Lead, PFCs, and Other Threats to Safe Drinking Water

FEATURING:

CONGRESSMAN DAN KILDEE (MI-05)
CONGRESSMAN BRIAN FITZPATRICK (PA-08)
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CLAIRED BARNETT, HEALTHY SCHOOLS NETWORK
ALAN ROBERSON, ASSOCIATION OF STATE DRINKING WATER ADMIN.
Lead in Drinking Water

Northeast-Midwest Institute
December 5, 2017

Tom Neltner
Chemicals Policy Director
Environmental Defense Fund
Health impacts of lead

• There is no safe level of exposure to lead

• Health impacts include:
  • Damage to the brain and nervous system
  • Slowed growth and development
  • Learning and behavior problems

• CDC’s blood lead level reference value is 5.0 µg/dL
  • Expected to drop to 3.5 µg/dL soon
Sources of exposure for infants

EPA 2017 at [https://ehp.niehs.nih.gov/ehp1605/](https://ehp.niehs.nih.gov/ehp1605/)
Sources of exposure for toddlers

EPA 2017 at [https://ehp.niehs.nih.gov/ehp1605/](https://ehp.niehs.nih.gov/ehp1605/)
How much is too much lead?

- No safe level of lead in blood found
- EPA’s 15 ppb Lead Action Level is not based on health
- But ... **EDF developed levels** from EPA report

<table>
<thead>
<tr>
<th>EDF’s assessment of a health-based benchmark for individual action on lead in drinking water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of child in home and type of exposure</td>
</tr>
<tr>
<td>Formula-fed infant</td>
</tr>
<tr>
<td>Other children 7 years or younger</td>
</tr>
</tbody>
</table>
How does lead get into drinking water?
Lead service lines (LSLs)

• Pipe that connects main under the street to the home

• Estimated 6 million homes drink water through a lead pipe, most without knowing it
  – Northeast-Midwest Institute states have 2/3 of all LSLs
Community efforts to replace LSLs

• 14 communities have publicly set a goal of eliminating LSLs in their jurisdiction
  – Represents more than 240,000 LSLs

• 19 communities are taking important steps but have not yet set a goal

• 12 states have adopted proactive policies supporting community LSL replacement programs since 2015
  – Represents more than 3.3 million LSLs
State proactive policies supporting LSL replacement

• Setting a goal of fully replacing LSLs in the state

• Enabling communities to secure funding for LSL replacement beyond typical state revolving loan program

• Requiring an inventory of known and potential LSLs and making the information available to the public

• Mandating lead-safe work practices designed to ensure that customers are protected from lead when LSLs are replaced

• Requiring disclosure of known or potential LSLs by property owners to potential buyers or renters
### 12 states with new LSL policies

<table>
<thead>
<tr>
<th>State</th>
<th>Estimate of LSLs</th>
<th>Set Goal</th>
<th>Enable Funding</th>
<th>Require Inventory</th>
<th>Mandate Practices</th>
<th>Require Disclosure</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>65,000</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
<td>Limited</td>
</tr>
<tr>
<td>Michigan</td>
<td>460,000</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>Washington</td>
<td>8,800</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
<td>Limited</td>
</tr>
<tr>
<td>Indiana</td>
<td>205,557</td>
<td>Yes (Rates)</td>
<td></td>
<td></td>
<td></td>
<td>Limited</td>
</tr>
<tr>
<td>New Jersey</td>
<td>350,000</td>
<td>Yes (Grants)</td>
<td></td>
<td></td>
<td></td>
<td>Poor</td>
</tr>
<tr>
<td>New York</td>
<td>360,000</td>
<td>Yes (Grants)</td>
<td></td>
<td></td>
<td></td>
<td>Very good</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>160,000</td>
<td>Yes (Rates)</td>
<td></td>
<td></td>
<td></td>
<td>Voluntary</td>
</tr>
<tr>
<td>Vermont</td>
<td>7,400</td>
<td>Yes (Grants)</td>
<td></td>
<td></td>
<td></td>
<td>None</td>
</tr>
<tr>
<td>Virginia</td>
<td>97,000</td>
<td>Yes (Grants)</td>
<td></td>
<td></td>
<td></td>
<td>None</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>240,000</td>
<td>Yes (Grants)</td>
<td></td>
<td></td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>Illinois</td>
<td>730,000</td>
<td></td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Good</td>
</tr>
<tr>
<td>Ohio</td>
<td>650,000</td>
<td></td>
<td></td>
<td>Yes</td>
<td></td>
<td>Limited</td>
</tr>
</tbody>
</table>
State lead pipe disclosure policies for homebuyers
Key resources

