Water Quality Task Force Final Report

Water Quality Task Force

» Representing the City of Milwaukee

Ald. James Bohl, Jr., Chair
Common Council, 5th District

Ald. Cavalier Johnson
Common Council, 2nd District

Bevan Baker
Commissioner of Health

Ghassan Korban
Commissioner of Public Works

Carrie Lewis
Superintendent of Milwaukee Water Works

Ald. Jose Perez
Common Council, 12th District

» Representing the Private Sector

Ben Gramling
Sixteenth Street Community Health Center

Dr. Patricia McManus
Black Health Coalition of Wisconsin

- Created by Common Council File 160438, and adopted July 26, 2016.
- Major emphasis of city— replace water service laterals as the primary source of lead in water.
- WQTF has met seven times between September and March with 3 more planned meetings before April 28, 2017.

TASKED WITH:

Exploring the problem of lead in the City's drinking-water infrastructure.

Investigating and making recommendations regarding additional ways to ensure long-term health and safety to Milwaukee's drinking water.

Provide final findings and policy recommendations to the Common Council.

WHAT IS LEAD?

» **A toxic, heavy metal found widely in the environment.**

- Used since ancient times due to its workability, low melting point, and resistance to corrosion.

Past and current uses include:

- Paint pigments
- Water pipes, solder, fixtures
- Fuel additives
- Electronics
- Lead-acid batteries
- Projectiles

(PP 1-7 Referenced from Robert Thiboldeaux, PhD., Wisconsin Dept. of Health Services.)

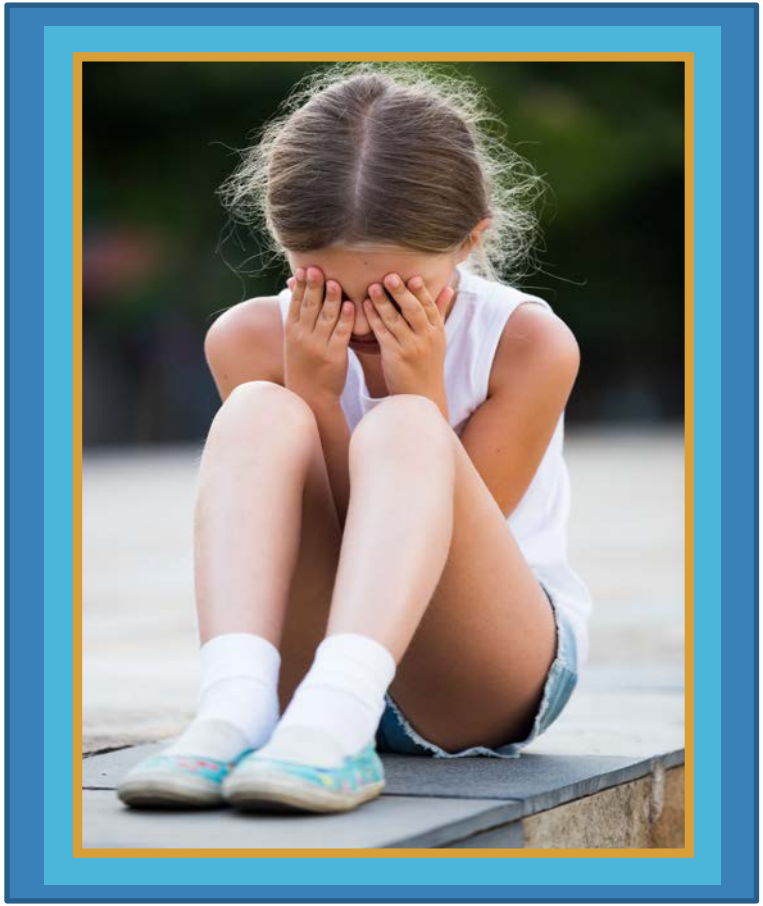
LEAD EFFECTS ON HUMAN HEALTH

Rate of uptake > **Rate of excretion, due to accumulation in bone.**

» **Health Impacts include:**

- Neurological effects (Diminished IQ, Behavioral issues)
- Peripheral neuropathy
- Renal system
- Blood system/Increased blood pressure

