Get the Lead Out:
Testing for and Removing Lead in School Water Systems

AASA
THE SCHOOL SUPERINTENDENTS ASSOCIATION

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Presenters

Dr. Lauren Gambill, Pediatrician, UC Davis

John Rumpler, Clean Water Program Director, Environment America

Dr. Larry Nyland, Superintendent, Seattle Public Schools
Health Risks of Lead to Children

Lauren Gambill, MD
Pediatrician, University of California Davis
State Government Affairs Representative, American Academy of Pediatrics
“Kids are not little adults”

- Absorption: higher, as much as 90%
- Distribution: 40-50% in soft tissues
- Reservoirs: incomplete blood-brain barrier; less in bone
- Target organs: brain, blood, bone, kidneys
Death

Encephalopathy
Nephropathy
Frank anemia
Colic

Decreased hemoglobin synthesis
Increased vitamin D metabolism
Increased risk of hypertension in adulthood

Increased nerve conduction velocity
Increased level of erythrocyte protoporphyrin
Decreased vitamin D metabolism
Decreased calcium homeostasis

Developmental toxicity
Decreased IQ level
Decreased hearing
Decreased growth
Impaired peripheral nerve function
Transplacental transfer
There is NO safe level of lead
There is NO safe level of lead

Lead is 1 of the major risk factors for:
  • Antisocial behaviors (*Needleman et.al*)
  • Conduct disorder (*Marcus et. al.*)
  • Delinquency (*Needleman et. al.*)
  • Criminal behaviors  (*Reyes et.al*)
  • Aggression (*Needleman et. al*)
  • Arrests/convictions (*Reyes et. al.*)
  • Severe violent behaviors (*Reyes et. al*)
Legislature must act to protect California school kids from lead in drinking water
Get the Lead Out: Ensuring Safe Drinking Water for Our Children

John Rumpler
Clean Water Program Director

Work to protect clean water and air
Supported by citizen members
State affiliates in 29 states

www.environmentamerica.org
Overview

Lead in Schools’ Drinking Water: understanding the problem

Get the Lead Out: solutions to ensure safe water for our children
Review: Lead is a Potent Neurotoxin

- Serious damage to how kids develop, grow, and behave.
- Lead flows from the blood to the brain, kidneys, and bones.
- Children are more vulnerable.
- *There is no safe level of lead.*
Beyond Flint:

“Excessive” lead levels found in almost 2,000 water systems across all 50 states

Alison Young & Mark Nichols, USA Today (2016)
Even in Our Schools
Figure 3: Lead in Schools’ Water Across the Country

- **Pennsylvania**: schools in Philadelphia, Butler county and elsewhere have found lead in their water.
- **Ohio**: 1,200 tests in Cleveland schools showed lead over 15 ppb, and 40 out of 54 schools tested in Cincinnati showed some level of lead.
- **Washington, DC**: at least 64 schools have detected lead at 15 ppb or greater in water.
- **Maryland**: due to pervasive lead contamination, all Baltimore schools have been using bottled water since 2007.
- **Wisconsin**: Milwaukee schools had 183 fountains with lead levels above 15 ppb.
- **Illinois**: 113 Chicago schools and 22 percent of suburban schools with taps exceeding 15 ppb.
- **Oregon**: in Portland alone, 51 schools with at least one tap at 15 ppb of lead or greater.
- **Texas**: 60 schools in Fort Worth, and a dozen so far in Dallas, have found lead in water above 15 ppb.
- **New York**: lead was detected at 15 ppb or greater at 14% of school outlets tested across the state.
- **Maine**: the state has “particularly corrosive water, which can dissolve lead from plumbing systems.”
- **Massachusetts**: 49.7 percent of more than 40,000 tests confirmed lead in schools’ water.
- **New Jersey**: tests have confirmed lead in schools’ water in Newark, Trenton, Cherry Hill, and elsewhere.
- **Georgia**: outlets at 25 of 60 Atlanta schools tested found lead in water above 15 ppb.
- **Florida**: lead in water at 24 schools tested in 2 counties.
New Data Since Our Report in February: more lead found in schools’ water

**Massachusetts:** Of 60,000 taps tested at schools, 49.7 percent detected lead in the water.

**New Jersey:** school districts across the state were required to submit test results by last Thursday, July 13th. We examined available data from Bergen County.
How Does Lead Get into Drinking Water at School?

