



**Massachusetts Department of Public Health**

# **Understanding the Health Risks of PFAS in Your Water**

**MHOA Annual Conference: PFAS in Our Communities**

**October 27, 2022**

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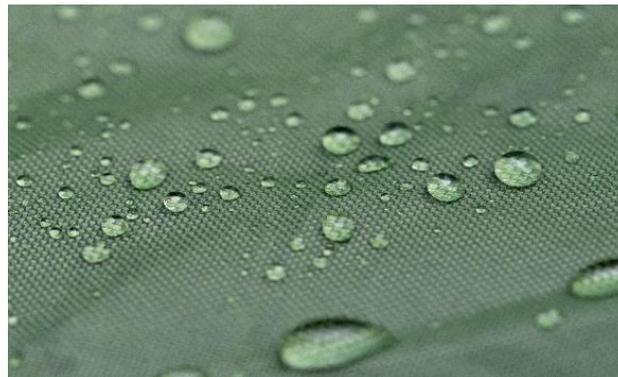
# What Are PFAS?

- PFAS = Per- and polyfluoroalkyl substances
  - In widespread use since the 1950s
  - Are resistant to water, grease, stains
  - Have been used in:
    - Firefighting foam
    - Industrial processes
    - Consumer products (e.g., on-stick cookware)



# How Can I Be Exposed to PFAS?

- Drinking contaminated water
    - Typically localized near:
      - Industrial facilities
      - Use of firefighting foam (e.g., airports)
  - Consuming food that contains PFAS
  - Using consumer products that contain PFAS
- *Nearly all people are exposed*



# Common PFAS

- PFOS and PFOA were most extensively produced and studied

Abbreviation	Chemical name
PFH <sub>x</sub> S	Perfluorohexanesulfonic acid
PFHpA	Perfluoroheptanoic acid
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PFNA	Perfluorononanoic acid
PFDA	Perfluorodecanoic acid

# Massachusetts PFAS Regulatory Values

**PFOS + PFOA + PFNA + PFHpA + PFHxS + PFDA = 20 ppt**

- MassDEP established a level of six PFAS that would be safe for daily exposure, for an entire lifetime.
  - This level serves as the basis for the MassDEP regulations specifying safe levels in water, soil, or other environmental contaminants.
- MassDEP enforces value of 20 ppt (or ng/L) in drinking water.

**ppt = parts per trillion (one part per trillion = one grain of sand in an Olympic-size swimming pool)**



**MassDEP**

Commonwealth of Massachusetts  
Department of Environmental Protection



# Can PFAS Affect My Health?

- Effects from exposure depend on:
  - Amount
  - How often and how long
  - Personal factors
- In humans, PFAS may be associated with:
  - Increased cholesterol
  - Decreased antibody response to vaccines in children
  - Increased risk of high blood pressure or pre-eclampsia during pregnancy
  - Small decreases in birthweight
  - Increased risk of kidney and testicular cancer



# Can PFAS Cause Cancer?

- US EPA draft evaluation concludes PFOA is likely to be carcinogenic in humans.
  - Some studies in humans show a link between PFOA exposure and both kidney and testicular cancers.
- US EPA considers evidence suggestive that PFOS causes cancer.
- The risk of cancer depends on many factors — how much and how long someone is exposed plus their health status and genetics.



**NTP**  
National Toxicology Program  
U.S. Department of Health and Human Services



# Will I Get Sick if I Drink Water with PFAS above the MassDEP MCL?

- Drinking water with PFAS above the MCL does not mean you will get sick
  - The MCL is set below a level where adverse health effects may occur
  - The MCL is designed to be overly protective
  - The risk to a person's health depends on several factors



# What Should I Do if I've Been Exposed to Drinking Water with PFAS above the MassDEP MCL?

- Other than limiting exposure to PFAS in drinking water, specific measures, such as screening, or medical interventions, are not recommended for individuals exposed to PFAS
  - Health effects most commonly associated with PFAS are not specific to PFAS, and would be identified through routine medical exams



# PFAS in Drinking Water

- PFAS are odorless and tasteless
  - *Water testing is the only way to know if water contains PFAS*
- PFAS levels may differ depending on water source
  - Public water
  - Private well



# If Your Water Has Elevated PFAS

- Drink and cook with bottled water that has been tested for PFAS
  - Check DPH website for list
  - Contact bottled water provider
- Use NSF-certified filters with proven efficiency for PFAS removal
  - Maintain as directed
- For formula-fed infants, use
  - Pre-mixed baby formula, or
  - Bottled or filtered water for powdered formula