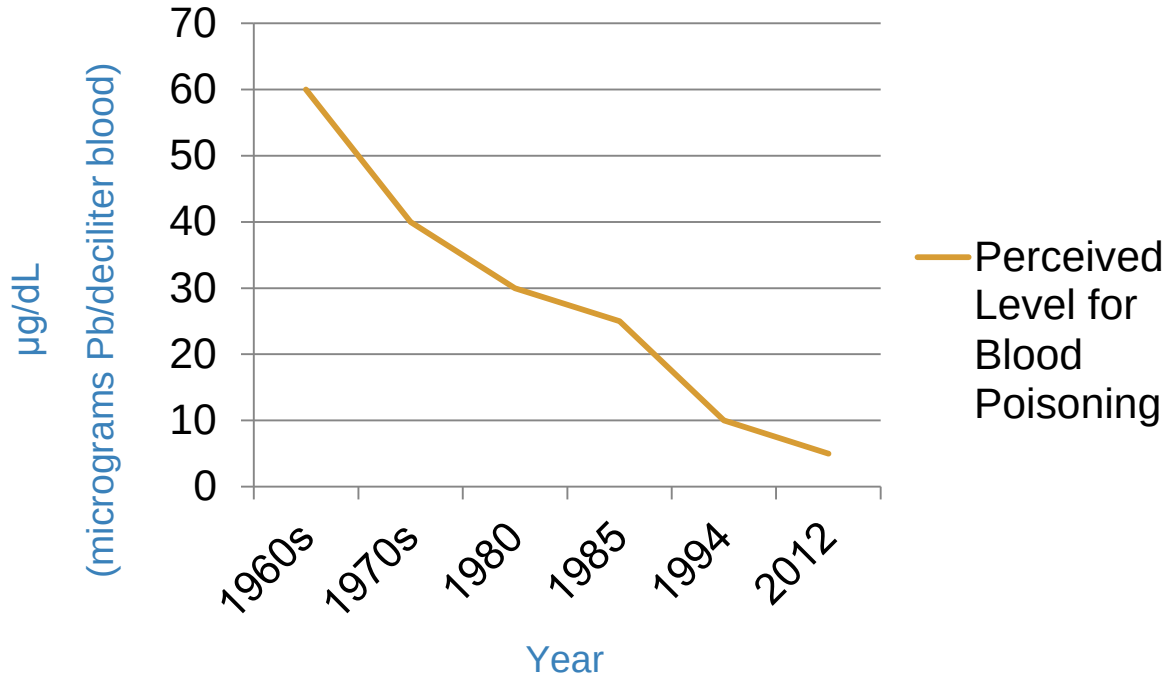
Children are more susceptible based upon having more small intestine receptors (40% more) that absorb lead, as well as having a developing brain/body and lower body weight. *



- Interferes with normal brain development.
- 2-4 IQ point deficit for each microgram of lead per deciliter of blood increase above 5 micrograms per deciliter.

**WI Dept. Health Services. 2008. Report of Childhood Lead Poisoning in Wisconsin. PPH 45109 (5/08)*
** New England Journal of Medicine. 348;16 www.nejm.org April 17, 2003*

The CDC blood lead "Reference Value"… the perceived level for blood poisoning has decreased over time.



Lead poisoning in Wisconsin is a statewide problem…but Milwaukee is most affected.

- More than 44,000 state children reported above acceptable Reference Value from 1996-2006.
  - Old lead paint reported as the most significant cause of exposure.#
- In 2016, 8.6% of Milwaukee children screened for lead had high blood-lead levels. This is down from 38% in 2003.*
- By comparison, Flint, Michigan reported 5% of children screened in 2016 reported elevated blood-lead levels.*

