Sources and Responses to PFAS in the Environment

Presentation to Board of Selectmen

Canton, MA

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Peter Newton, PG

Bristol Engineering Advisors, Inc.

What are PFAS compounds and Where are they used?

- Developed in the 1940's
- Used in numerous commercial and residential products
  - Coating on non-stick pans (e.g. Teflon)
  - Anti-stain; anti-static; water repellents (e.g. ScotchGuard)
  - Lipophobic – food wrappers, paper food containers, etc.
- Have come to attention in the environment as a component of "aqueous film-forming foam" (AFFF), used for fighting fuel fires

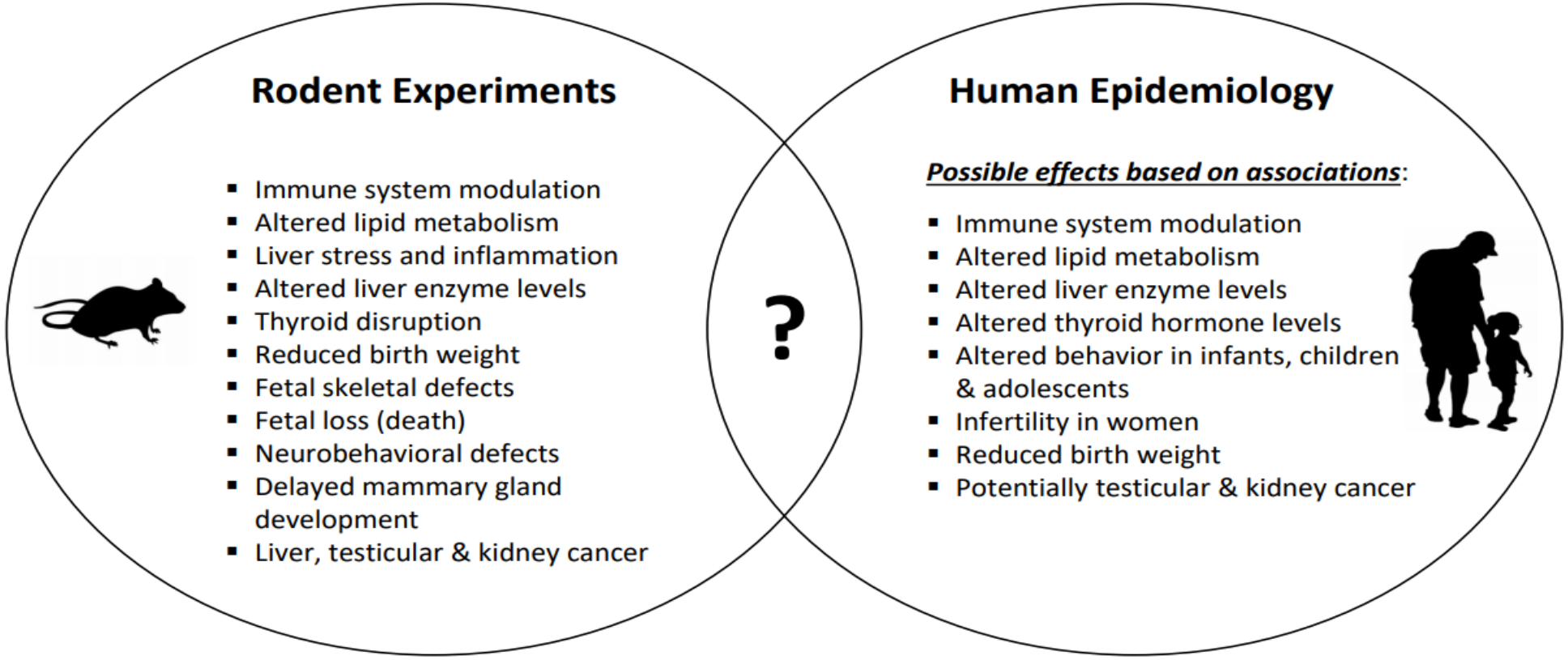
How do they get in the Environment?

- Accidental releases at industrial sites
- Intentional releases (fire fighting – fuel fires)
- Wastewater – from commercial and residential use

- The carbon-fluorine bond is very strong, so they tend not to break down readily in the environment

What are the suspected health effects?

Per the CDC's **Agency for Toxic Substances and Disease Registry** (ATSDR) draft toxicity profile on PFAS (ATSDR, 2018), suspected health outcomes include:



Who Regulates?

- USEPA set a Health Advisory level of 70 parts per trillion (ppt) for 2 compounds (PFOA & PFOS)
  - Equivalent to 7 cents on $1B ($1,000,000,000.07)
- NH has proposed Maximum Contaminant Levels (MCLs) for four individual compounds:
  - PFOA – 12 ppt
  - PFOS – 15 ppt
  - PFHxS – 18 ppt
  - PFNA – 11 ppt
- Massachusetts is considering a regulatory level of 20 ppt combined for 6 PFAS compounds (PFHpA, PFHxS, PFOA, PFOS, PFNA, PFDA)

What has Canton done about PFAS?

- Initiated a voluntary groundwater screening program at Neponset in 2018 and Pecunit in early 2019
- Performed two rounds of all raw and finished water sources, including the MWRA feed.
  - PFAS compounds were detected in all raw water sources, and the MWRA feed.
  - Neponset finished water was non-detect (below 1.8 ppt)
  - Pecunit finished water was detected at levels below the MassDEP proposed standard of 20 ppt (15 ppt)
    - No single compound was greater than 5.5 ppt – well below even conservative standards proposed in New Hampshire

What is Canton doing to ensure the safety of the Town's drinking water?

- We have met with MassDEP to discuss this matter
  - DEP is of the opinion that Canton is doing considerably more than has been required by the State in identifying and characterizing the extent of this issue
  - The Town will continue to perform monitoring of its finished water
  - The Neponset Water Treatment Facility is equipped with Granular Activated Carbon (GAC) that will effectively remove PFAS compounds. We will continue to evaluate its effectiveness and make adjustments as necessary.
  - We have applied to MassDEP for a study and planning grant to evaluate the potential for installing granular activated (GAC) at Pecunit Street to supplement the existing treatment process for iron and manganese removal.

Background

- BS, Rensselaer Polytechnic Institute, 1989
- MS Hydrogeology, Rensselaer Polytechnic Institute, 1993
- Founded Bristol Engineering Advisors, 2011
- Chair, New England Water Works Association, Groundwater Committee
- Member, Massachusetts Water Works, Technical Advisory Committee
- Member, EOEEA Sustainable Water Management Initiative (SWMI), 2009-2011

Questions?