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Committee on Ways and Means

Subcommittee on Trade

“Advancing U.S. Economic Competitiveness, Equity, and Sustainability Through Infrastructure Investments”

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Good morning. I would like to begin by thanking Chairman Earl Blumenauer, Ranking Member Vern Buchanan, and all of the distinguished Members of the Trade subcommittee for the opportunity to testify at today’s hearing regarding drinking water infrastructure. A special thank you to subcommittee member, Michigan Congressman Dan Kildee, for his steadfast leadership and support. I would also like to thank your respective staff members for their concern and dedicated work on this issue. This is a very important topic, and I am pleased this subcommittee has chosen to devote today’s hearing to infrastructure, especially as it relates to the safety of our nation’s drinking water and public health.

As a pediatrician in Flint, Michigan, it is the greatest privilege of my life to be able to wake up everyday to care for Flint kids. Much of that work centers around making sure our kids are healthy today; but more importantly, my work is nestled in protecting and promoting the promise of our children’s futures. Yet in Flint, there was something in our water - something that you couldn’t see or taste or smell - that was threatening the potential of our children. By now, you all know that what happened in Flint was the signature environmental disaster of our time. In a breakdown of democracy and driven by austerity, our drinking water source was changed without proper corrosion control treatment. The water was so corrosive that it corroded engine parts at a Flint auto plant.¹ The corrosive water leached lead from our aged and outsized infrastructure into our drinking water, in the hundreds and thousands of parts per billion.^{2,3} Hazardous waste levels of lead.

Science has taught us that there is **no safe level of lead exposure**.^{4,5,6} A well-studied poison, lead is an irreversible neurotoxin - with lifelong, multisystem, and multigenerational impacts. I wish there was something I could prescribe to take away what happened in Flint; but when it comes to lead, the only cure is prevention. And that is why in Flint, after our infrastructure failure, our work has been about moving forward, to mitigate the impact of the crisis and to create a

¹ Fonger R. General Motors shutting off Flint River water at engine plant over corrosion worries. Oct 13, 2014. Updated Jan 20, 2019. mlive.com. https://www.mlive.com/news/flint/2014/10/general_motors_wont_use_flint.html

² Pieper KJ, Martin R, Tang M, Walters L, Parks J, Roy S, Devine C, Edwards MA. Evaluating water lead levels during the Flint water crisis. *Environ Sci Technol*. 2018;52(15):8124-8132. <https://doi.org/10.1021/acs.est.8b00791>

³ State of Michigan. Flint residential testing report - results collected through July 5, 2016.

https://www.michigan.gov/documents/flintwater/Test_Results_Flint_Sorted_by_Lead_Concentration_513930_7.pdf

⁴ Centers for Disease Control and Prevention, Advisory Committee on Childhood Lead Poisoning Prevention. *Low Level Lead Exposure Harms Children: A Renewed Call for Primary Prevention*. Atlanta, GA: Centers for Disease Control and Prevention; 2012.

www.cdc.gov/nceh/lead/ACCLPP/Final_Document_030712.pdf.

⁵ See, e.g., National Institute of Environmental Health Sciences, Lead,

<https://www.niehs.nih.gov/health/topics/agents/lead/index.cfm>

⁶ AAP Council on Environmental Health. Prevention of childhood lead toxicity. *Pediatrics*. 2016;138(1):e20161493.

<https://doi.org/10.1542/peds.2016-1493>

PEDIATRIC PUBLIC HEALTH INITIATIVE

sanctuary where our children can recover and thrive. We are grateful for Congress's continued, bipartisan support of Flint's recovery.

FLINT EVERYWHERE: A HISTORIC FAILURE

Our decades-long inaction to invest in infrastructure failed the children of Flint. However, our work has also been about shining a spotlight on the pervasive inadequacy of our drinking water infrastructure. Flint's water crisis was an extreme case, but it was not the **first, the last, or the worst**. Here, in our nation's capital, there was an even worse lead-in-water crisis in the early 2000s. That crisis, at the heart of policy making, should have prompted the removal of our lead pipes.