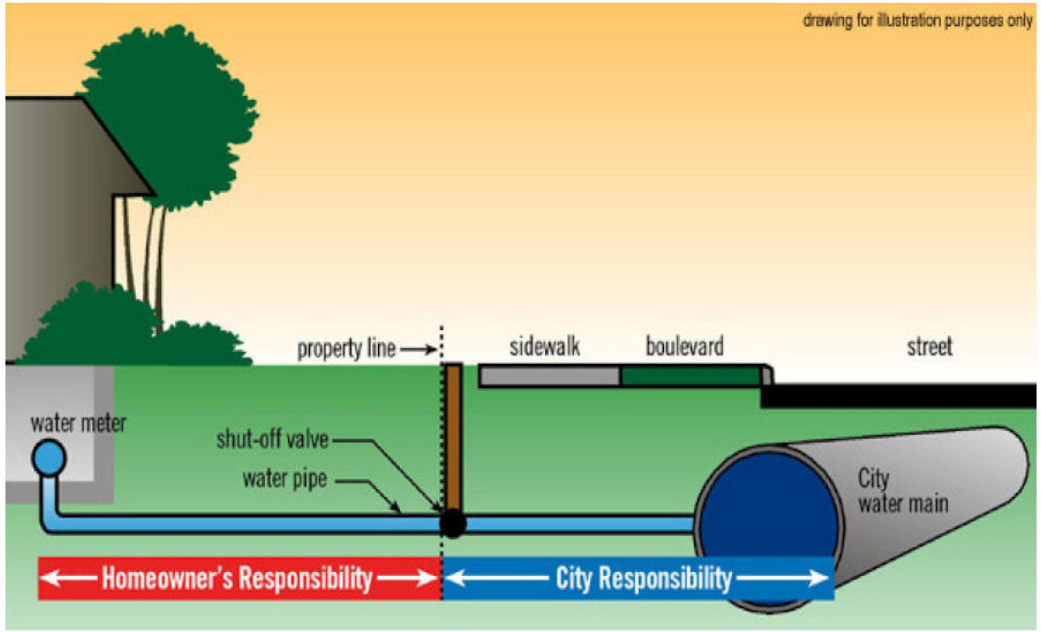
 # Wisconsin Dept. of Health Services
** Reuters/City of Milwaukee Legislative Reference Bureau*

LEAD IN WATER?

- **Historically managed as a *secondary* source of exposure.**
  - CDC claims 10-20% of collective U.S. lead contamination comes from drinking water.
  - That figure reaches 40-60% for formula-fed babies. *
- **Many communities are now paying extra attention to water as a source of exposure after Washington D.C. (2001) and more recently Flint, MI (2014).**
  - Lake Michigan water & city water mains are lead free. Issues arise with leaded water-service laterals and/or with interior sources of lead (flux, solder, pipes, brass fixtures).
- **There are several methods for managing lead in water, but full removal is the only permanent solution.**

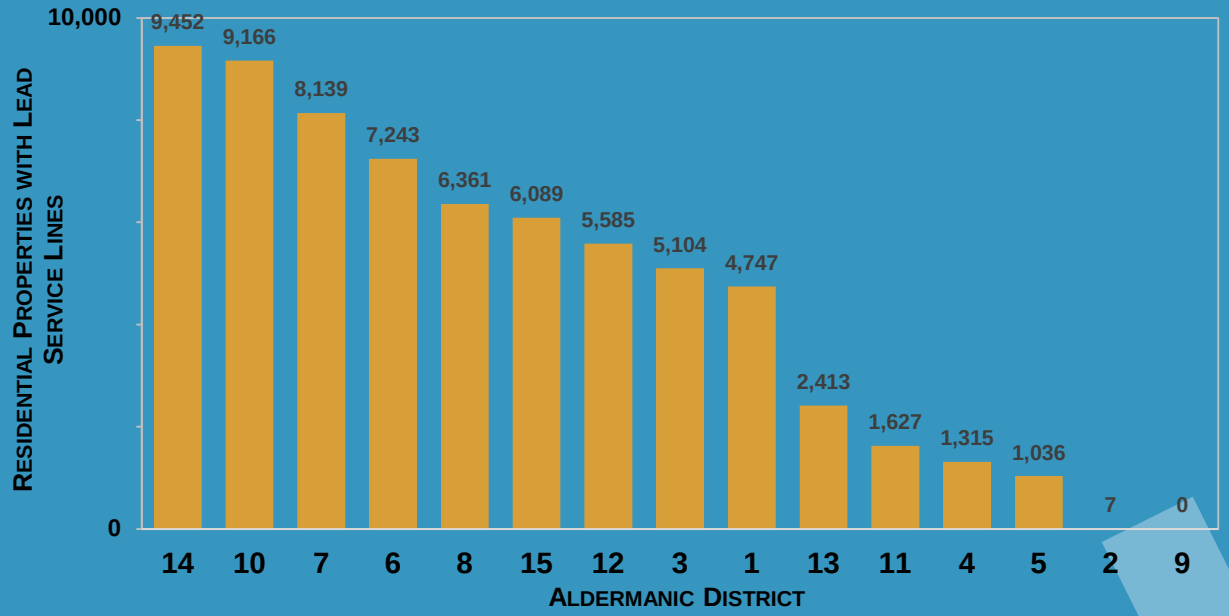
**Study by Monty C. Dozier/Mark L McFarland, University of Texas.*

