Contemporary Lead Legislation Changes in Minnesota and Individual/Population Health Impacts

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Lead 101

- Pb – atomic number 82; soft and malleable with low melting temp.
- Lead oxides tend to form covalent bonds with acids as well as bases.
- Extracted from ores of many metals, making it present in many cultures around the world.
- Abundant, low-cost, and practical
- Used in construction, plumbing, batteries, paints, alloys, bullets, etc

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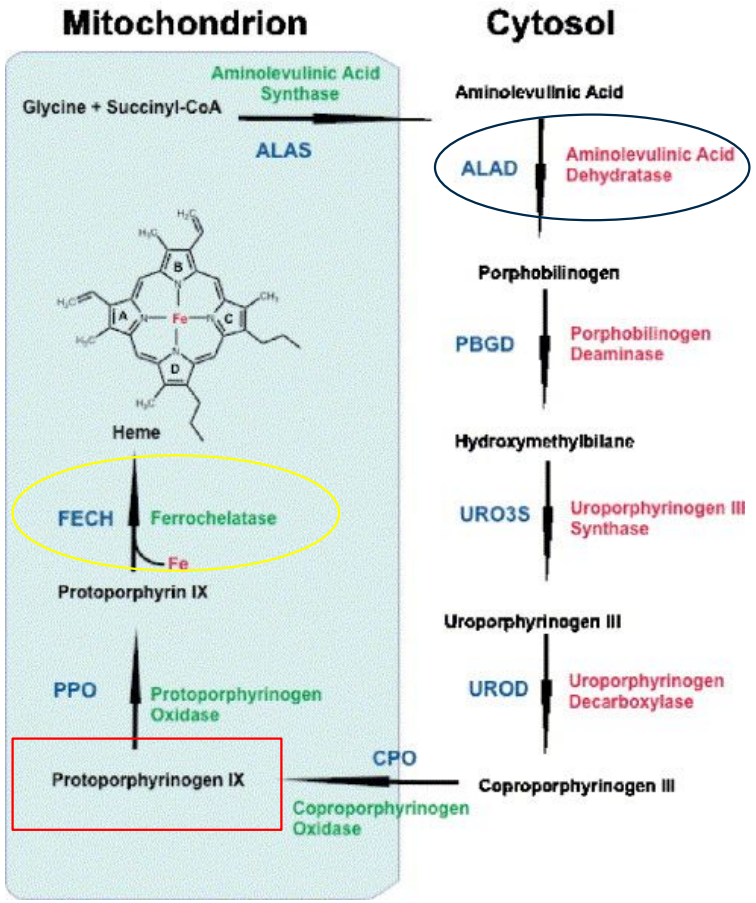
The Micro

- Heme synthesis inhibitor
  - ALA dehydratase
  - Ferrochelatase
- Results in far too much RBC protoporphyrin
  - rRNA accumulation in RBCs
  - Reactive Oxygen Species!



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The macro

- Symptomatology can be non-specific – irritability, headache, lethargy, anorexia
- Anemia, interstitial nephritis, N/V
- Memory, confusion, encephalopathy
- PE: peripheral neuropathy

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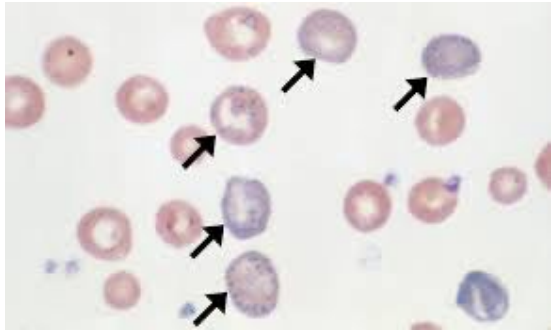
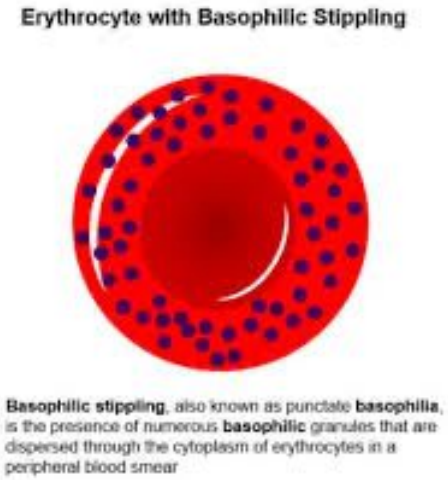
Laboratory findings

- Blood lead level!
- Free Erythrocyte Protoporphyrin
- MCV/TIBC (down)
- Serum Iron/Ferritin (up)
- Zinc Protoporphyrin (also up)





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How it ties in with Policy

Figure 1. Number of Persons Blood Lead Tested by Year and Age Group, Minnesota, 2000–2022