• Lead Service Lines Replacement Collaborative - www.lslr-collaborative.org

• EPA 2017 Report on Sources of Lead Exposure - https://ehp.niehs.nih.gov/ehp1605/

• EDF Lead Resources - www.edf.org/lead

• EDF Health Blog - http://blogs.edf.org/health
And what about child care centers?

• Youngest children are most vulnerable to lead because their blood-brain barrier is not fully formed

• Child care v. Day care

• Homes v. Centers

• Often private without facility support system

• EDF’s pilot project in Michigan, Illinois, Ohio and Mississippi
## Standards for lead in drinking water

<table>
<thead>
<tr>
<th>State or city</th>
<th>Year Adopted</th>
<th>Testing Frequency</th>
<th>Standard</th>
<th>Corrective Action</th>
<th>Notification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecticut</td>
<td>2017</td>
<td>Licensing and every 2 years</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Illinois</td>
<td>2017</td>
<td>Under development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Jersey</td>
<td>2017</td>
<td>Licensing</td>
<td>15 ppb</td>
<td>Yes</td>
<td>Post / Notify if elevated</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>2013</td>
<td>Licensing and post-renovations</td>
<td>5 ppb / 15 ppb</td>
<td>Yes</td>
<td>None</td>
</tr>
<tr>
<td>Washington</td>
<td>2017</td>
<td>Licensing and every 6 years</td>
<td>15 ppb</td>
<td>Yes</td>
<td>Notify if elevated</td>
</tr>
<tr>
<td>New York City</td>
<td>2016</td>
<td>Licensing and every 5 years</td>
<td>15 ppb</td>
<td>Yes</td>
<td>Posted on website</td>
</tr>
</tbody>
</table>
Healthy Spaces for Children: Schools & Water Quality

Congressional Briefing
Northeast-Midwest Institute
in coordination with the Office of Congressman Paul Tonko (NY-20)
December 5, 2017

presenter
Claire L. Barnett, MBA, Executive Director
Healthy Schools Network
Healthy Schools Network

... for children ... environment ... health ... education ... communities ... since 1995 ...

HealthySchools.org
Research, advocacy, technical assistance

NationalHealthySchoolsDay.org
Annual day to educate and celebrate

CleaningforHealthySchools.org
Green and healthy products for schools

info@healthyschools.org
Healthy Spaces for Children:  
*Framing Environmental Health at School*

PK-12 schools are *not* just little offices.  
Children are *not* just little adults.  
Every state requires children to attend school.  

*(There are more schools than zip codes in the U.S.)*
Common EH Risks in Schools

Common problems faced by personnel and children: Indoor Air Quality (IAQ) problems, mold/moisture, pests/pesticides, radon, drinking water contaminants, excessive noise, PCBs, asthma/allergy triggers, lead, asbestos, mercury, chemical mismanagement, poor siting/vapor intrusion, hazards nearby (EPA, IOM, others)

- Average age of school buildings: 44+ years (NCES)
- Limited federal and state support for school physical environments
- Decades of deferred maintenance and neglect (GAO, NCES)
- Renovation/expansion of existing, occupied schools: will release old and new contaminants; significant risks to all occupants, but especially children

1- Environmental health risks in schools unexamined and unaddressed

2- No EPH systems address children at risk or with exposures in schools
Old Buildings & Legacy Toxics
Poor Maintenance; Poor Decisions
Federal Efforts: Lead in School Water

US EPA

- Does NOT require schools on municipal water systems to test at the tap (20ppb lead action level, if found)
  - Voluntary DW Protocol: *The 3 T’s: Train, Test, Tell*
- Required: schools with their own water supplies must test and report to EPA for lead (15ppb action level) and other contaminants
- EPA defines “lead-free” plumbing (2014 new construction)

USDA School Meal Program

- Encourages water over sugar-sweetened beverages
- Requires twice-annual kitchen inspections in participating public and private schools (means tested); “sanitary inspections” do not necessarily address lead at the tap testing
Towards Healthy Schools: Reducing Risks to Children

What are states doing?