LEAD-WATER ISSUES IN MILWAUKEE

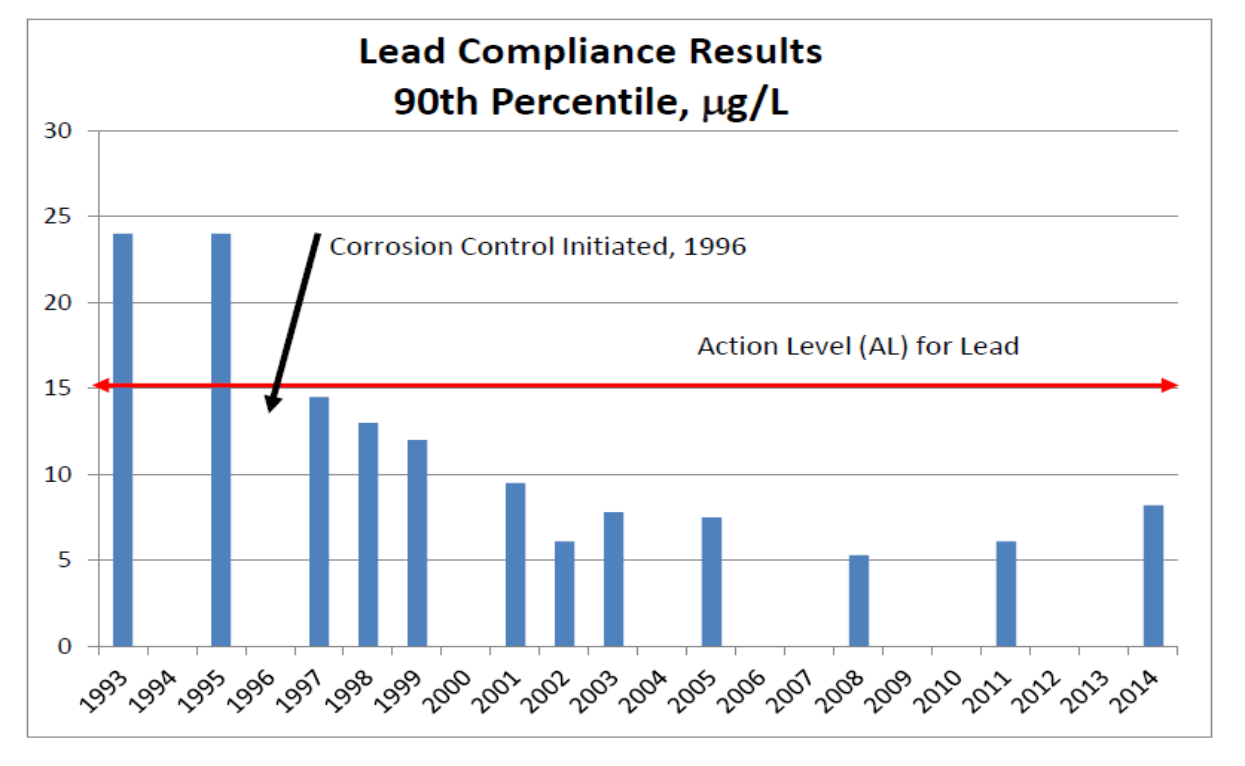


- Roughly 70k leaded service lines in the city of Milwaukee…maybe more?
- Lead laterals represent roughly 60-70% of the lead in drinking water sources as a composite average, though this can be deceiving.
- Concerns about the city's policy of replacement of utility portion of erupted water service line disrupting lead pipes and dislodging lead flakes.