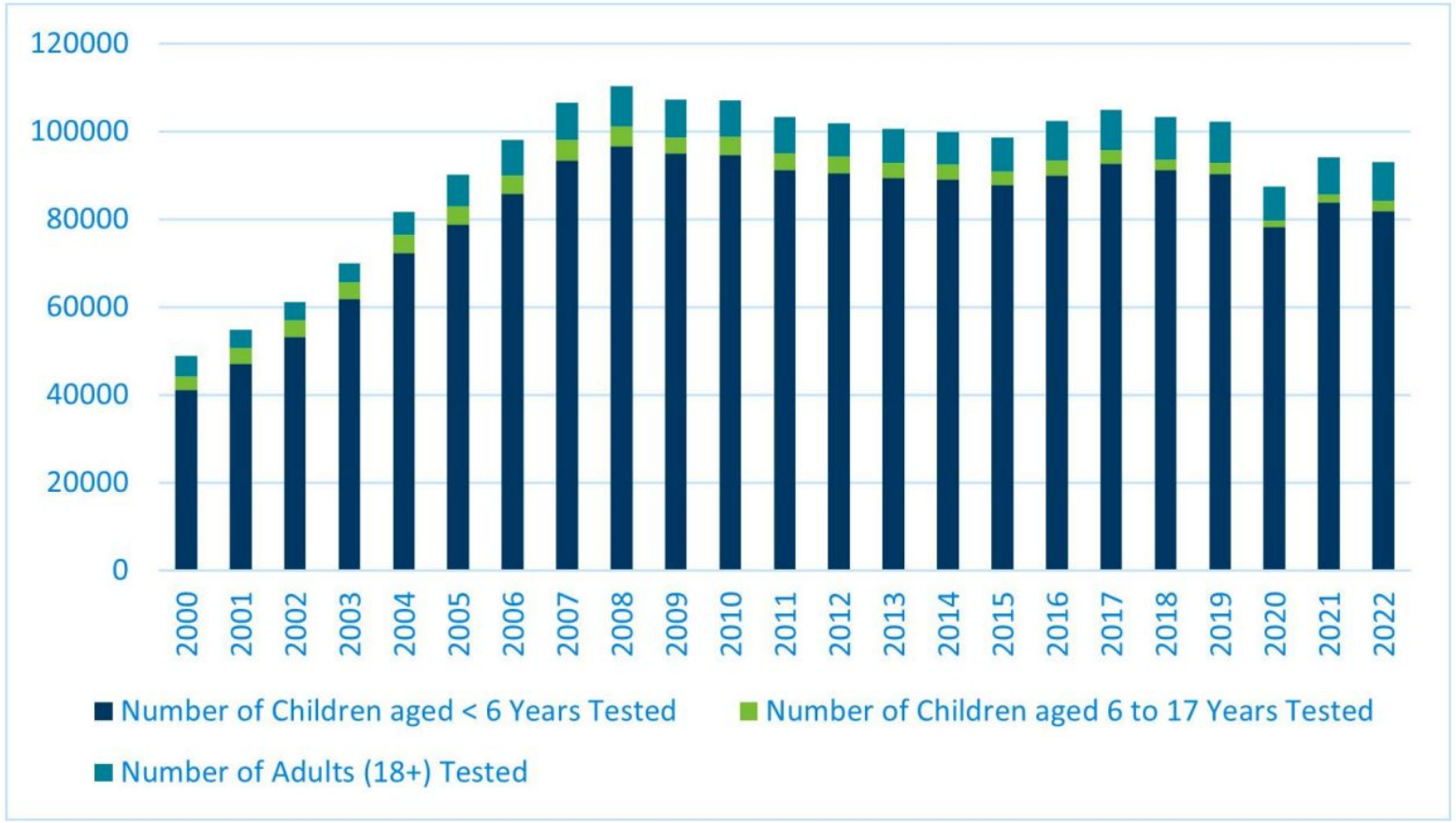


Figure 2. Number and Percent of Children Blood Lead Tested at Least Once by Age 3 Years, by Birth Cohort

