New Hampshire Public Health Response to PFAS Drinking Water Contamination

Pennsylvania PFAS Action Team Meeting

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Multi-Agency/Partner Response

- NH DHHS
- NH DES
- Community Advocate Organizations:
  - Testing For Pease
  - Merrimack Citizens for Clean Water
- Town/City Officials
- State Legislators
- NH Medical Society
- U.S. Congressional Delegation
- CDC/ATSDR
- U.S. EPA
- DoD
Community Requests/Concerns

1. PFAS blood testing (biomonitoring)

2. Health study (learn how exposure might lead to adverse health outcomes)
   • Collecting Health Data
   • Health registry
   • Health Survey

3. Individual “medical monitoring” guidance
*Southern NH includes private well contamination and contamination of the Merrimack Village District (MVD) public water supply
Areas of PFAS Contamination in NH

Pease Tradeport (former Pease Air Force Base):

- 1991: First base to be closed under the Base Realignment and Closure Act (BRAC)
- Business Tradeport: employs ~9,500 individuals, has 2 childcare agencies
- Public water supply (3 supply wells, blended)
- Mainly PFOS, PFOA, PFHxS contamination in one well identified in 2014
New Hampshire Department of Health & Human Services

Haven Well (ppt)
- PFOA: 350
- PFOS: 2,500
- PFHxS: 830

Harrison Well (ppt)
- PFOA: 9
- PFOS: 50
- PFHxS: 40

Smith Well (ppt)
- PFOA: 4
- PFOS: 20
- PFHxS: 10

NH DES Presentation 6/2/15:
cityofportsmouth.com/agendas/2015/misc/CAB060215ppt.pdf
*Southern NH includes private well contamination and contamination of the Merrimack Village District (MVD) public water supply
Areas of PFAS Contamination in NH

Southern New Hampshire (SNH)
- Private wells, mainly PFOA
- Multiple towns
- Multiple sources: Saint-Gobain Performance Plastics, Textiles Coated International (TCI), two former landfills

Merrimack Village District (MVD) public water system
- Public water supply to ~28,000 residents
- Blend of 6 different wells
- PFOA from Saint-Gobain emissions

<table>
<thead>
<tr>
<th>PFOA Concentration (ppt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVD-2</td>
</tr>
<tr>
<td>31</td>
</tr>
</tbody>
</table>
PFAS Blood Testing
(Biomonitoring)
May 2014: PFOA & PFOS in Haven Well on Pease

April 2015: Begin Pease biomonitoring

October 2015: Close Pease biomonitoring

March 2015:
- Biomonitoring protocol for testing 50 adults & 50 children
- Community wanted anybody exposed to be offered testing
- Protocol modified to test anybody who consumed water “at any time and for any duration”
April 2016: Last blood test result mailed

June 2016: Final report of biomonitoring released

March 2016: PFOA drinking water contamination in southern NH (SNH) around Saint-Gobain plastics plant

July 2016: Begin Pease and SNH Biomonitoring

Oct 2016: Begin MVD Exposure Assessment
Jun 2017: 
Closed MVD biomonitoring

Biomonitoring Continues

June 2018: 
Biomonitoring Closed

Biomonitoring Continues

Biomonitoring Continues
### Number of Individuals Tested for PFAS by Region (through 8/23/17)

<table>
<thead>
<tr>
<th>Location</th>
<th>Year Tested</th>
<th>Number Tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pease Tradeport</td>
<td>2015</td>
<td>1,578</td>
</tr>
<tr>
<td></td>
<td>2016-2017</td>
<td>258</td>
</tr>
<tr>
<td>Southern NH (SNH) Communities (Private Drinking Water Wells)</td>
<td>2016-2017</td>
<td>219</td>
</tr>
<tr>
<td>Merrimack Village District (MVD) Community Exposure Assessment</td>
<td>2016-2017</td>
<td>217</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>2,272</strong></td>
</tr>
</tbody>
</table>
Comparing Geometric Mean PFAS Levels

Geometric Mean PFAS Level by Community

- PFOS
  - Pease 2015: 10.1
  - Pease 2016-2017: 5.4
  - Southern NH 2016-2017: 6.3
  - MVD 2016-2017: 5.0
  - U.S. Pop 2011-2012: 3.1
  - U.S. Pop 2013-2014: 2.4

- PFOA
  - Pease 2015: 4.4
  - Pease 2016-2017: 4.4
  - Southern NH 2016-2017: 4.4
  - MVD 2016-2017: 3.9
  - U.S. Pop 2011-2012: 2.1
  - U.S. Pop 2013-2014: 1.9

- PFHxS
  - Pease 2015: 4.1
  - Pease 2016-2017: 4.1
  - Southern NH 2016-2017: 4.1
  - MVD 2016-2017: 3.9
  - U.S. Pop 2011-2012: 1.3
  - U.S. Pop 2013-2014: 1.4

Data through July 2017
Comparing 95th Percentile PFAS Levels

95th Percentile PFAS Level by Community

Data through July 2017
## Average PFOA Blood Levels Compared to Other Exposed Communities