National Data Summary

- Fewer public schools
- More children in schools
- More children with special needs
- More children in poverty
- More children with asthma
- Less money for schools
- Fewer staff
- HP 2020: Schools retreat from baseline goals for IAQ, IPM, Haz Mat, Lead in Drinking Water
What about state/local health agencies?
A Preliminary Agency Survey

HS Network Phone Interviews with ASTHO and NACCHO Members: senior staff in 12 states/1 county

Findings: no PH system for children at risk or with exposures in schools.
No complaint-intake point; no tracking, reporting, or cross-agency coordination by health agencies of child health problems reported by parents/others
PK-12 Systems
Governance and Access Issues

Constitutionally, education is left to the states.
• No regular source of federal funds for school facilities (exceptions: FEMA, Military, Tribal Nations; QZABs)
  • House and Senate school infrastructure bills introduced in 2017
• Local public schools locally funded, with varying levels of state support
• 38 states (with DC) provide some funding for school facilities
• No common school facility assessments across states

State PK-12 Governance Structure: changing rapidly
  ◦ Examples: NYS Board of Regents v. NJ v. OR state boards of education (NASBE)

Health Agency Access to Schools: limited by law/policy
NIOSH may enter a workplace to assess dangers to workers
Lead and Other Contaminants in Drinking Water
States Act on School Water

NCSL (as of October 2017)

INTRODUCED: state bills to address lead in school water in 2016-17

44 bills were introduced in 19 states: CA (1), CO (1), CT (1), IL (6), MD (1), MA (2), MI (2), MN (2), NC (1), NH (1), NJ (12), NM (1), NY (2), RI (2), TX (2), VA (1), VT (1), WA (2) and WI (3)

ENACTED 2016-17

8 laws were enacted: CA A 746; CO H 1306; IL S 1943; MD H 270; NM SJM 15; NY A 3004; RI H 6035; WA S 5883.

NB – NJ and OR governors directed their state boards of education to establish testing at the tap
States Act on Lead in School Water

Policy Challenge: what is already required?

CDC SHPPS 2006: 27 states (w/DC) require inspection of school DW outlets for lead

CDC SHPPS 2016: 50% of districts require schools to inspect outlets for lead

Natl DW Alliance, Sept. 2017 Briefing: states acting to test at tap
  ◦ Voluntary: CA, MA, MI, OH, OR
  ◦ Mandatory: IL, VA, MD, NJ, NY

NCSL: 8 state laws enacted 2016-17 (Oct 2017)
  ◦ CA, CO, IL, MA, NM, NY, RI, WA

ASTHO Legislative Update 2017: tracked 34 bills in 20 states on lead in school and child care water

14 states listed above acting to test at the tap:
  ◦ SHPPS reported in 2006 that 10/14 already required schools to test at the tap
Early session: multiple bills pending

NGOs call for *Five Point Action Plan*

Governor’s Program Bill introduced at end of session addressed all five points, including reimbursement for testing and fixing, biannual report by state DoH

Passed unanimously; signed 9/2016

State DoH report Spring 2017

- 8% of school taps in NYC > 15ppb
- 14% of school taps upstate > 15ppb
- State law requires taps to be closed; remediation; reimbursement
- No state agency report on remediation work
# Lead in School Water: Selected Early Reports

## New York State Elementary Schools

<table>
<thead>
<tr>
<th>City</th>
<th>Taps</th>
<th>Lead (ppb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffalo</td>
<td>48/19</td>
<td>105</td>
</tr>
<tr>
<td>Buffalo</td>
<td>89/8</td>
<td>1,530</td>
</tr>
<tr>
<td>Amsterdam</td>
<td>55/36</td>
<td>950</td>
</tr>
<tr>
<td>Ithaca</td>
<td>128/21</td>
<td>927</td>
</tr>
</tbody>
</table>

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## National Media (Highs)

<table>
<thead>
<tr>
<th>City</th>
<th>Lead (ppb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newark, NJ</td>
<td>2,100</td>
</tr>
<tr>
<td>Cleveland, OH</td>
<td>4,480</td>
</tr>
<tr>
<td>Portland, OR</td>
<td>57,600</td>
</tr>
<tr>
<td>N Andover, MA</td>
<td>7,700</td>
</tr>
</tbody>
</table>