The Public Health and  
Safety Organization



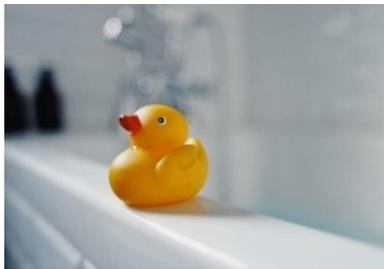
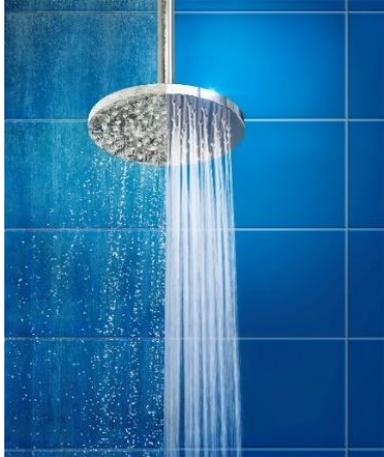
# Additional Ways to Limit Exposure to PFAS

- Avoid cleaning products with “perfluor-” or “polyfluor-” in their ingredient names
- Avoid products with PTFE (used in non-stick coatings)
- Avoid textiles treated with stain-resistant coatings
- Using a damp cloth, frequently clean surfaces young children may contact



It is almost impossible to eliminate all exposure

# Can I Shower or Bathe?



- PFAS concentrations of concern for bathing or showering are age dependent:
  - Young children: > 500 ng/L
  - Older children: > 1,300 ng/L
  - Adults: > 3,500 ng/L
- PFAS are not readily absorbed through the skin, but small amounts of water may be ingested while showering or bathing
  - Limit time showering or bathing if your skin has cuts, abrasions or open wounds
- If PFAS levels in drinking water are greater than concentrations of concern:
  - Avoid ingesting water while showering or bathing
  - Monitor young children while they're bathing, to limit the amount of water they ingest

# Can I Swim?

- Although typical contact with the water while occasionally swimming should not be a health concern, it is important to avoid, as much as possible, accidentally swallowing water.
- PFAS are not readily absorbed through the skin, but small amounts of water may be ingested while swimming
  - Limit time swimming if your skin has cuts, abrasions or open wounds
- If PFAS levels in drinking water are greater than concentrations of concern:
  - Avoid ingesting water while swimming
  - Monitor young children while they're swimming, to limit the amount of water they ingest



# PFAS and Pregnancy

- If your drinking water is contaminated with PFAS, switch to PFAS-tested bottled water or use an NSF-certified filter
- Continue with regular doctor's visits during your pregnancy, including blood pressure monitoring



# PFAS and Breastfeeding

- The many known benefits of breastfeeding outweigh the potential health risks of PFAS
- CDC and American Academy of Pediatrics recommend nursing mothers continue to breastfeed
- If concerned, consult with your medical care provider



# PFAS and Vaccines

- Follow vaccination schedule recommended by medical provider
  - Vaccines should still provide protection from getting sick



# Cleaning with PFAS-Contaminated Water

- PFAS are not easily absorbed through skin
- If your skin has cuts, abrasions, or open sores:
  - Wear rubber gloves
- If PFAS levels are much greater than the MCL, use PFAS-tested bottled or filtered water for:
  - Brushing teeth
  - Cleaning dentures
  - Cleaning baby bottles and nipples, pacifiers, teething toys
- Dishes washed with water containing PFAS do not pose a health risk



# PFAS and Home-Grown Produce



- Currently not possible to predict PFAS levels in produce based on concentrations in irrigation water or soil
  - Science of PFAS transfer from soil and irrigation water to crops is in the early stages
  - Existing science suggests concentrations in produce depend on type of produce, the specific PFAS, and soil properties
  - Concentrations in produce are expected to increase with corresponding concentrations in water and soil

# Best Practices for Growing Produce

- Use alternative water source for seedlings and gardens
- Use a raised bed filled with clean soil and amendments or add clean soil to existing beds.
- *Wash* all fruits, vegetables, herbs in clean water and *peel* root vegetables



# PFAS and Pets

- It is not possible to predict health effects in animals exposed to PFAS in drinking water
  - Animals are different sizes, have different lifespans, and drink different amounts of water than people
- Give pets and companion animals clean drinking water when possible
- If concerned, consult with veterinarian



# For More Information

## **Massachusetts Department of Public Health**

### **Bureau of Environmental Health**

617-624-5757

[DPHToxicology@state.ma.us](mailto:DPHToxicology@state.ma.us)

[mass.gov/orgs/bureau-of-environmental-health](https://mass.gov/orgs/bureau-of-environmental-health)

For general questions about drinking water quality in Massachusetts, contact:

## **MassDEP Drinking Water Program**

617-292-5770

[Program.Director-DWP@state.ma.us](mailto:Program.Director-DWP@state.ma.us)

[mass.gov/drinking-water-health-safety](https://mass.gov/drinking-water-health-safety)

For information about providers approved to sell bottled water in Massachusetts:

[mass.gov/doc/list-of-bottlers-october-7-2021-0/download](https://mass.gov/doc/list-of-bottlers-october-7-2021-0/download)

For information about PFAS in private wells:

[mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas-in-private-well-drinking-water-supplies-faq](https://mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas-in-private-well-drinking-water-supplies-faq)

# Connect with DPH



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