**Average PFOA Levels in Blood (Micrograms per Liter)**

<table>
<thead>
<tr>
<th>Location</th>
<th>Level (μg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3M Workers, AL (2000)</td>
<td>1130</td>
</tr>
<tr>
<td>C8 Study, Ohio River Valley (2005-2006)</td>
<td>33</td>
</tr>
<tr>
<td>Hoosick Falls, NY (2016)</td>
<td>24</td>
</tr>
<tr>
<td>Decatur, AL (2009)</td>
<td>16</td>
</tr>
<tr>
<td>E. Metro, MN (2008-2009)</td>
<td>15</td>
</tr>
<tr>
<td>Bennington, VT (2016)</td>
<td>10</td>
</tr>
<tr>
<td>Southern, NH (2016-2017)</td>
<td>4</td>
</tr>
<tr>
<td>MVD, NH (2016-2017)</td>
<td>4</td>
</tr>
<tr>
<td>U.S. Population (2005-2006)</td>
<td>4</td>
</tr>
<tr>
<td>Pease Tradeport, NH (2015)</td>
<td>3</td>
</tr>
<tr>
<td>Pease Tradeport, NH (2016-2017)</td>
<td>2</td>
</tr>
<tr>
<td>U.S. Population (2013-2014)</td>
<td>2</td>
</tr>
</tbody>
</table>
Average PFOS Blood Levels Compared to Other Exposed Communities

Average PFOS Levels in Blood (Micrograms per liter)

- 3M Workers, AL (2000): 910
- Decatur, AL (2009): 40
- C8 Study, Ohio River Valley (2005-2006): 19
- Pease Tradeport, NH (2016-2017): 10
- Pease Tradeport, NH (2015): 9
- MVD, NH (2016-2017): 6
- Southern, NH (2016-2017): 5
Average PFHS Blood Levels Compared to Other Exposed Communities

Average PFHxS Levels in Blood (Micrograms per Liter)

- Retired 3M Workers, AL & MN (2004)*: 182
- Decatur, AL (2009): 6
- Pease Tradeport, NH (2016-2017): 4
- Pease Tradeport, NH (2015): 4
- U.S. Population (2013-2014): 1
- Southern, NH (2016-2017): 1
- MVD, NH (2016-2017): 1
People want more information about their individual levels of exposure

Interpretation of PFAS blood test results is difficult

A PFAS blood test has limited use by healthcare providers to guide healthcare decisions

A blood test **can** tell you how much PFAS is in your body at the time of the test

A PFAS blood test **cannot:**

- Tell you where or how you were exposed to PFAS
- Tell you what, if any, health problems might occur, or have occurred, because of PFAS exposure
Health Study
Questions and Concerns Underlying Request for a Health Study

- Desire that a community’s exposure be used to further the science and understanding of potential health impacts (i.e. a bad situation to be used for a positive purpose)
- Individuals want to understand why they might have existing health problems
- Understand the future risk for health problems
More Health Study Is Needed, but...

- Limited sample size in NH restrictive
- NH DHHS lacked the resources to carry out a health study on PFAS
- We asked ATSDR to look at conducting a national PFAS study including NH populations
ATSDR’s Pilot Health Study

ATSDR formed a Community Assistance Panel (CAP) to perform a health study feasibility assessment on Pease:

National funding was secured for a pilot “proof-of-concept” study to be conducted on the Pease Tradeport:

Goal is to secure additional funding to expand to a national study (not just at DoD contamination sites)
Health Care Provider Medical Monitoring
We developed our own health care provider recommendations: [https://www.dhhs.nh.gov/dphs/pfcs/providers.htm](https://www.dhhs.nh.gov/dphs/pfcs/providers.htm)

- We recommended routine health screenings and symptom monitoring
- No specific laboratory testing explicitly recommended aside from normal health screenings
- Encouraged providers to engage and discuss with patients their concerns to develop a plan for how to monitor health

Community advocates wanted DHHS to promote the C-8 Medical Monitoring Protocol: [http://www.c-8medicalmonitoringprogram.com](http://www.c-8medicalmonitoringprogram.com)
Resources and Partnerships Developed for Health Care Providers

- ATSDR developed provider guidance and a CME webinar: [https://www.atsdr.cdc.gov/pfas/](https://www.atsdr.cdc.gov/pfas/)

- Region 1 Pediatric Environmental Health Specialty Unit (PEHSU): provided patient consultation services

- Northern New England Poison Center (NNEPC): real-time clinician phone consultation

- NH Medical Society: helped convene a panel discussion with affected community members and providers
Biomonitoring is resource intensive and results are difficult to interpret or use to predict health outcomes.

Biomonitoring should be performed in a scientifically based process (e.g. using ATSDR’s PEATT).

National coordination on a health study is important and ongoing starting with Pease Tradeport population.

Public health agencies need to be prepared to engage health care providers and respond to concerns about how exposed individuals can work with their healthcare providers to more proactively monitor health.
Thank You

Questions?