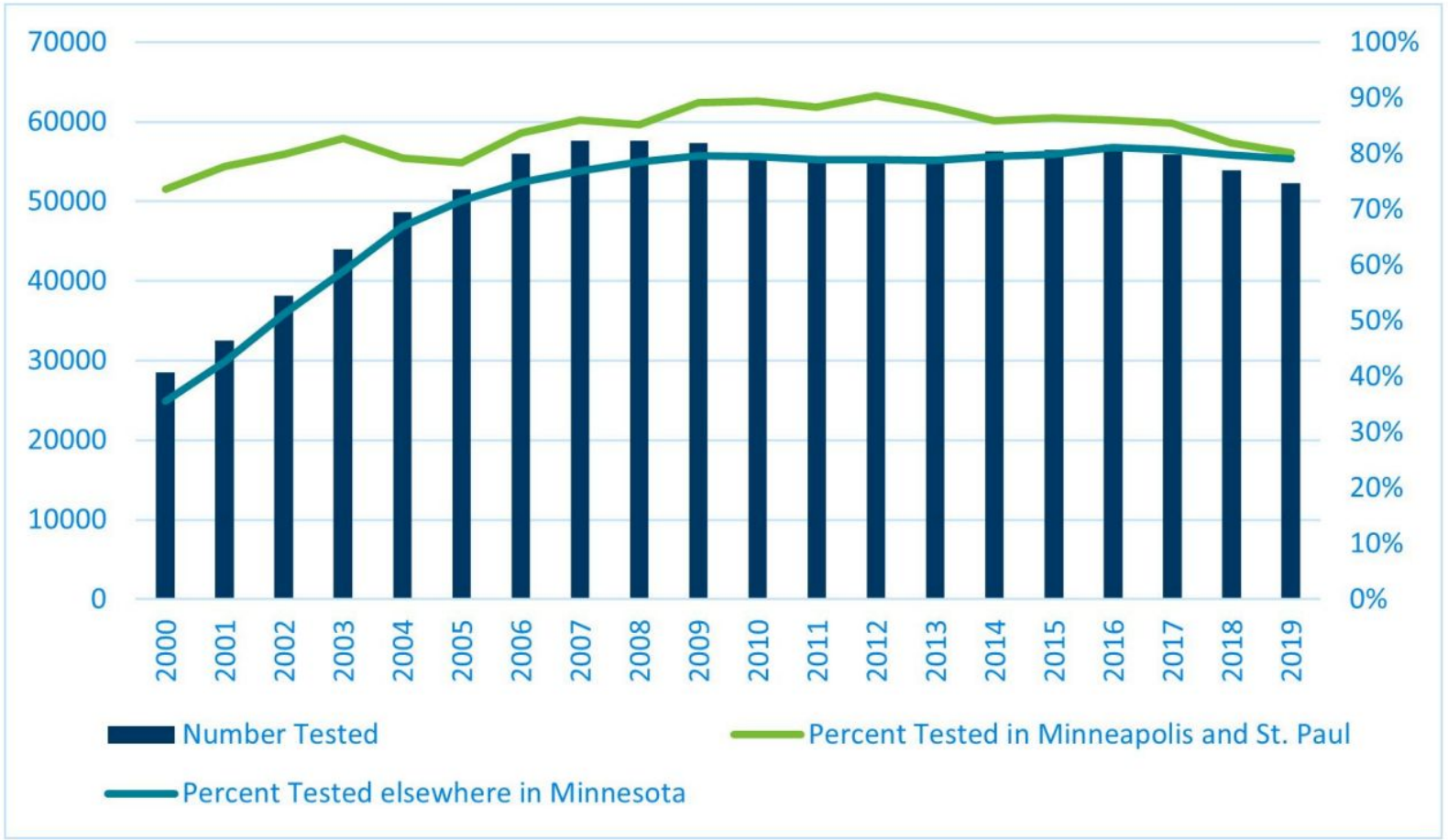


Figure 3. Children Tested at 1 Year and 2 Years of Age, by Birth Year

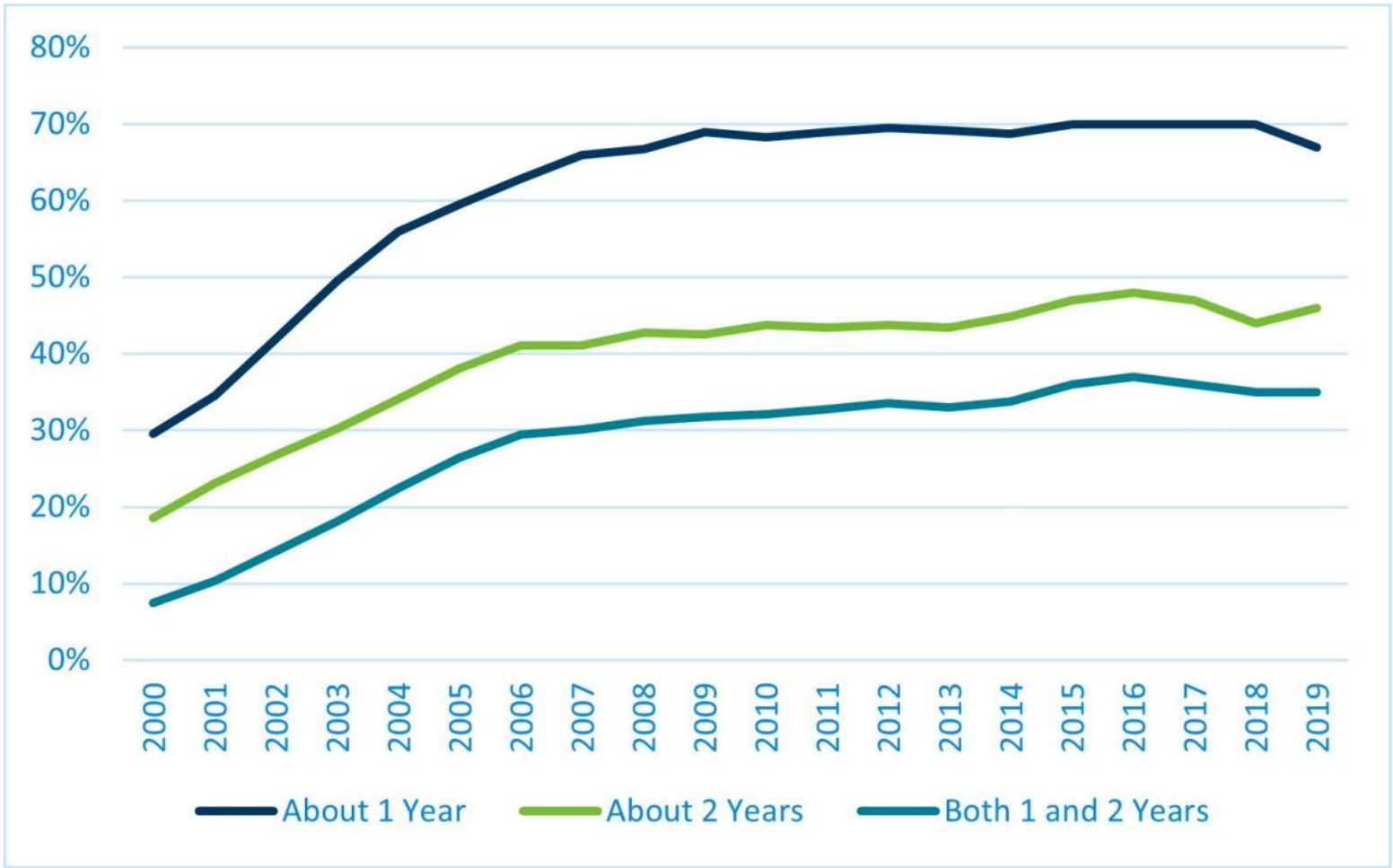
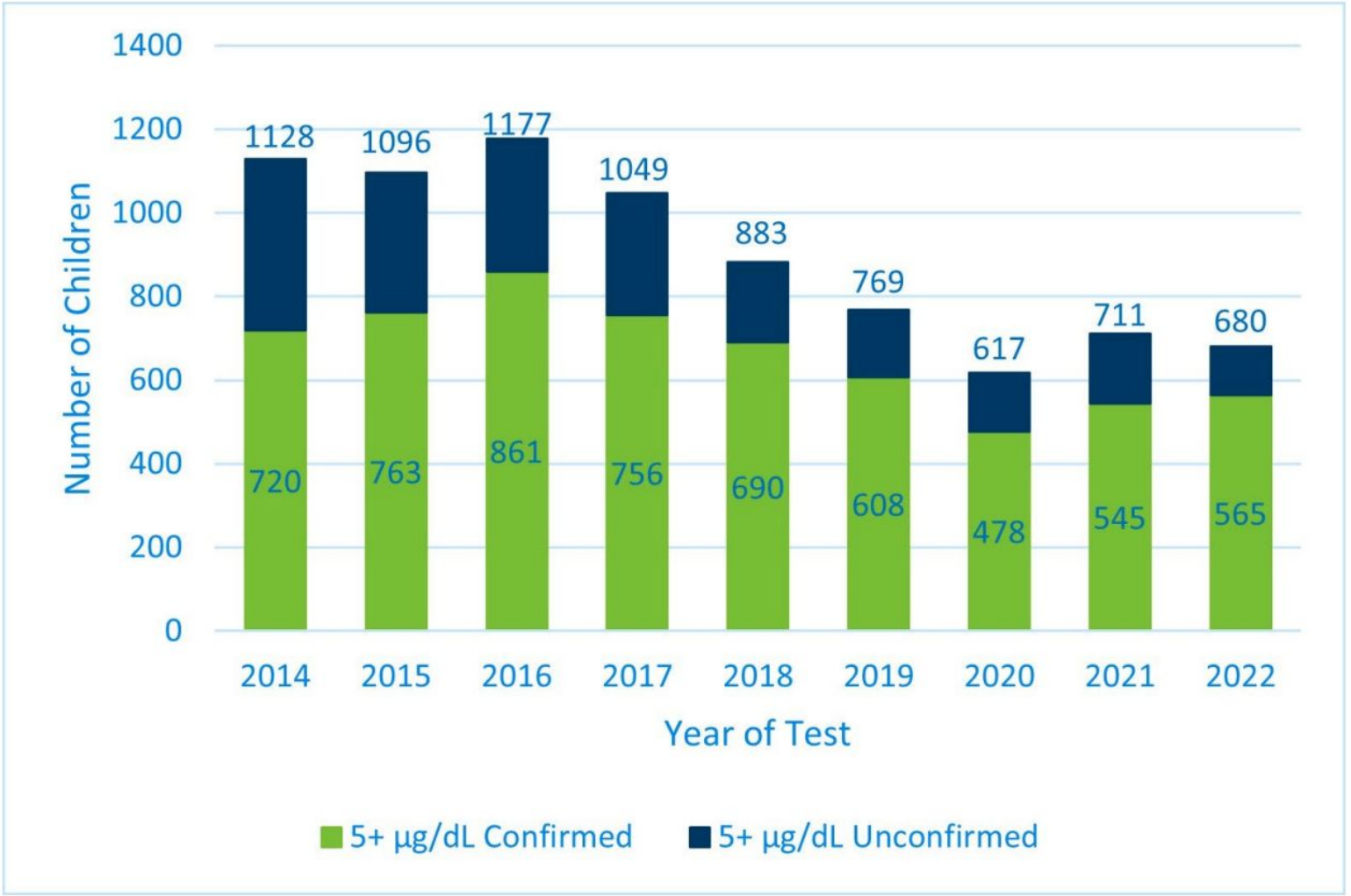