Residential Lead Service Lines By Aldermanic District



Milwaukee's EPA Tap Sample Results



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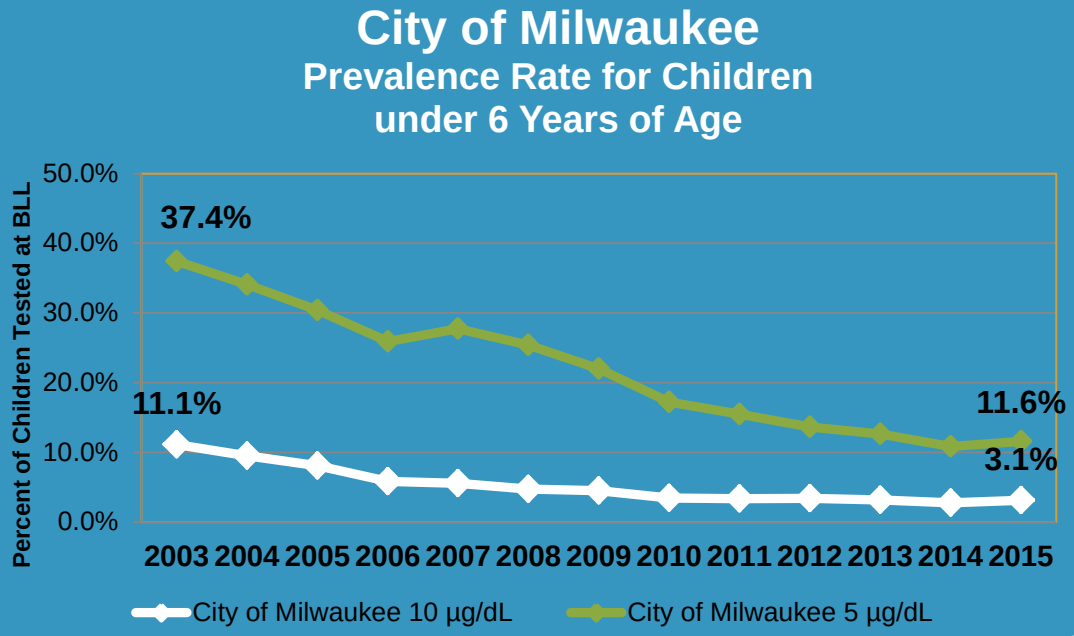
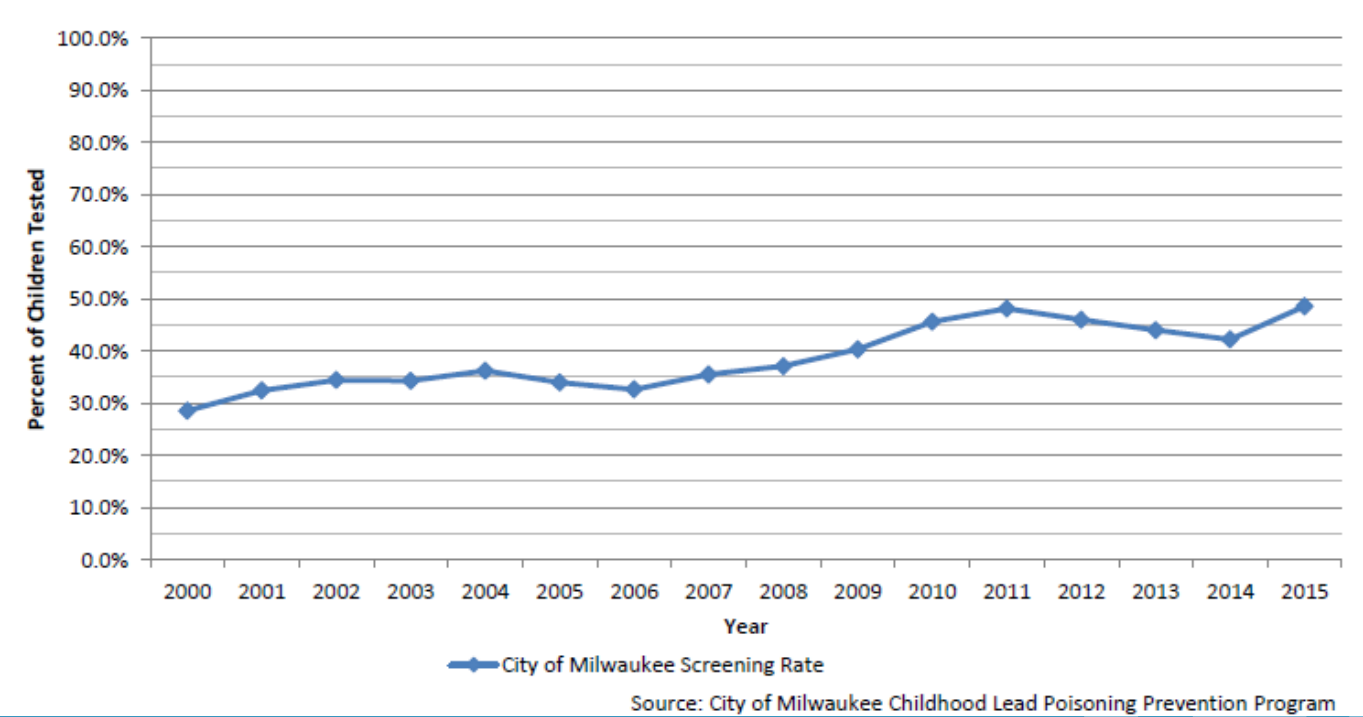
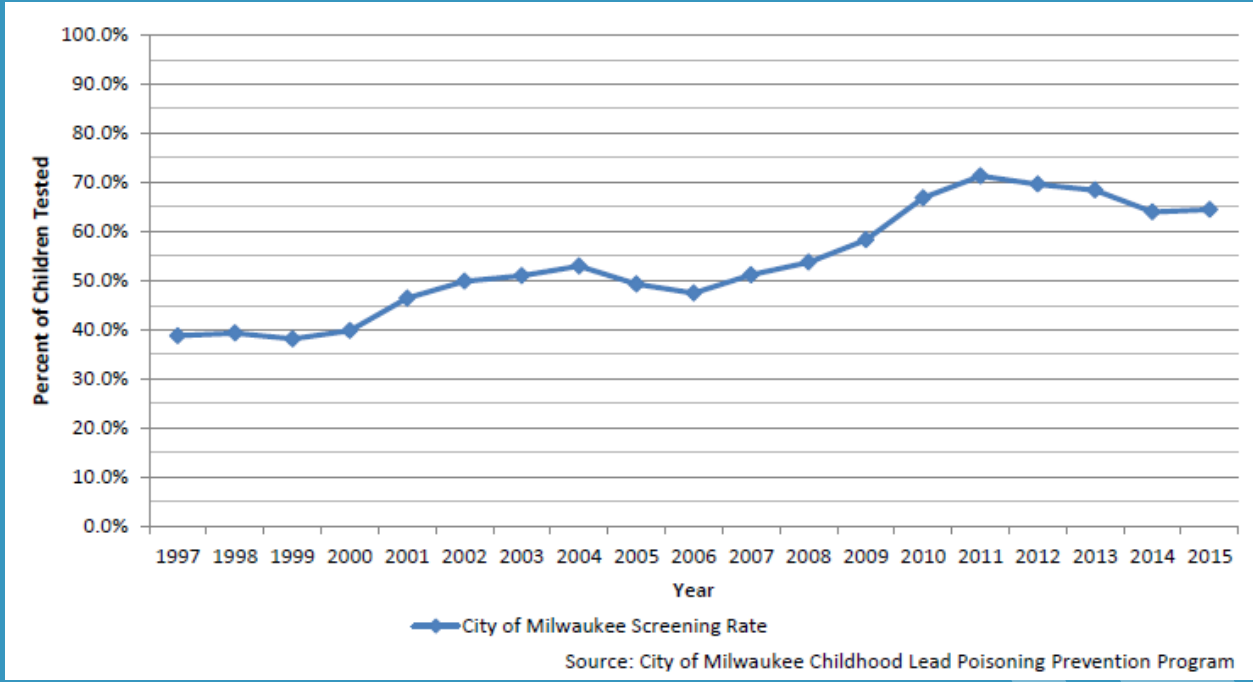


