New Hampshire's Drinking Water Standards for PFAS

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Portsmouth Safe Water Advisory Group (SWAG) Presentation
April 6th 2021




NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Overview

1. **Brief overview of the process to set the 4 PFAS MCLs,**

2. **Current status of MCLs being enforced across the state,**

3. **What science guided and challenged the MCLs,**

4. **What the future holds for PFAS from the NHDES *Environmental Health Program* perspective.**

Helpful Terminology

Maximum Contaminant Level (MCL) – A legal threshold for a chemical in public water supplies. Often based on health risk assessment, but can be affected by cost and feasibility**. (EPA and NH term)**

Ambient Groundwater Quality Standard (AGQS) – A water concentration that triggers site investigations and/or remedial action related to contamination sites. **(NH term)**

Health Advisory (HA) – A non-enforceable threshold that provides technical information about expected no-effect levels. **(EPA term)**

Minimal Risk Level (MRL) - An estimate of the daily exposure to a hazardous substance that is *likely to be without appreciable risk* of adverse non-cancer health effects over a certain timeframe. (**Neither a NH or EPA term/tool)**

- *"not intended to define clean up or action levels for ATSDR or other Agencies." – ATSDR, 2019*
- *A screening tool for research/investigation needs*

2018-2019 PFAS MCL Process

2018 – Senate Bill 309 passes NH State House, Senate & Governor's Office

NHDES Shall:

- Establish Drinking Water Limits
- Regulate Air-to-Groundwater Pollution Sources
- Develop a Plan & Budget for Surface Water Regulations (*Submitted January 2020*)

2018-2019 – Rulemaking Process & MCL Development

July-Dec 2018	Initial MCL Development & Literature Review
Oct 2018	3 Public Stakeholder Meetings
Jan-April 2019	Initial MCL Proposal & Extended Public Comment Period
April-June 2019	Review & Response to Comments
July 2019	Final MCL Proposal
Sept 2019	Initial MCL Onset
Oct-Dec 2019	MCL-related Litigation

2020 – Omnibus legislation passes NH State House, Senate & Governor's Office

- Codified four PFAS MCLs into law (Enacted Fall Quarter 2020)
- Requires health insurance to cover PFAS blood testing
- $50,000,000 loan fund

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Guiding Science Behind NH's PFAS MCLs

NHDES relies on **EPA-derived methods** & **peer-reviewed scientific literature**.

Chemical Dose × **Exposure Factors** = **Chemical Limit**

- Epidemiology Studies
- Animal Toxicity Studies
- Dose-Response Analyses
- Toxicokinetic Modeling
- Bioaccumulation Data

- Water Intake Rates (Liters/day)
- Body Weight Considerations
- Role of other sources of exposure (food, dusts, etc)
- Duration of Exposure (weeks vs years)
- Absorption Efficiency

This is ***risk assessment***, not ***risk management***.

Standard Drinking Water Limits Calculation

$$\frac{\text{Dose (ng/kg/day)} \times \text{Relative Source Contribution (\%)}}{\text{Water Ingestion Rate (L/kg/day)}} = \text{Maximum Contaminant Level (ng/L)}$$

Conceptual Example: Stout or light beer for happy hour?

$$\frac{\text{Calorie Goals (cal/kg/day)} \times \text{Contribution from Beer (\%)}}{\text{Beer Ingestion Rate (Beers/kg/day)}} = \text{Maximum Caloric Level (cal/Beer)}$$

Reduce my daily caloric intake (reduced daily dose)?

Having dessert after dinner (reduced contribution)?

Tailgating for the afternoon (increased ingestion rate)?

Yes to any of these? Get a lighter beer.