Figure 4. Number of Children with Confirmed and Unconfirmed Elevated Blood Lead Levels (5+ µg/dL and 15+ µg/dL) by Year of Test, 2001–2022



LEAD BILLS PASSED IN 2023

Representative Sydney Jordan

Northeast Minneapolis

HF 24: Lead Service Line Removal

- Sets up program for removal of all Lead Service Lines in MN through Public Facilities Authority (PFA)
- Prioritizes grant recipients
- Creates workforce plans
- Stipulates entire line must be replaced (both publicly and privately owned portions)
- Mapping
- Allocated $240 million from the state and unlocked $215 million in funding from IIJA
- Total MN replacement cost is $800 million.

Why Lead Services Lines?

- Lead Service Lines connect homes to water mains in the street. They are often both publicly and privately owned.
- No map or official count of how many LSLs are in MN.
- LSLs are one of the most common sources of lead contamination in drinking water.
- Present across the state- correlates with age of housing stock (pre- 1948)
- Federal funding opportunities due to the bipartisan Infrastructure Investment and Jobs Act (IIJA) of 2021.
- Racial and Economic justice issue

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HF 1356: Lead Service Lines Definitions

- Bill of nothing but definitions
- Defines terms like “Service Line,” “Galvanized Line,” and “Connector”
- Works to ensure HF 24 can replace all parts of the lead infrastructure.
- Definitions are cornerstone of good policy.

HF 92: Lowering the Definition of an Elevated Blood Lead Level

- Lowered the definition of an “elevated” blood lead level to 3.5 micrograms of lead from 10 micrograms.
- Aligns with CDC guidance.
- MDH was enforcing 5 micrograms.
- Unlocks services for more people- particularly children with an elevated level.

HF 1447: Rule Making on RRP

- Bill that allows MDH to conduct rule-making to bring agency rules into compliance with the Federal Renovate, Repair, and Paint rules around lead.
- Seems pretty noncontroversial but was fought by industry groups opposed to granting authority to state agencies.