Image: Lead Service Line.
https://www.epa.gov/sites/production/files/2015-10/lead-service-line-id-2.jpg
Pathways of exposure: all the outlets where water is used for drinking or cooking – including the school nurse’s office.

Lead corrosion is highly variable, so tests will sometimes fail to detect it.

Wherever there is lead, there is a risk of contamination.
Lead corrosion is highly variable

Some testing methods – including flushing – reduce the likelihood/levels of lead detection.

15 parts per billion: an “action level” designed for water utility management, not a measure of what is safe for children to drink.
New York City: a cautionary testing tale

In 2016, New York City schools flushed their water systems for 2 hours before conducting lead tests.

After Marc Edwards of Virginia Tech declared the results should be "thrown in the garbage," the city retested without flushing.

The new results found nine times as many outlets with lead above 15 ppb.

Marc Edwards, a professor of civil engineering at Virginia Tech who helped expose lead contamination of the water in Flint, Mich. "The results should be thrown into the garbage, and the city should start over," he said of New York City’s process for testing for lead in the water in its schools.

Andrew Harnik/Associated Press
Solution:

Time to Get the Lead Out

**Immediate prevention:** Install certified filters at all outlets used for cooking or drinking, as soon as possible.

**Get the Lead Out:** Replace lead-bearing faucets, fixtures, plumbing, and pipes.

**Ace the Test:** Test all outlets used for drinking or cooking, and avoid testing methods that reduce levels of lead detected.

**Doctors’ Orders:** Adopt a 1 part per billion standard to protect children’s health, as per recommendation of the American Academy of Pediatrics.

**Communicate:** Provide easy public access to all test results detecting any level of lead in the water, remediation plans, and progress.
Medical researchers estimate that more than 24 million children in America will lose IQ points due to low levels of lead.

A 2010 World Health Organization report found that childhood lead poisoning was costing the United States $43 Billion per year.

The report’s cost benefit analysis also found that for every $1 spent to reduce lead hazards, there was a benefit of $17-220 saved.
Communities and schools taking action to “Get the Lead Out”

Seattle, WA (Dr. Nyland)

Madison, WI and Lansing, MI replaced lead service lines, community-wide

Fort Worth, TX: removed lead-lined water fountains.

Washington, DC schools installing filters and adopting a 5 ppb standard
Resources

Contact:
John Rumpler, Clean Water Program Director
Environment America
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(617) 747-4306
www.environmentamerica.org
Seattle Presenters

Larry Nyland, Superintendent
- 40 year AASA member,
- Fourth year as Seattle Superintendent.

Flip Herndon, Associate Superintendent
- Heads up facilities, operations, construction
- Opening five schools per year to address growth
Objectives

The problem
The solutions
Costs: Initial and Ongoing
How the Process Works Now
Progress to Date
Lessons Learned
The Problem

One student complained about the odd color in his school’s water fountains

The parent contacted the principal who contacted the maintenance department

The maintenance department said there was nothing they could do to fix the problem

Parents began bringing bottles of brown water to the school board meetings
The Solution

Testing

Triage: Bottled Water

Policy: Set testing levels and 3 year cycle

Consultant

Easy fixes: Fixtures and Filters

Voter approved tax

Replaced water lines for half of our schools
Initial Cost

Bottled water: $750K
Outside consultants: $250K
Immediate fixture and pipe replacement $7M
Long term increased capital cost: $5M
Ongoing monitoring costs are approximately $100,000 per year:

Lab Work = $60K
Staff Monitor = $40K

Additional remediation costs vary depending on the year and number of sources identified to be fixed or replaced.
What We Do Now:

Periodic testing every three years

School/fixture results posted on the website

Policy 6896 is also posted to our website

Water bottle filling stations recently added
Our Progress

2004 testing at 96 schools

65% of fixtures met criteria with first draw
94% with 30 second flush

Recurring 3-year testing began in 2007

95% of drinking water sources met criteria
99.4% with 30 second flush

Latest round of testing

97% of sources met criteria

99.7% with 30 second flush.

- For those sources that do not meet the criteria, the source is either fixed or taken out, per board policy.
Lessons Learned

Respond early
Define healthy water standards
Make small repairs right away
Get an outside health specialist to assess the problem, define it and make a plan to fix it
Build a timeline to address the work.
Provide bottled water in the interim
Post results and progress made
Questions?