Minnesota Department of Health's Modeling

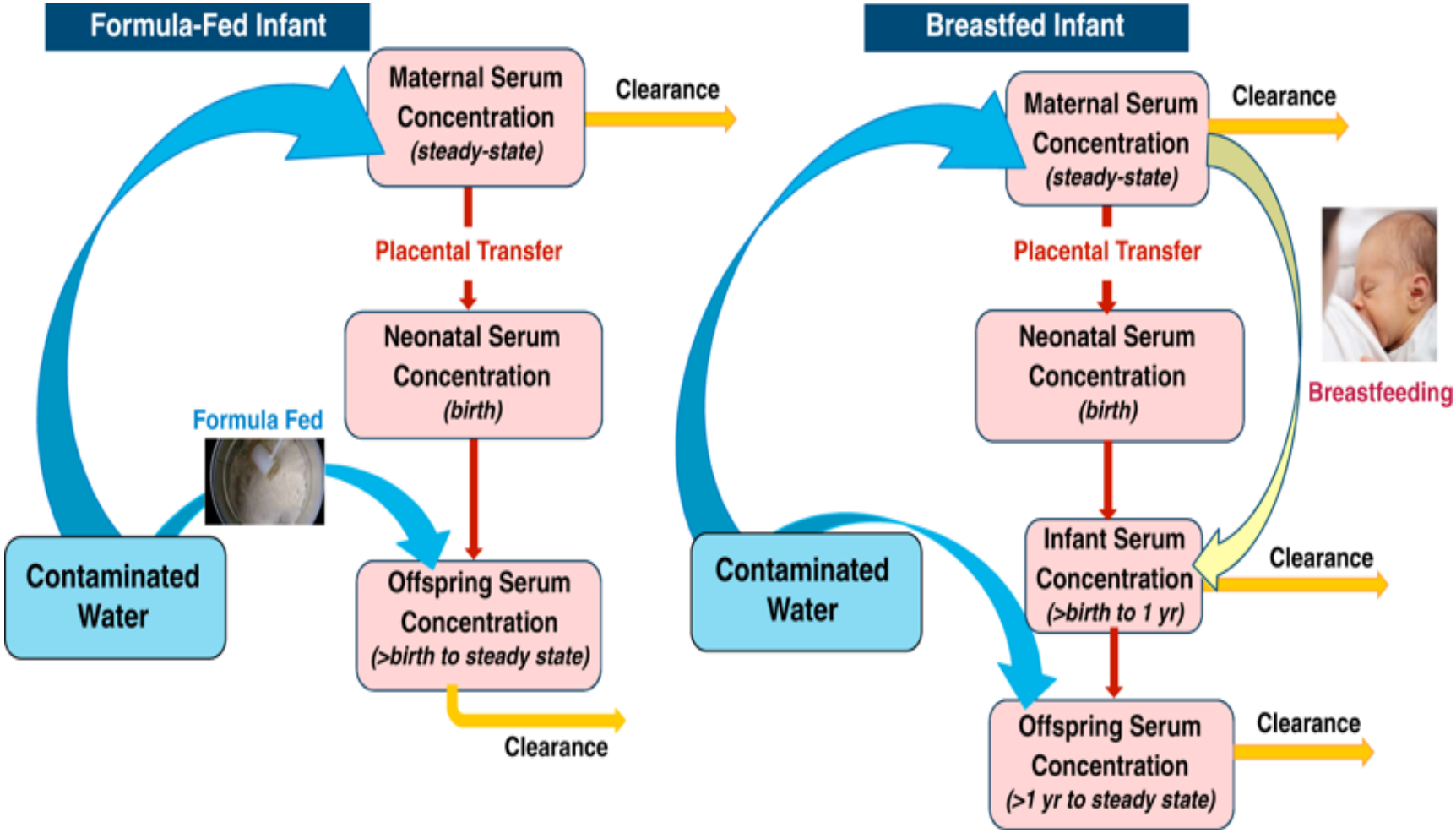


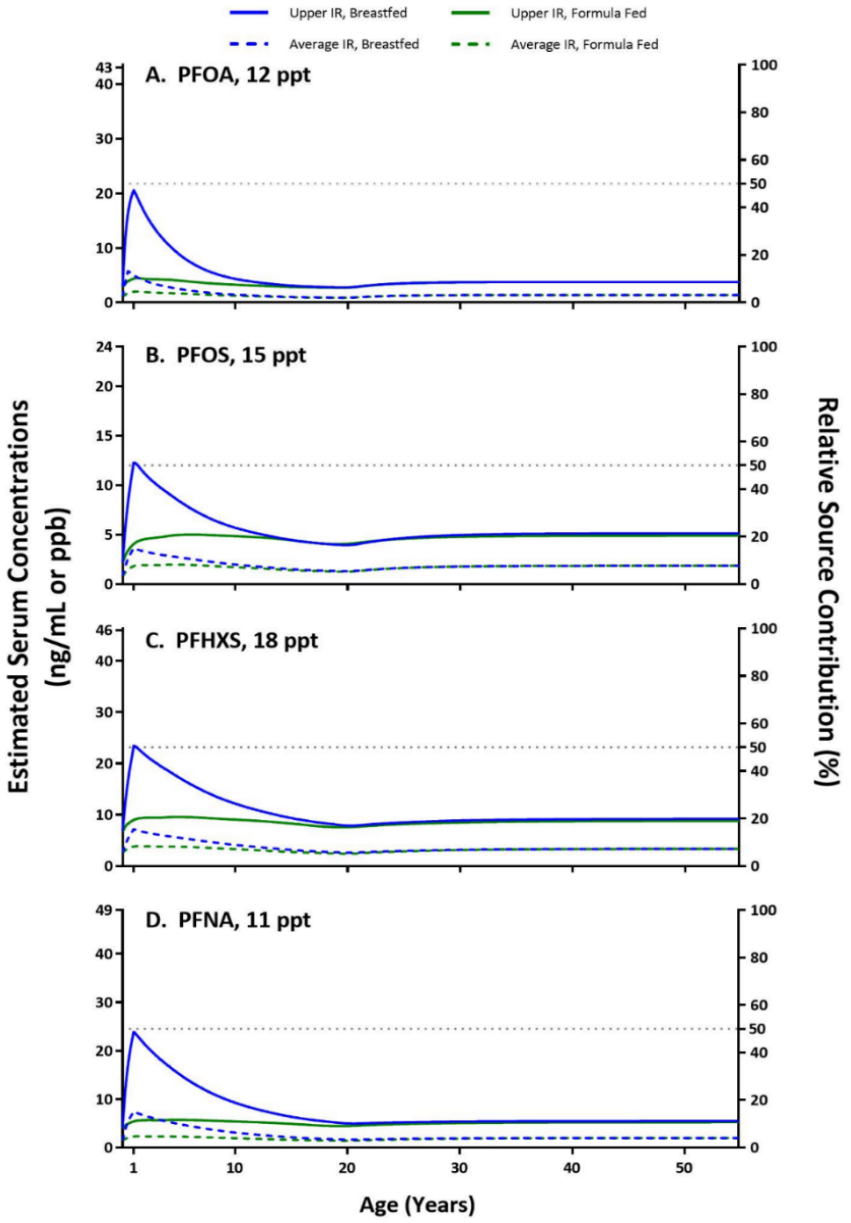
Image from: Goeden et al. 2019. A transgenerational toxicokinetic model and its use in derivation of Minnesota PFOA water guidance. *Journal of Exposure Science & Environmental Epidemiology*, 29, 183–195.

NHDES Maximum Contaminant Levels

NH's Maximum Contaminant Levels (MCLs/AGQS) are:

PFOA	**12 ng/L**
PFOS	**15 ng/L**
PFHxS	**18 ng/L**
PFNA	**11 ng/L**

Maximum Contaminant Level Goals (MCLGs) of **0 ng/L** for all 4 PFAS.



Future Issues for PFAS & Other Contaminants

PFAS Issues

- Understanding the Occurrence of PFAS in NH: https://www4.des.state.nh.us/nh-pfas-investigation/wp-content/uploads/Statewide-PFAS-Occurence-Status-Report-12012020.pdf
- Annual Recommendation to NH Legislature
- Evaluating Other Environmental Media
  - e.g. fish, surface water, soil, air, and recreational contact scenarios
- "Other" PFAS & Grouping Approaches (Commerce Goals Versus Clean-Up)

Partnerships

- Agency for Toxic Substances & Disease Registry (ATSDR) Partnership to Promoted Local Efforts to Reduce Environmental Exposure (APPLETREE)
- NH DHHS's NHBiomonitoring Program
- Dartmouth College & coastal research programs

Other Drinking Water Contaminants

- Currently Reviewing AGQS for Non-PFAS chemicals, per SB309
  - Examples include: *Manganese, Disinfection By-Products, Legacy Pesticides, and Certain Chlorinated Compounds*

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