HF 347: Lead in Schools

- Changed PPB to 15 to 5 parts per billion. Schools must mitigate
- Grants through MDH for districts and childcare centers
- Communication to families about lead levels
- Reporting requirements to MDE about lead levels
- Chief House Author was Rep. Michael Howard (DFL- Richfield)

Coalition Building

- Healthcare Providers
- Activists: Environmental, Racial Equity, Healthcare
- Health Care Activists
- Teachers/ Educators
- Union Members
- Other units of government (federal, cities)
- State Agencies
- General Public

Prepare for Concerns

- Cost
- Timing
- “Causing a panic”
- “Didn’t we already fix this?”
- Other priorities

How can you help?

- Understand how politics is part of medicine.
- Get to know your legislator.
- Attend/organize “Days on the Hill”
- Offer help and expertise- testify!
- Connect with state agencies

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MDH efforts to mitigate lead in public drinking water supplies

CSOEMA Fall 2023 Seminar

Sandeep Burman | State Drinking Water Administrator

Minnesota Drinking Water Program

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health.state.mn.us

MDH Vision

Safe and sufficient drinking water is available for everyone, everywhere in Minnesota

Health Effects of Lead

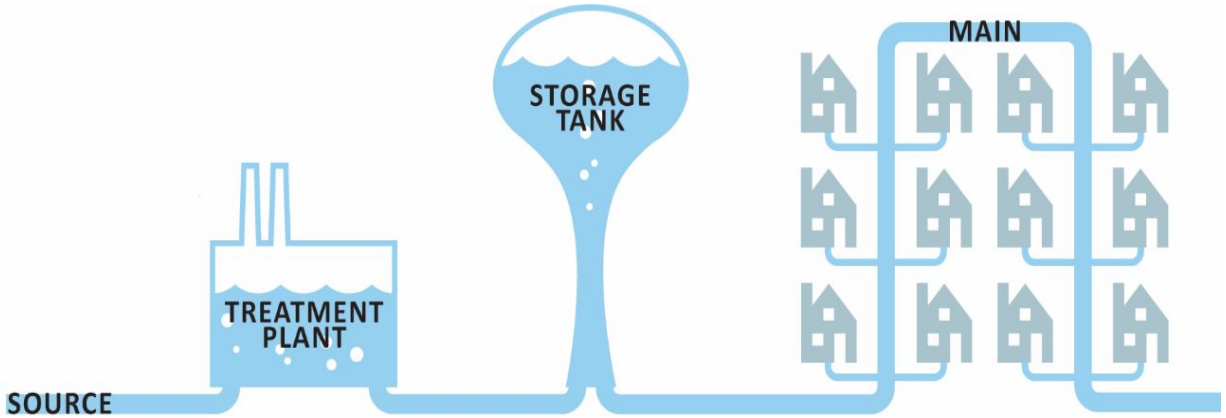
- Memory loss
- Lower IQ
- Behavior Problems
- Headaches
- Fatigue
- Muscle Pain
- Decreased Kidney Function
- High Blood Pressure
- Anemia
- Decreased Fertility
- Increased Risk of Miscarriage

Many individuals with elevated blood lead levels have no apparent signs or symptoms

Lead in Water: Source to Main

Almost no lead

- Very few direct sources
- High volumes of water traveling very fast
- Corrosion control implemented during treatment



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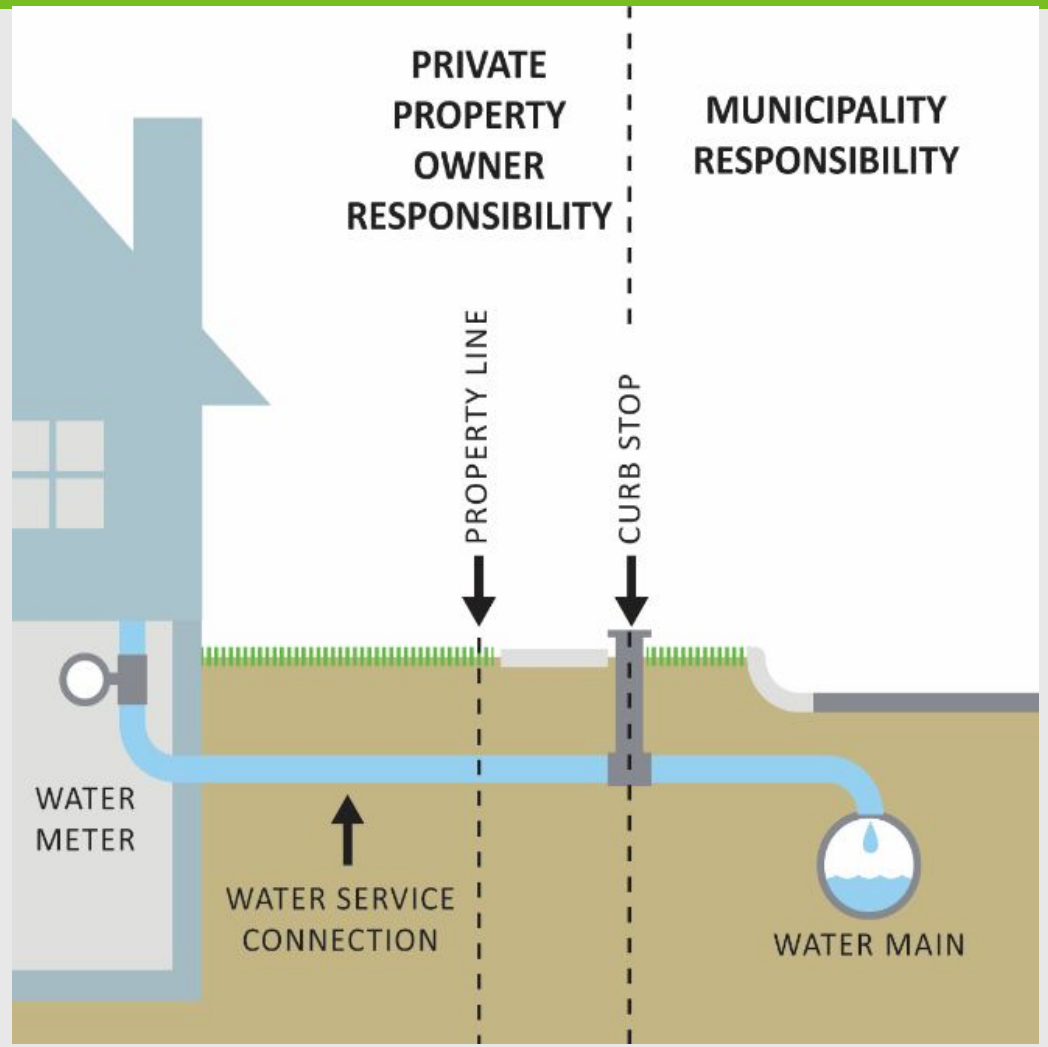
Lead in Water: Main to Tap