In Werner Troesken's *The Great Lead Water Pipe Disaster*, he chronicles a century and half of preventable lead-in-water disasters and concomitant lack of political will to prevent the next disaster.⁷ Of note, the word "plumbing" is derived from the Latin "plumbum" which means lead - the elemental symbol of lead is Pb. Roman aqueducts used lead pipes, which is hypothesized to have contributed to the demise of the Roman empire (preserved lead pipes are still visible throughout Pompei).⁸ In my birthplace, Sheffield, England, there was a lead in water disaster in the 1890s which resulted in many pregnant moms miscarrying and losing their babies.⁹ It is said that one of the first abortion pills in Northern England was a lead-based pill. In some ways, investing in our drinking water infrastructure and removing the lead pipes is one of the most pro-life measures we can take. Besides the well-recognized neurodevelopmental implications of lead exposure, it can cause adverse pregnancy outcomes including fetal death, prematurity, and small birth weight.¹⁰

The United States was stubbornly slow to limit the use of lead in plumbing. The lead industry, the water industry, and even the plumbers' unions fought regulations,¹¹ and in the case of lead pipes, required lead service lines. Lead service lines were not restricted until 1986. Chicago, which has the most known lead service lines in the country at an estimated 400,000, was still requiring their installation until 1986.¹² Because there is no required inventory of lines, there is not an accurate national count. However, there are an estimated 6.5 to 10 million lead service lines nationally, with the greatest concentration of lead lines in the Midwest and Northeast.^{13,14}

⁷ Troesken W. *The Great Lead Water Pipe Disaster*. Cambridge, MA: MIT Press; 2006.

⁸ Delile H, Blichert-Toft J, Goiran JP, Keay S, Albarède F. Lead in ancient Rome's city waters. *Proc Natl Acad Sci U S A*. 2014;111(18):6594-6599. <https://doi.org/10.1073/pnas.1400097111>

⁹ Hirst S. Talks: Lead poisoning in Sheffield 1885–1920 by Mike Collins on 14th January 2019. Jan 14, 2019. Stumperlowe Probus Club. <http://s10probus.co.uk/lead-poisoning-in-sheffield-1885-1920-by-mike-collins-on-th-january-2019/>

¹⁰ Ettinger AS, Wengrovitz AG, eds. *Guidelines for the Identification and Management of Lead Exposure in Pregnant and Lactating Women*. Atlanta, GA: Centers for Disease Control and Prevention; 2010. <https://www.cdc.gov/nceh/lead/publications/leadandpregnancy2010.pdf>

¹¹ Rabin R. The lead industry and lead water pipes "A Modest Campaign". *Am J Public Health*. 2008;98(9):1584-1592. <https://doi.org/10.2105/ajph.2007.113555>

¹² Caine P. Chicago has more lead service pipes than any other US city, Illinois the most of any state. Mar 24, 2021. WTTW News. <https://news.wttw.com/2021/03/24/chicago-has-more-lead-service-pipes-any-other-us-city-illinois-most-any-state>

¹³ United States Environmental Protection Agency Office of Water. *Lead and Copper Rule Revisions White Paper*. Washington, DC: EPA; Oct 2016. https://www.epa.gov/sites/production/files/2016-10/documents/508_lcr_revisions_white_paper_final_10.26.16.pdf

¹⁴ Cornwell DA, Brown RA, Via SH. National survey of lead service line occurrence. *J Am Water Works Assoc*. 2016;108(4):E182-E191. <https://doi.org/10.5942/jawwa.2016.108.0086>

PEDIATRIC PUBLIC HEALTH INITIATIVE

Beyond lead pipes, our overall drinking water infrastructure is aged, fragile, and underfunded; and a constant threat to our public health. According to the American Society of Civil Engineers, the United States' drinking water infrastructure gets a barely passing grade of "C-."¹⁵ Many remote, rural, and tribal communities completely lack access to safe and reliable drinking water. Emerging contaminants, like the "forever chemicals" PFAS, are increasingly being recognized throughout our nation's drinking water; Michigan has the most identified PFAS contaminated drinking water sites in the country (largely due to aggressive testing).¹⁶ PFAS exposure has been associated with multiple health conditions including cancer, immunodeficiency, and hormone disruption.¹⁷ In addition, our outdated and underinvested water infrastructure system is increasingly stressed by climate change-induced extreme weather conditions. For example, the recent power outages associated with the "Texas Freeze" resulted in the disruption of 800 public water systems servicing 13.1 million people.¹⁸ The images of water bottles being used for bathing babies and brushing teeth were eerily similar to Flint's crisis. Time and time again, failures of our drinking water infrastructure continue to impact our public health.

FLINT AS A MODEL: THE TIME IS NOW

As much as the story of Flint is the story of a failure of our drinking water infrastructure and decision making, it is also a story of how we can do better, especially on behalf of our children. That is what we are trying to model in Flint and that is why I am so excited to be here with you today. Following the examples of Madison, Wisconsin and Lansing, Michigan; Flint will soon replace all their lead pipes. However, due to COVID-19 delays, another post-crisis city, Newark, New Jersey may actually finish replacing their lead pipes before Flint. Utilizing the expertise of a workforce of highly skilled plumbers and pipefitters, Flint and Newark are both replacing lead pipes faster than previously done. As a pediatrician, I would be remiss if I did not say that families with good-paying jobs are one of the most potent medications we can prescribe. With an over 60% child poverty rate in Flint,¹⁹ the deleterious consequences of poverty and income inequality also manifest in the bodies and blunted potential of children.