City of Milwaukee Screening Rate For Children Less Than 6 Years Old



City of Milwaukee Screening Rate For Children 12 to 35 Months Old

(1997 – 2015)



COMPLICATING ISSUES

» Interior Plumbing as a Source of Lead

Testing done in MPS schools showed 16% of the interior faucets or water sources to exceed EPA safe levels for lead, even though not one school tested had a lead service lateral (all were cast iron).

» Galvanized Steel Pipes

Rusted interior plumbing holds lead in its rust for years and provides slow release of lead for many years…even after lead service line is replaced.

» Galvanic Effect

Electrochemical process where presence of one metal increases corrosion of another in presence of an electrolyte. Issue found where copper service lines/plumbing precedes connected leaded lines/plumbing. This increases lead concentration leached into the water.

CITY POLICY PERSPECTIVES

» Knowing the problem vs. relying on perceptions

- Use science and the data, rely on experts
- Test rate, EBL prevalence rate, water results

» Find the opportunities– what we can and can't control

- Effective solutions (testing kids for EBLs)
- vs. visible solutions (testing water, replacing all pipes)

» Setting expectations for public and city government

- Collaborative approach – no silos
  - Health & Water @ City of Milwaukee
  - Include US EPA, WI DNR, WI Division of Health on method and protocol
- Communicate & Share w/ public
- Leadership means asking hard questions of yourselves and others
- Give public actions to take, not just information: test kids, flush water, filters if you're high-vulnerability

MAJOR FINDINGS

- Washington DC & Flint, MI crises are unrelated to Milwaukee's situation.
- Water testing mandated by EPA is merely done to test the effectiveness of corrosion control methods used by the water works.
- Historic process of replacing utility side service repairs means that many in the community could be left with copper lines before lead (Galvanic Effect).
- With limited resources…replacement of service lines should be prioritized around daycares and schools first. Water filters also prioritized for vulnerable populations (includes expecting mothers along with young children).

MAJOR FINDINGS (2)

- **Adequate flushing** is the most "convenient" mass-community lead reduction method. Water filters and complete replacement of exterior and interior plumbing sources are the most "thorough".
  - EPA/CDC recommendation for flushing after 6 hours stagnancy is woefully inadequate and does not reflect the science of lead leaching. Their standard is based upon a "worst case" lead or copper exposure period.
- Policy of merely replacing service lines does not adequately address the issue of lead exposure through water.
- High attention level to lead in water complicates actual sources of lead and leads to greater confusion surrounding the issues.
  - Blessing and curse of modern day social media.
  - Resources & attention diminished regarding lead paint & other sources.

MAJOR FINDINGS (3)

- A robust media campaign addressing lead in paint as well as in water, and urging lead testing of young children is vital to stemming the severity of the lead poisoning issue.

- Wisconsin state law is extremely rigid and does not currently provide enough flexibility for local governments to fund massive capital projects in any reasonable duration of time.
  - Prohibitions on local taxing sources and state imposed levy limits.
  - State law/PSC imposition from using water revenues to fund capital or health/safety expenditures.

- Lead removal/remediation and mitigation (both for water and paint) will be a long-term effort.

MAJOR FINDINGS (4)

The City's determination of

70,000

lead service lines may not be fully accurate. That number could be too low.

- 1951 date for service lines reflects only city portion of service line and not private.
- Notch exists between 1951 and 1962 when lawful code mandate on private side of the line was enacted.

Madison's & Lansing, MI's Lead Service Line Replacement Programs Show Initial City Estimates May Be Inflated.

Madison

- 2001 to 2012.
- **8,000** water lines replaced.
- City covered ½ of cost for work up to $2,000 for private side work (max $1,000 rebate).
- Average private reimbursement of $675.85 based upon $1,350 in average private side replacement cost.