Two main sources of lead:

1. **Lead service Lines**
   - ✔ Adds 50% of lead in drinking water
   - ✔ Estimate 100,000 in MN
   - ✔ Public/private ownership
2. **Premise plumbing**
   - ✔ Pipes, solder, and fixtures
   - ✔ After 1986 could be 8%; after 1996 no more than 0.25%
   - ✔ Flushing can help, but not solve problem



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Cost to Eliminate – over 20-year span

1. **Lead Service Lines** *(100,000 by estimate)*
   - ✔ $2,500 - $8,000/line
   - ✔ Discount rate = 3%; inflation = 2%
   - ✔ $0.23 billion to $0.37 billion (**now 1 BILLION!**)

2. **Fixtures and Solder**
   - ✔ $2,000 - $6,000/home
   - ✔ Assume half of pre-1980 homes need work
   - ✔ $1.23 billion to $3.70 billion

3. **Technical Assistance**
   - ✔ Asset management, engineering
   - ✔ $0.06 billion

Total = $1.5 billion to $4.1 billion

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Benefit Calculations

IQ-Productivity:

- Market– Expected lifetime earnings
- Household– Replacement wage rate. Alternatives include opportunity cost, impacts on children in home.

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$1 investment = $2 benefit to Minnesotans

$1 Costs

	Low $	High $
Fixtures/Solder	1.2 B	3.7 B
LSL Replacement	0.2 B	0.4 B
Technical Assistance	0.06 B	0.06 B
TOTAL	1.5 B	4.1 B

$2 Benefits

	Low $	High $
IQ/earning gain - fixtures	2.1 B	4.2 B
IQ/earning gain – LSL removal	2.1 B	4.2 B
TOTAL	4.2 B	8.5 B

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Recommendations

- **Lead Service Lines**
  - ✔ Accurate inventories essential
  - ✔ Full removal at measured pace

- **Prevention/Awareness**
  - ✔ Notification of residents
  - ✔ Water testing in homes with infants

- **Focus on highest-risk populations**

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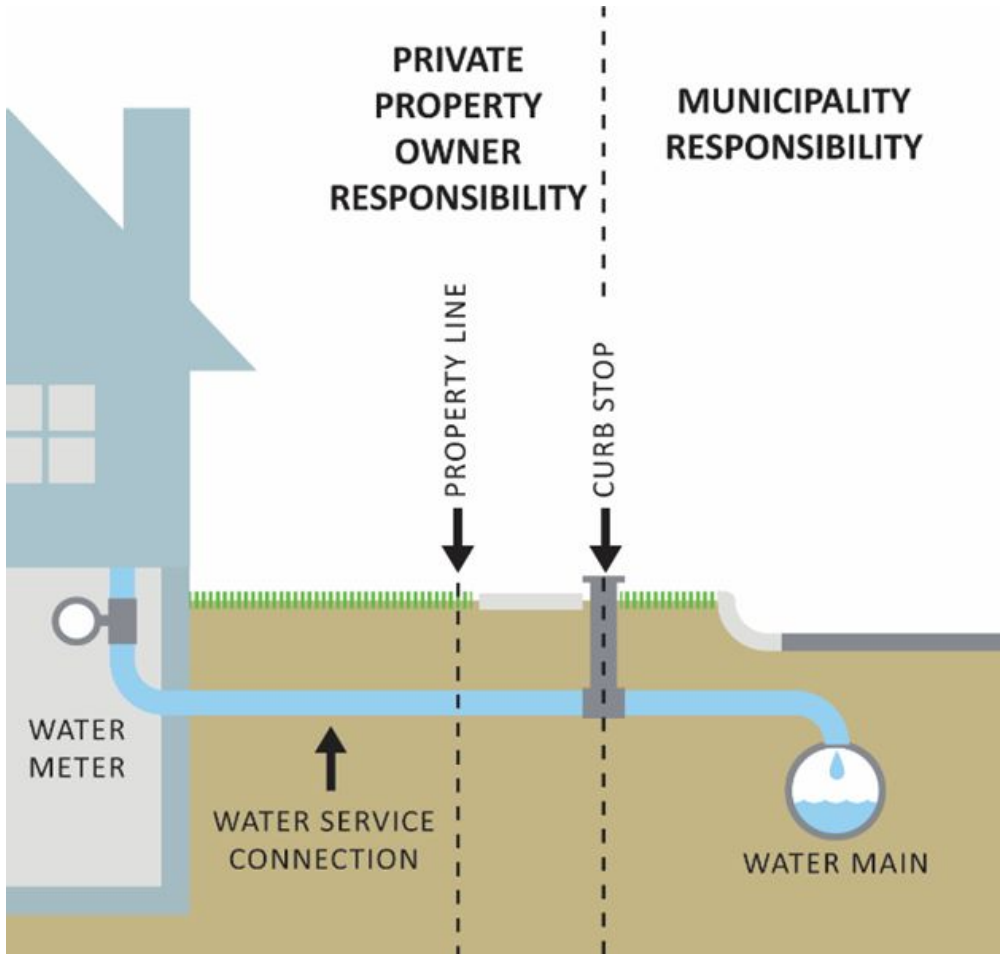
Lead and Copper Rule Revision focus areas