But it shouldn't take crises to reactively ensure safe drinking water or living wage jobs. As such, Michigan's model Lead and Copper Rule now mandates the replacement of all the state's lead pipes by 2041.²⁰ But states and cities can not afford to do this work alone, nor do they have the capacity and resources to do this work as quickly as possible. **It is time**

¹⁵ American Society of Civil Engineers. 2021 Report Card for America's Infrastructure: Drinking water.
<https://infrastructurereportcard.org/cat-item/drinking-water/>

¹⁶ Gardner P. Michigan has more PFAS sites than other states. There's a reason. Aug 25, 2019. Updated Aug 26, 2019. mlive.com.
<https://www.mlive.com/news/2019/08/michigan-has-more-pfas-sites-than-other-states-theres-a-reason.html>

¹⁷ Agency for Toxic Substances and Disease Registry. Per- and polyfluoroalkyl substances (PFAS) and your health.
<https://www.atsdr.cdc.gov/pfas/index.html>

¹⁸ Healy J, Fausset R, Dobbins J. Cracked pipes, frozen wells, offline treatment plants: A Texan water crisis. Feb 18, 2021. Updated Feb 20, 2021. NYT.com. <https://www.nytimes.com/2021/02/18/us/texas-water-crisis-winter-storm.html>

¹⁹ State of Flink Kids. Young children living below poverty level: Flint, 2015-2019.

<http://www.stateofflinkkids.com/indicators/index/view?indicatorId=532&localeId=139057>

²⁰ University of Michigan Lead and Copper Project. What you need to know about Michigan's 2018 Lead and Copper Rule.
<http://graham.umich.edu/project/revised-lead-and-copper-rule>

PEDIATRIC PUBLIC HEALTH INITIATIVE

to remove all lead service lines, from the water main to the inside of the house, or generations of children will continue to suffer from its silent toxicity. The overall state of our country's drinking water infrastructure is a national public health crisis, and **I fully support the proposal in President Biden's American Jobs Plan to remove 100% of our nation's lead pipes and service lines**²¹ as soon as possible - at least within 10 years, as per previously introduced legislation.²² Every day that goes by is a missed opportunity. It is only with the full weight and support of the federal government that the millions of lead pipes in this country can be efficiently replaced.

In addition to removing lead pipes, the time is also now to upgrade and modernize our drinking water infrastructure. From preventing, identifying, and remediating emerging contaminants like PFAS to ensuring safe drinking water during extreme weather conditions, investments in water infrastructure directly impact our public's health. **I also fully support the proposal in President Biden's American Jobs Plan to broadly invest in drinking water infrastructure.**²³

AN EQUITY AND JUSTICE ISSUE

In cities, both rural and urban areas of this country, communities of color are more likely to suffer the environmental and health injustice of poorer water quality and increased drinking water violations.²⁴ Further widening these disparities, when public water utilities charge for lead pipe replacement, safe drinking water turns into a privileged luxury for those who can afford it, while worse quality water is the default for those who cannot. As an added burden, many of the poorest and most vulnerable individuals spend their limited resources on costly bottled water and filtration systems. In fact, following the Flint water crisis, bottled water outsold soda for the first time in our nation.²⁵

It is well recognized that poor and predominantly-minority kids disproportionately suffer from lead exposure and, consequently, its pernicious and potentially life-altering impacts. In addition to the exposures I've highlighted through drinking water, children also face exposure to lead from other media, including lead-based paint and lead in soil from legacy industrial uses. These exposures compound and add to those from drinking water, and also disproportionately affect children of color and those in low-income families. This means that the deleterious health and neurodevelopmental manifestations of lead exposure are further concentrated in children and communities who are already struggling with other systemic inequities such as historic disinvestment in minority neighborhoods, and access to safe affordable housing, quality education, nutrition, and health care.

²¹ The White House. *Fact Sheet: The American Jobs Plan*. Mar 31, 2021.

<https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/31/fact-sheet-the-american-jobs-plan/>

²² Get the Lead Out Act, H.R. 7918, 116th Cong. (2020). <https://www.congress.gov/116/bills/hr7918/BILLS-116hr7918ih.pdf>

²³ The White House. *Fact Sheet: The American Jobs Plan*. Mar 31, 2021.