*Spring 2016: ES in Buffalo tested all 48 taps; 19 reported at >15ppb lead; highest tested was 105ppb lead*

*HS Network Preliminary Data: no apparent correlation between schools with high poverty and more taps exceeding lead action levels*
Suggested Reading

Towards Healthy Schools: Reducing Risks to Children, 2016

US EPA Healthy Schools/Healthy Children (IAQ, IPM, Radon, Mold, Design, Chemical Management, Water, Asbestos, LSRR, Siting)

CDC NCEH/ATSDR Children and the Built Environment

Public Health Stops at the School House Door, J Paulson and C Barnett, Environmental Health Perspectives, October 2016, doi:10.1289/EHP530


Climate, the Indoor Environment, and Health, IOM, 2011

Green Schools: Attributes for Health and Learning, NRC, 2006
16th annual National Healthy Schools Day
Tuesday, April 3, 2018

45 national partners celebrated the 15th annual Day in 2017 with webinars, Twitter Chats, school tours, Proclamations/Resolutions, local district/school presentations, and more.

www.NationalHealthySchoolsDay.org
Three Big Issues Facing The Drinking Water Community

J. Alan Roberson, P.E.
ASDWA Executive Director
Who ASDWA Is & What We Do

• National association of the heads of the drinking water programs in 50 states, 5 territories, the Navajo Nation and D.C. (57 members)
  – Formed in 1984
  – 6 staff located in Rosslyn

• We are the eyes & ears for the states in D.C.
  – Facilitate the flow of info between states & EPA
  – Facilitate the flow of info between the states
The Three Big Issues

• Uncertainties
• Capital - financial and human
• Non-regulatory drivers
Uncertainties Across the Board

• Uncertainty on what President Trump & EPA Administrator Pruitt are going to do
• Uncertainty on what Congress is going to do
• Uncertainty on funding
  – EPA and states could be impacted
• Uncertainty on deregulatory agenda

• “We live in interesting times”
Capital

• Infrastructure funding
  – Traditional financial capital

• Workforce
  – Human capital
  • Cuts across all in the water community
Non-Regulatory Drivers

• Transition to Safe Drinking Water Information System (SDWIS) Prime
• New operator certification tests
• New CMS requirements for building water quality management plans
• Unregulated contaminants
  – Higher public expectations
    • Simply meeting SDWA standards isn’t enough
  – Algal toxins and perfluorinated chemicals (PFCs)
Algal Toxins

- Algal toxins becoming more of a national issue
- “Do Not Use” order in Toledo, Ohio in Aug. 2014
  - On August 2nd, Toledo issues “Do-Not-Drink” order based on detections of algal toxins - issues with analytical methods used
  - Gov. Kasich declares state of emergency
  - Bottled water and bulk water used
  - “Do-Not-Drink” order lifted Aug. 4th
- 2015-EPA issues Health Advisories (HAs) for microcystins and cylindrospermopsin
  - How do states deal with HAs?
  - EPA response protocol
- UMCR4 starts in Jan. 2018
  - Detections are likely
    - Communications challenges
Perfluorinated Chemicals (PFCs)

• A growing problem for the past decade
  – Started with PFOA/PFOS manufacturing plants
    • Production phaseout for PFOA & PFOS
      – What about the substitutes?
  – Next was Aqueous Fire-Fighting Foam (AFFF)
  – Now other uses are creating problems

• Evolving knowledge
  – Health effects, analytical methods, sources, occurrence and treatment
UCMR3 & Health Advisories

• 6 PFCs in UCMR3 monitoring (2014-2016)
  – Provisional HAs (2009): PFOA-400 ppt, PFOS-200 ppt
  – 2016 HAs: 70 ppt for PFOA and PFOS, plus sum
    • Evolving knowledge
    • Change in HAs impacted more UCMR3 systems
      – Some systems had significant impacts (shutting down wells)

• What should systems and states be doing now?
  – What other PFCs might be a problem?
    • How will lower detection limits impact occurrence?
  – What about non-UCMR3 systems? Private wells??
Questions?

• Contact information
  – arorberson@asdwa.org
  – Direct line: (703) 812-9507