- **Get the lead out**
- **Empower communities**
- **Protect children**

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Infrastructure Investment and Jobs Act

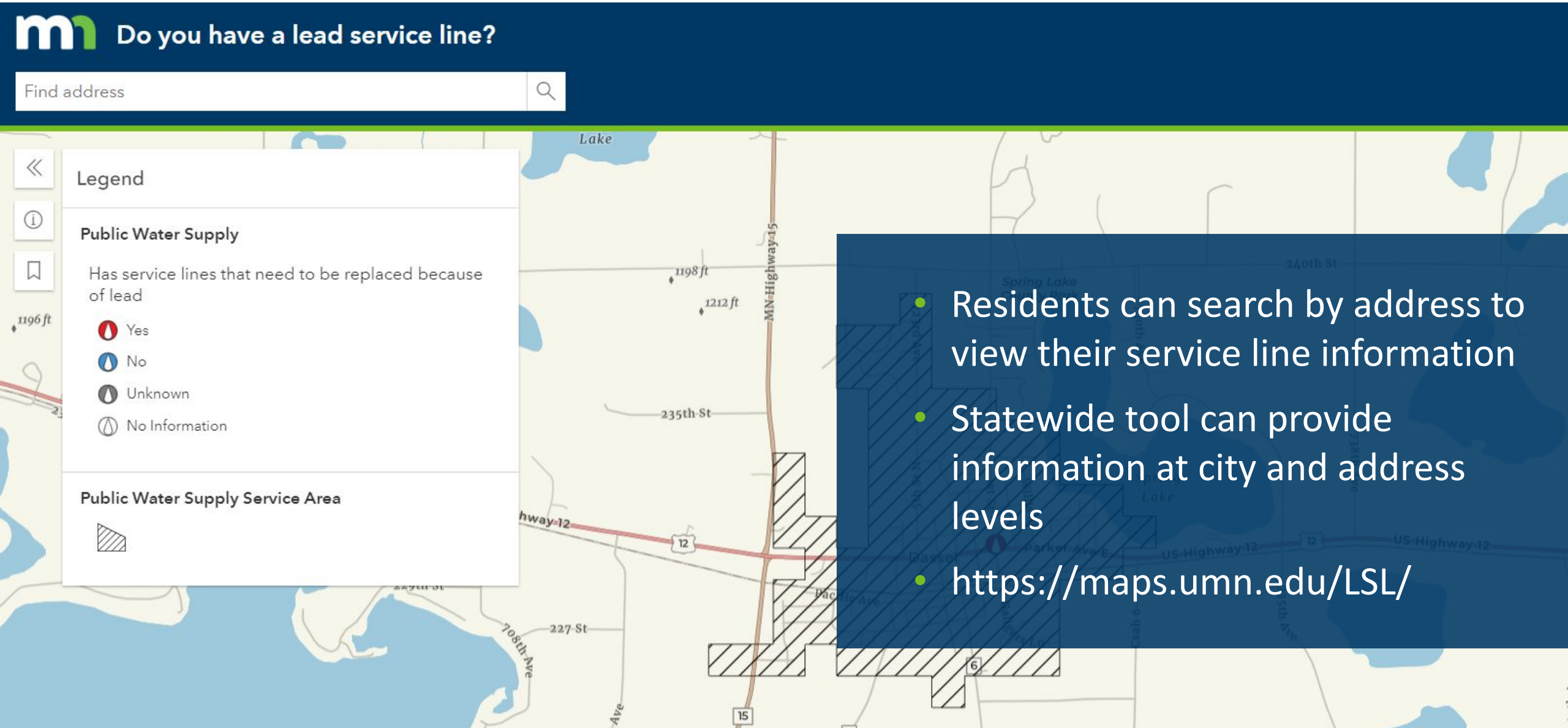
LSL Supplemental - $43.2 million

- 10% being used for inventory assistance
- Remainder for replacements
- Partnered with state funds

New State LSL Infrastructure Funding

- $240 million
- 10% can be used for inventory assistance (matches federal funding)
  - MDH has contract with 18 engineering firms
  - Capped at $75,000 per application period
  - 3 categories (record review, visual inspection, replacement plans)
  - Received approximately 450 applications
- Replacement breakdown
  - Private side - 100% grant
  - Public side - 50% grant, 50% zero interest loan
  - State funds can be used to pay off loan before first payment

University of Minnesota tool to inventory service lines



- Residents can search by address to view their service line information
- Statewide tool can provide information at city and address levels
- https://maps.umn.edu/LSL/