<https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/31/fact-sheet-the-american-jobs-plan/>

²⁴ Natural Resources Defense Council. New drinking water report: Communities of color more likely to suffer drinking water violations for years. Sept 24, 2019. <https://www.nrdc.org/media/2019/190924>

²⁵ Shoup M. Bottled water surpasses soda in consumption with 86% purchase rate among Americans. Mar 13, 2017. BeverageDaily. <https://www.beveragedaily.com/Article/2017/03/13/Bottled-water-surpasses-soda-in-consumption-for-the-first-time>

PEDIATRIC PUBLIC HEALTH INITIATIVE

As we strive to eliminate inequities and actively implement environmental justice and anti-racist policies, drinking water infrastructure work, and especially lead pipe replacement work, should be prioritized in historically disadvantaged communities. **Drinking water infrastructure investments are not just about pipes and plumbing, but about people and our potential to address historic and socioeconomic disparities.**

THE COST OF INACTION

A little over a year ago, I had the privilege of testifying before the Committee on Energy and Commerce's subcommittee on Environment and Climate Change about the failure of the proposed EPA Lead and Copper Rule Revisions to mandate the replacement of lead pipes. There was pushback from water utilities and municipalities who argued about the cost of this infrastructure work. I argued then, as I argue now, that the significant cost of *inaction* is unaffordable. Besides the incalculable cost to the health and development of children, the economic costs of preventable lead in water exposure include lost future worker productivity and earnings and greater health care, mental health, criminal justice, and special education costs. The costs of inaction are borne by everyone, including federal and state government budgets, which are affected by increased health care needs and lost future tax revenues from reduced earnings. When the long-term benefits for children are included in the societal savings of lead pipe elimination, it has been estimated that **every lead pipe replaced can generate up to \$9,900 in economic benefits.**²⁶ When compared to the cost of replacement, this equates to a **33% societal return on investment (ROI).**²⁷ Further, the benefits in individual states can be even higher—for example, in Michigan additional lead pipe replacements have been estimated to generate a 40% societal ROI.²⁸

In addition, repairing water infrastructure problems after they occur (crises, water main breaks, leaks, contamination, power outages, etc) is more costly and less effective than proactive investment in the “pipeline inventories to replace the aging infrastructure.”²⁹ Simply put, it makes economic sense to invest in our drinking water infrastructure.

²⁶ The Health Impact Project. *10 Policies to Prevent and Respond to Childhood Lead Exposure: An Assessment of the Risks Communities Face and Key Federal, State, and Local Solutions*. Washington, DC: The Pew Charitable Trusts; Aug 2017. https://www.pewtrusts.org/-/media/assets/2017/08/hip_childhood_lead_poisoning_report.pdf

²⁷ Ibid.

²⁸ Greene J. New lead water line study underway in Michigan. Nov 1, 2019. Crain's Detroit Business. <https://www.craindetroit.com/health-care/new-lead-water-line-study-underway-michigan>

²⁹ Ambler A. The economics of water main failures. Apr 13, 2020. Water Finance & Management. <https://waterfm.com/the-economics-of-water-main-failures/>

PEDIATRIC PUBLIC HEALTH INITIATIVE

CONCLUSION

The state of our drinking water infrastructure is a public health crisis. Water is a medical and public health necessity, yet for too many people in too many communities, they are denied the basic human right of access to safe and affordable drinking water. A positive ripple effect of Flint's crisis has been the growing awakening that our aged, fragile and outdated drinking water infrastructure system can sicken and diminish our nation's competitiveness. In some ways, the condition of our drinking water infrastructure is a threat to our viability as a nation. For example, when lead was finally restricted from paint, it was said that the nation's IQ increased. The same will be said when we finally invest in our drinking water infrastructure and eliminate lead pipes. What is infrastructure if not the building of a robust foundation for our nation's greatest and most valuable resource: our children.

It is my hope that our discussion today, and this committee's interest in this subject, will help us finally learn the lessons of Flint. Throughout time, and within these great rooms of Congress, we have respected science, learned from history, and boldly taken steps to protect our nation's children. I am hopeful that we will continue to do the same to finally address drinking water infrastructure in a meaningful way.

Thank you again for the opportunity to address the committee today. I look forward to your questions.

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Trained in environmental health and health policy, Dr. Hanna-Attisha received her Bachelor's and Master of Public Health degrees from the University of Michigan and her medical degree from Michigan State University College of Human Medicine. She completed her residency and chief residency in pediatrics at Children's Hospital of Michigan in Detroit. She is currently an Associate Professor of Pediatrics and Human Development and a C.S. Mott Endowed Professor of Public Health at Michigan State University College of Human Medicine in Flint, Michigan.