# PFAS: Distilling Fact from Fiction



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## Misleading Media Headlines Promote **Inappropriate Fear**

#### Study: Nearly Half of U.S. Tap Water Contains 'Forever Chemicals'

By Lauryn Higgins , Published on July 18, 2023

#### Fact checked by Nick Blackmer

Ion 18 Sep 2023

'Forever chemical' exposure linked to

higher cancer odds in women

## **PFAS – Next "Public Health Crisis"**

#### 'Forever chemicals' in your toilet paper might give you cancer: study

By Brooke Kate

GSI

ENVIRONMENTA

Your toilet paper might give you cancer, according to scientists.

#### PANDEMIC

#### PFAS exposure could hinder vaccine for hard-hit communities

⊙CBS NEWS ~ SHOWS V LIVE

New study claims 43 states expose millions to dangerous chemical in drinking water



#### **Key Points**



Not all PFAS are the same – chemical characteristics **VARY** widely

Human health risks associated with low levels of PFOA/PFOS exposure are **HIGHLY UNCERTAIN** 

EPA's Proposed Drinking Water Regulations have **WIDE REACHING** impacts

U.S. population exposure to PFOA/PFOS has dramatically **DECLINED** in the past two decades

## Why the Concern? PFOA and PFOS







- Anthropogenic chemicals with extensive use since the 1940s
- Widespread environmental detections and in ~95% of US population serum
- Often regarded as
  - <u>Persistent</u>
  - <u>B</u>ioaccumulative and
  - <u>T</u>oxic

 Target of cleanup efforts and litigation throughout the country

•No longer manufactured in the U.S.

#### >12,000 PFAS Grouped by Chemistry All Very Different Chemistries and Uses





## **EPA's Proposed Toxicity Value Changes**





#### **PFOA and PFOS Proposed MCLs**

- Set at lowest level we can detect
  Practical Quantitation Limit of 4 parts per trillion (ppt)
  - Draft Technical Support Documents for Maximum Contaminant Level Goals
    - Contain NEW noncancer and cancer toxicity values Will be used for CLEANUP and other environmental regulations

## Regulatory Drinking Water Values Vary DRAMATICALLY Worldwide



## International

## **Regulatory Values**

- Higher the value = less toxic
- Different science policy decisions
- Extremely different interpretations of the PFOA/PFOS toxicity



Full list of numbers can be found: https://pfas-1.itrcweb.org/fact-sheets/

#### No Consensus Opinion on PFOA/PFOS Exposure & <u>Causation</u> Of <u>Adverse</u> Health Outcomes





Human studies show associations with...

- Effects on immune system
- Elevated cholesterol
- Decreased birth weight
- Cancer

VS.

"limited or no evidence for any causal link... and any human disease"

"The available epidemiological studies suggest associations ... ; however, cause-and-effect relationships have not been established..."

#### **Atsdr**

Denartment of Health

"...**no evidence** for a link between exposure to PFASs and cancer risk."















Toxicity

#### Other Applications of EPA's Risk-Based Values



Real estate transactions, Property acquisition, due diligence

## Good News! Exposures Are Declining EVEN WITHOUT MCLs





#### Sources:

NHANES, 1999-2010. https://www.cdc.gov/exposurereport/pdf/FourthReport\_UpdatedTables\_Volume1\_Mar2021-508.pdf NHANES, 2011-2018. https://www.cdc.gov/exposurereport/pfas\_early\_release.html

#### Conclusions



#### No Consensus on PFOA/PFOS Toxicity

 Public health benefits of proposed PFAS MCLs
 highly uncertain



#### It's More Than Just Drinking Water

- EPA's MCLs will also impact other areas
- EPA's PFAS Action Plan has multiple strategies for addressing PFAS concerns – most not executed



#### **Exposures Are** Declining

 Levels of PFOA and PFOS in the US general population have dramatically decreased

## **THANK YOU**

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