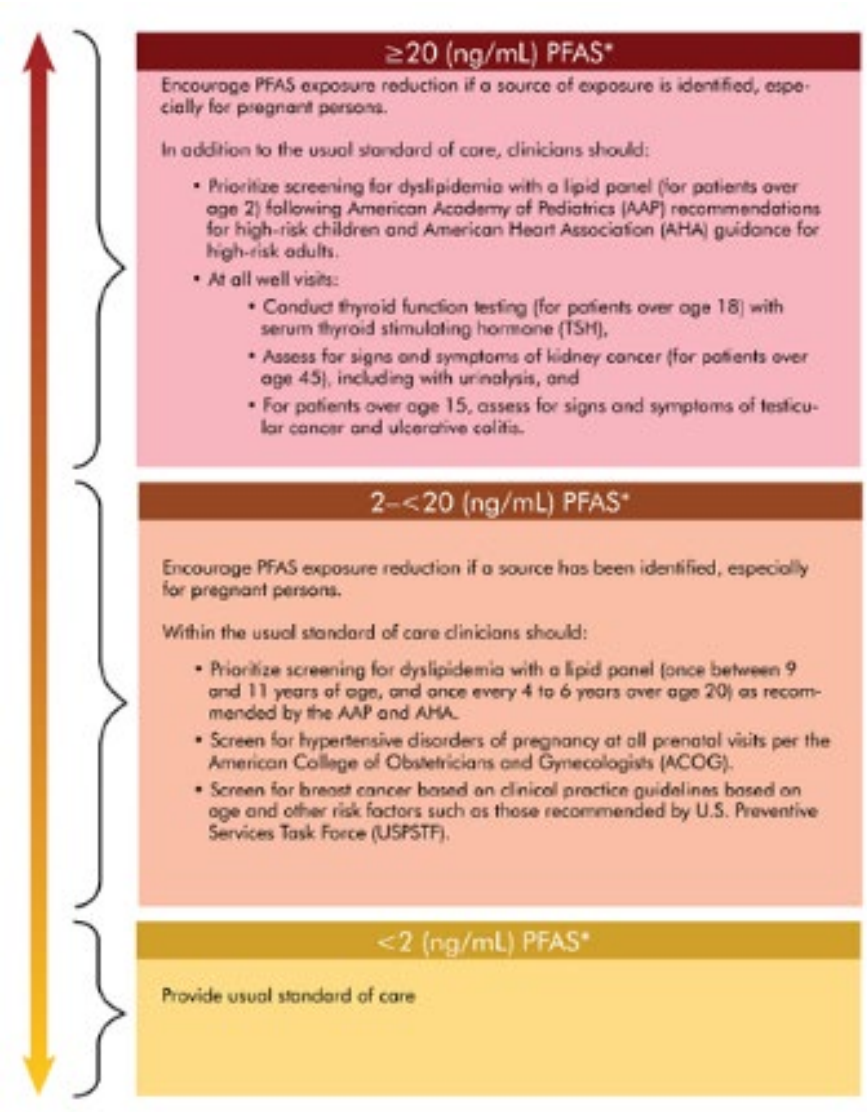
What testing should be done?

While blood testing for the presence of PFAS is available, it can be difficult to access. See Testing for PFAS in Blood (PDF) (https://www.health.state.mn.us/communities/environment/hazardous/docs/pfas/indbltest.pdf). There is also no clear guidance on what specific levels of these various chemicals mean in any particular patient. For patients reporting risk of heavy exposure or those who are highly concerned, serum PFAS measurements may provide an opportunity to place their individual risk in context with local and national populations. Decisions about testing for these or other chemicals should be individualized to each patient scenario.

A recent report by the National Academy of Sciences describes use of PFAS testing of biospecimens in the clinical setting and provides recommendations for 'interpreting' serum PFAS levels. Recommendations and training intended for health care providers on this topic are listed in the Resources section below.

The National Academy of Science Report provides recommendations for 'interpreting' serum levels.

- <2 ng/mL – health effects are not expected
- 2 – 20 ng/mL – potential for health effects in sensitive populations
- >20 ng/mL – increased risk of health effects



From National Academy of Sciences: Guidance on PFAS Exposure Testing and Clinical Follow-Up Report (https://nap.nationalacademies.org/read/26156/chapter/1) Public Briefing; (right) Page 149; Figure 6-1; Accessed 8/25/2022

For patients with known high-risk exposures, screening for hepatic, renal, pancreatic, and thyroid function is reasonable. Monitoring during pregnancy for low fetal weight, hypertension and preeclampsia is also reasonable. There is little data to guide the length or frequency of monitoring after initial test and repeat screening should be undertaken when considering the specific risks and health goals of each patient.

There is no strong evidence to support any changes in cancer screening for those exposed at this time. In patients exposed to PFAS, age and risk factor appropriate screening should be undertaken.

What are best practices for pregnancy and breastfeeding?

PFAS do cross the placenta and pass into breast milk. Breast fed infants and infants who are formula fed with formula made with water contaminated with PFAS do show higher levels of PFAS in their blood. The specific risks for infants are not well understood. In general, the evidence of the benefits of breast feeding outweighs the potential harms of PFAS to infants and breast feeding is recommended.

For women expecting to become pregnant, women who are breastfeeding, or people who are otherwise concerned about the health of the infants and children under their care, we recommend limiting exposure to PFAS chemicals - see below for resources.

Reducing exposures to PFAS

There is strong evidence that decreased exposure does lead to decreased serum level of PFAS chemicals over time. For patients concerned about PFAS, decreasing exposure through reducing the use of products known to contain high burdens of PFAS, obtaining residential water testing, and, if needed, using reverse osmosis filters for water, can decrease levels over time. More information on reducing exposure is found on the PFAS and Health webpage (https://www.health.state.mn.us/communities/environment/hazardous/topics/pfashealth.html) and in Reducing Exposures: Perfluoroalkyl Substances (PDF) (https://www.health.state.mn.us/communities/environment/hazardous/docs/pfas/pfasreducingexp.pdf).

Other resources

- The National Academy of Science Report (https://nap.nationalacademies.org/catalog/26156/guidance-on-pfas-exposure-testing-and-clinical-follow-up)
- PFAS, GenX, and Other Forever Chemicals: An Update for Clinicians | University of Cincinnati (https://uc.cloud-cme.com/course/courseoverview?P=0&EID=29137)

  A CME course for clinicians - this activity will provide health care providers with innovative, multimodal environmental health tools and resources regarding perfluoroalkyl substances (PFAS).

- PFAS Information for Clinicians and Environmental Health Professionals | CDC (https://www.atsdr.cdc.gov/pfas/resources/info-for-health-professionals.html)

  The Region 5 PEHSU has developed two short videos (2 minutes each) for healthcare providers that introduces them to PFAS and directs them to a CME webinar on PFAS hosted at the University of Cincinnati.

  - PFAS Doctor's Perspective (YouTube) (https://www.youtube.com/watch?v=7q7fHzPZKq8)
  - PFAS Questions with Dr. Nicholas Newman (YouTube) (https://www.youtube.com/watch?v=N1oVG5tzonE)
- Resources | PFAS Exchange (https://pfas-exchange.org/resources/)

Minnesota Department of Health
Site Assessment and Consultation Unit
651-201-4897
hazard.health@state.mn.us | www.health.state.mn.us

To obtain this information in a different format, call: 651-201-4897

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