



# Exposure and Health Effects

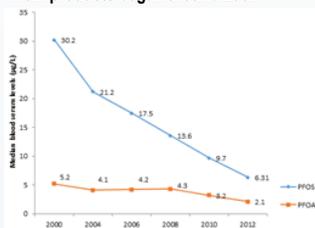
[www.srhd.com](http://www.srhd.com) | Mike LaScuola, Spokane Regional Health District | 509-324-1574

## PFOS/PFOA in People

- CDC testing indicates that most people in the U.S. have PFOS/PFOA in their bodies
- Levels of PFOS/PFOA are going down over time following their phase-out from use
- Some PFOS/PFOA stay in the body a long time—there is no recommended medical treatment to reduce PFOS/PFOA in the body

Source (Chart to right): CDC National Health and Nutrition Examination Survey

Levels of PFOS/PFOA in blood serum of the U.S. population since their phase-out from products began around 2002



## Exposures to PFOS/PFOA

- Appear to be widespread across the globe
- Are primarily through
  - Ingestion of contaminated food, water or soil
  - Breathing air that contains contaminated dust from carpets, upholstery, clothing, etc.
- Will build up in body until exposure stops
- Reaches the fetus or nursing infant of mother who are exposed
- Are not significant through skin contact when bathing or showering

PFOS/PFOA levels in blood serum of a community of residents from Minnesota with PFOS/PFOA removed from their drinking water in 2006



Source: Minnesota Department of Health. [www.health.state.mn.us/divs/hpcd/tracking/biomonitoring/projects/emetro-landing.html](http://www.health.state.mn.us/divs/hpcd/tracking/biomonitoring/projects/emetro-landing.html)

## How to Reduce Exposure

- If water contains PFOS/PFOA above health advisory level, reduce exposure by using a different water source for drinking, cooking, and brushing teeth.
- Use certified granular activated carbon or high-pressure membrane systems, such as reverse osmosis, to filter water. These treatment systems require ongoing maintenance.

## Health Effects

- Based on limited evidence from studies with people, the potential health effects include:
  - Increased cholesterol levels
  - Immune system changes
  - Decreased fertility
  - Altered thyroid function
  - Increased risk of certain types of cancer
  - Changes in growth, learning and behavior of the developing fetus and child
- Animals given large doses exhibit developmental, reproductive and liver effects, along with increased rates in cancer.
- The levels of PFOS or PFOA in your drinking water do not predict what, if any, health impacts might occur as a result of exposure
- More research is needed to confirm or rule out possible links between exposure and health effects.

## Should I Have My Blood Tested?

We understand and acknowledge that you may want to know the level of PFOS/PFOA in your body. However, there are some limitations with blood tests to consider:

- Test results will not provide clear answers for existing or possible health effects. Blood testing for PFOS/PFOA is not a routine test that health care providers offer. Consult with your doctor for more information.

**CDC** Centers for Disease Control and Prevention  
**PFOA** Perfluorooctanoic acid  
**PFOS** Perfluorooctane sulfonate



# PFOS and PFOA

www.epa.gov | Bill Dunbar, US EPA | 206-553-1019

## Where PFOS/PFOA come from? —————

- Manufactured compounds, no natural occurrence
- Used since 1950s in many products
- Last a long time in the environment
- Globally distributed and detected in people, wildlife, and fish



AFFF



Carpets



Fabrics



Paints and Stains



Nonstick cookware



Food packaging

## What is the EPA Health Advisory for PFOS/PFOA?

- Sets a concentration of 70 ppt in drinking water
- Protects against adverse health effects to sensitive populations and the general public, even for lifetime exposure
- Provides information to state agencies and public health officials on health effects and treatment so they can take steps to reduce exposures
- Is non-enforceable

## How is the EPA Health Advisory Calculated? —————

- Based on studies of health effects with PFOS/PFOA in laboratory animals
- Considers information regarding health effects of people exposed to PFOS/PFOA
- Protects sensitive populations including the fetuses or nursing infants of mothers who are exposed
- Assumes 20 percent of overall exposure is from drinking water, 80 percent of exposures is from other sources

EPA	Environmental Protection Agency	PFOS	perfluorooctane sulfonate
PFOA	perfluorooctanoic acid	ppt	parts per trillion
AFFF	aqueous film forming foam		