Lansing

- Work started in 2004.
- City owned entire line…no public/private side.
- PSC/State law allowed city to use water revenues to pay for replacement.
- Average cost was $9,000 when started, but reduced to $3,600 through innovated processes and economy of scale cost savings.

Legislation/Policies Enacted During WQTF's Inception

» **City Budget (2017 -)**
- $3.4 million for lead service lines replacement at 385 daycares
- $2.8 million for 300 emergency service line replacements
- Water Quality Chemist/Construction Supervisor Positions
- Funding for filters

» **Free Community Filters/Reduced Cost Filters Through Community Partnership with A.O. Smith**

» **CC File 160742 from Dec. 13, 2016**
- Mandates the replacement of lead water-service lines under certain circumstances
- Establishes a Special Assessment Policy for Private-side work
  - Reimburse 2/3 cost up to $1,600 max for property owner.
- 10-year payment on special assessments at low interest rate

Legislation/Policies Enacted During WQTF's Inception (2)

» "Lead Safe Milwaukee" Public Service Campaign Starts (February)

» CC File 160964 - Ordinance mandating annual testing of all water fixtures in city-controlled charter schools.

» CC File 161645 - Resolution calling on state to mandate regular testing for all schools and licensed daycares statewide.

WQTF RECOMMENDATIONS

- ✓ The City should do all in its authority to accelerate the removal and / or rehabilitation of lead service lines within its jurisdiction.
- ✓ Provide adequate City resources, supplemented by resources from foundations and corporations, to ensure vulnerable populations have access to lead-removing water filters certified to remove lead by NSF/ANSI Standard 53.
- ✓ Promote and support lead-removing water filtration systems as the most thorough means of lead-water safety.
- ✓ Educate residents regarding internal plumbing as a source of lead.
- ✓ Incorporate lead-in-water and lead public education materials with all City water bills.
- ✓ Use area universities as resources to address the lead-water issue.
- ✓ Support State legislative action requiring testing of water in schools and daycares; or, in its absence, explore city options for mandatory testing of water in city schools and daycares.

WQTF RECOMMENDATIONS (2)

- ✓ Mandatory City testing of water in schools and daycares.
- ✓ Establish an annual review process before the Common Council regarding blood lead testing being conducted of children in the city and regarding the policies and actions taken by the Health Department for children found with elevated blood lead levels.
- ✓ Explore and expand on ways in which proper nutrition may mitigate lead absorption in our City's children and residents.
- ✓ Urge the State of Wisconsin and U. S. Federal Government to provide greater funding to the City to eliminate sources of lead.
- ✓ Allow greater water-utility flexibility to pay for lead water-service line replacement.
- ✓ Explore additional financial assistance options for low-income homeowners' replacement of the privately-owned side of water-service lines, while maintaining a balanced payment program for most to ensure timely removal of service lines.

WQTF RECOMMENDATIONS (3)

- ✓ Seek new partners and avenues to expand public service information/announcements on managing the potential risks relating to lead-contaminated water, with a special emphasis on vulnerable populations, and ensure the City's ongoing public information campaign presents a balanced approach to all lead risks.
- ✓ Provide outreach to local healthcare providers on the need for lead testing of infants and toddlers.
- ✓ Seek to balance workforce development opportunities with timeliness and cost-containment efforts on the lead service line removal program.
- ✓ Contract for an outside review of Milwaukee Water Works' operations in order to build community confidence in its ability to deliver healthy and safe drinking water to its users.
- ✓ Pass City legislation to provide private-side lead service line identification, removal and special assessment cost-share criteria for homes constructed between 1952 and 1962.

WQTF RECOMMENDATIONS (4)

- ✓ The Common Council should pass legislation requiring semi-annual reporting to the Council by the Milwaukee Water Works and Department of Public Works to the status of service line removal or lining efforts, testing results of lead in water, emerging technologies for remediating lead in water, and ongoing plans for addressing the lead-in-water issue.

- ✓ Milwaukee Water Works and the Department of Public Works should continuously evaluate lead service line lining and coating technologies or other emerging technologies that may present themselves as cost-effective and safe alternatives to lead service line removal.