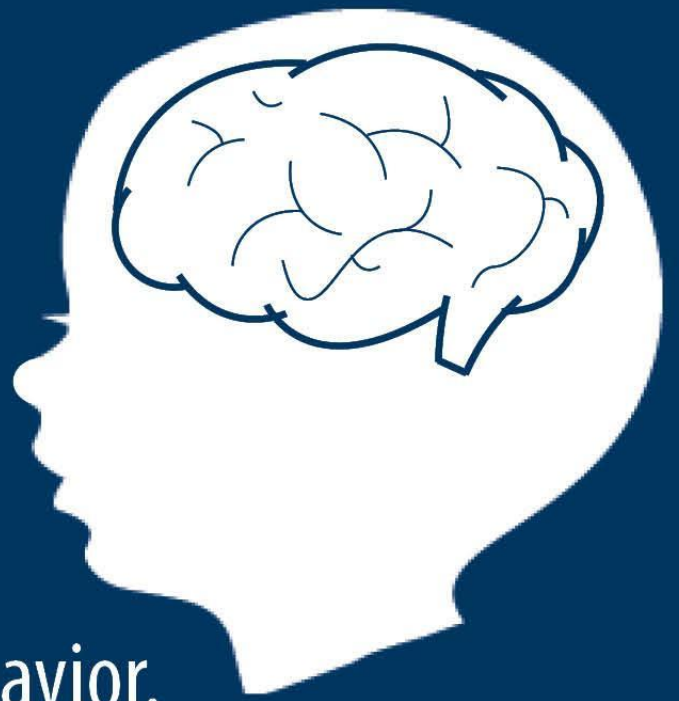
Lead service line replacement & health equity

Systems requesting funding are required to prioritize:

- Service lines that pose imminent public health threats
- Areas with children with elevated blood lead levels and under age five
- Target lines that supply schools and child care facilities
- Areas with lower-income residents and other disadvantaged communities
- Coordinating replacement of publicly- and privately-owned portions of lines
- Coordinating with replacements of watermains and other street projects

Three things to remember about lead

1. Children are most at risk.
2. No level of lead is safe.
3. Lead impacts learning and behavior.



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Resource for Lead Testing: WIIN Program Overview

Goal

To promote a safe environment for children in the state of Minnesota by assisting schools and child care providers in investigating & reducing sources of lead in drinking water.

Water Infrastructure Improvements for the Nation (WIIN) grant from EPA can help facilities meet the state testing requirements for lead in drinking water.

We have over 300 schools and child cares enrolled in the program!

Additional allotments from EPA will add about $900,000 into the program over the next 3 years.

What the Program Offers:

Provides FREE test kits to schools, child cares, and Head Starts.

Flexibility for participants to collect samples themselves or have our contractor set up a time to collect.

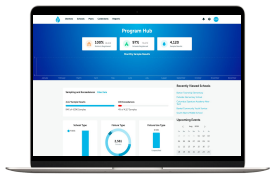
Lab analysis done by MDH Public Health Lab.

Technical assistance and review of results so schools understand all options when remediation is necessary.

Training on best water management practices in buildings.

How the Program Works

Training Session → Facility Develops Sample Plan → State Ships Sample Kit → Facility Collects Samples → State Lab Analyzes Samples → Facility Notified of Results → Remediation Guidance Provided → Facility Shares Results with the Public → Done!



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Getting Involved

- Website: https://www.health.state.mn.us/communities/environment/water/schools/mngrant.html
- Interested in testing your facility through the WIIN program? Application link: https://120water.formstack.com/forms/minnesota_lead_in_schools_testing_program_application

New Statute: SF2995

Testing For Lead in Drinking Water

School and Child Care Requirements

New Requirements for Child Care Centers
SF 2995 Amends
Sec. 13. Minnesota Statutes 2022, section 121A.335

Schools must:

- Update their plans to include a water management plan to maintain water quality during breaks and closures.
- **Must remediate when lead is 5 ppb or more.**
- Must report results to MDH beginning July 1, 2024.
- Must post their results on the web.

MDH will:

- Consult with schools and stakeholders on reporting requirements.
- Make results for all schools publicly available on the web.
- Report to the legislature by January 2026 and every 5 years thereafter on updates and recommended changes.

New Requirements for Child Care Centers
SF 2995 Section 62

Sec. 62. **[145.9273] TESTING FOR LEAD IN DRINKING WATER IN CHILD CARE SETTINGS.**

Subdivision 1. **Requirement to test.** (a) By July 1, 2024, licensed or certified child care providers must develop a plan to accurately and efficiently test for the presence of lead in drinking water in child care facilities following either the Department of Health's document "Reducing Lead in Drinking Water: A Technical Guidance for Minnesota's School and Child Care Facilities" or the Environmental Protection Agency's "3Ts: Training, Testing, Taking Action" guidance materials.

(b) For purposes of this section, "licensed or certified child care provider" means a child care center licensed under Minnesota Rules, chapter 9503, or a certified license-exempt child care center under chapter 245H.

Link to new statute:
https://www.revisor.mn.gov/laws/2023/0/70/laws.4.62.0

By July 1, 2024:

- Child care centers must have a plan to test all taps used for consumption.
- Remediation must occur if lead is 5 ppb or more.
- Results must be made available to parents within 30 days of receipt.
- Must report results to MDH

New Grant Program to Support Remediation SF 2995 Section 63

Sec. 63. **[145.9275] LEAD REMEDIATION IN SCHOOL AND CHILD CARE SETTINGS GRANT PROGRAM.**

Subdivision 1. **Establishment; purpose.** The commissioner of health shall develop a grant program for the purpose of remediating identified sources of lead in drinking water in schools and licensed child care settings.

Subd. 2. **Grants authorized.** The commissioner shall award grants through a request for proposals process to schools and licensed child care settings. Priority shall be given to schools and licensed child care settings with higher levels of lead detected in water samples, evidence of lead service lines, or lead plumbing materials and school districts that serve disadvantaged communities.

Subd. 3. **Grant allocation.** Grantees must use
including but not limited to service connections and pr
management within the building.

Progress

- RFP is in development.
- Grants will support schools and child cares that have elevated levels of lead in drinking water.

Funding	Estimate
Estimated Amount to Grant	$146,000 during FY 2024 $239, 000 during FY 2025, 2026, and 2027
Estimated Number of Awards	6-15 per year
Estimated Award Maximum	$15,000
Estimated Award Minimum	$8,000

Thank You!

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