FLINT AND BEYOND

How Can We Respond To and Prevent Lead Exposure?

KEELER FINA

The pervasive use of lead in homes, water lines and consumer products has resulted in extensive environmental contamination, human exposure and public health problems. Work is ongoing to counteract the devastating effects of lead poisoning in Flint, Michigan, where a switch to the public water supply from April 2014 to Oct. 2015 resulted in wide exposure to unsafe lead levels. Lead exposure remains a problem in other communities around the nation, though community collaborations and proposed legislative changes show promise in fighting the current problem and in greater efforts to prevent it.

Lead is a naturally occurring toxic metal that the World Health Organization has identified as one of 10 chemicals of major health concern.[1] Children in over 4 million U.S. homes are exposed to high levels of lead from paint, water and soil. About 500,000 kids ages 1-5 have blood lead levels above the reference point at which the Centers for Disease Control and Prevention calls for public health actions to mitigate exposure. However, the true number of Americans with lead poisoning is likely much higher due to the hidden symptoms and a lack of testing. No safe blood level of lead in children has been identified.[2]

As a neurotoxin, lead is particularly harmful to young children because they absorb 4.5 times as much ingested lead as adults from a given source, according to the WHO. Once a person is exposed, lead enters the body, and is distributed by the bloodstream to the brain, liver, kidneys, bones and other major systems, and it accumulates. Lead poisoning is immediate and irreversible, making it a critical public health concern.

At high levels, lead attacks the brain and central nervous system causing seizures, coma and death. Those who survive severe lead poisoning are left with diminished mental capacity and behavioral disorders. Those with lower levels of lead poisoning often are unaware of it, because there are no obvious symptoms. They often continue to live in a toxic environment while the chronic exposure causes more and more harm. Brain development is affected, resulting in reduced I.Q. and behavioral changes among a myriad of other problems. A recent report from the Health Impact Project concluded that, "Even at very low levels, lead exposure affects the brain's ability to control impulses and process information. Lead-poisoned children are more likely to struggle in school, drop out, get into trouble with the law, underperform in the workplace, and earn less throughout their lives, independent of other social and economic factors."[3] Furthermore, because lead is stored in the teeth and bones, it can be released into the blood during pregnancy, exposing the fetus to lead even

before he or she is born.

In 2014, the city of Flint, Michigan, began using water from the Flint River while a pipeline was being built to Lake Huron. As The Associated Press and other media outlets have reported, "The corrosive water was not properly treated due to an incorrect reading of federal regulations by state regulators, and lead leached from old plumbing into homes and led to elevated levels of the toxin in children." A lead poisoning crisis resulted. The city currently is checking water service lines and replacing thousands of them under a court-mandated order as part of the response to the crisis.[4]

Andy Kruse, director of community benefit for Ascension Michigan, responded to the Flint water crisis, and described the role community organizations played. Some government officials had hidden their knowledge that Flint's drinking water was contaminated with high levels of lead, which led to the exposure of about 100,000 residents. His reaction, like others, when he first heard about it was disbelief and dismay. The public's attitude toward government changed after the crisis. He said, "To supplement the help from the federal government, residents also turned to trusted local organizations that they have relationships with as sources of truth."

According to a Reuters investigation, there are over 2,600 areas in the U.S. with lead poisoning rates at least double those recorded during the peak of the Flint crisis.

EXPOSURE IN FLINT AND BEYOND

According to a Reuters investigation, there are over 2,600 areas in the U.S. with lead poisoning rates at least double those recorded during the peak of the Flint crisis.[5] Kruse believes this is a result of aging infrastructure. "There is an underlying concern for many other industrial communities where the infrastructure continues to erode. When you look at what happened in Flint and how they failed to put in anti-corrosion chemicals, it caused the lead lining in the pipes to deteriorate and contaminate the water. A result of an aging system is that any minute change can cause a disaster," he said.

The most common routes of exposure to lead are through occupational and environmental sources. This mainly results from inhalation of lead particles or ingestion of lead-contaminated paint, dust, water or soil.

Lead can enter drinking water when service pipes containing lead corrode, especially when the water has high acidity or low mineral content. Homes built before 1986 are more likely to have lead pipes and fixtures. Many factors are involved in the extent to which lead enters a community or home's water supply, including the water's chemistry, temperature and so on. Almost all homes built before 1978 contain lead paint, and as the paint deteriorates, it generates lead dust particles that enter the ventilation system and the soil surrounding the house.

LEARNING FROM FLINT

What Kruse spoke most passionately about was a coalition that Ascension had been a part of when dealing with the crisis, the Greater Flint Health Coalition. "In existence well before the crisis, the coalition had tackled issues relating to health costs, access and disparities. When the crisis broke, it was not necessarily [Ascension] taking a lead but together as a part of this coalition, we helped develop a response."

Those who were involved realized that there were both short-term needs, like bottled water, as well as sustainable, long-term needs. "When [millions of] state and federal dollars came into the community, the coalition was poised to receive those dollars and build on the structure that began to address social determinants of health issues, like housing and food insecurity," said Kruse. The coalition members developed relationships with clinics and primary care providers to track children over time, looking at developmental issues or delays and providing services to address social and mental issues that occur with a crisis of this magnitude. Additionally, Michigan is an expansion state for Medicaid and had a Medicaid waiver that provided additional benefits for anyone exposed to dangerous water, which supports residents, especially children, long-term in terms of additional benefits, he said.

Kruse said, "From a protection standpoint, looking at acceptable lead limits has reached policymakers' attention in terms of what is acceptable,

and I think Michigan is becoming more stringent from lessons learned during Flint about allowable levels of lead in water."

The federal Safe Drinking Water Act, which provides protections for public drinking water supplies, set standards for drinking water quality and reduced the maximum allowable lead content in drinking water throughout the nation. Because of the Flint crisis, it is now generally acknowledged that the federal lead limit in water is dangerously high and outdated.

Another main source of lead exposure is from lead paint that remains in older housing. In 1951, Baltimore outlawed the use of lead in interior paint in housing – the first such restriction in the country. Over the next 20 years, the use of lead-based paint declined significantly, and in 1971 the federal Lead-Based Paint Poisoning Prevention Act was passed. Finally, the federal government banned consumer uses of lead paint in 1978.

The Catholic Health Association supports the proposed Lead-Safe Housing for Kids Act. It would require the U.S. Department of Housing and Urban Development to update lead regulations and adopt better preventive measures in federally subsidized housing. The goal is to prevent exposure by establishing stronger lead inspection standards, specifically when a family with a child under the age of six is moving into a federally subsidized housing unit. Current regulations do not require lead inspections until someone in the household has been diagnosed with lead poisoning — when it's already too late. Thirty years ago, the American Academy of Pediatrics stated, "In effect, children are used as biological monitors for environmental lead," an assertion that still holds true for many children, including some in subsidized housing.[6]

PREVENTION OR EARLY DIAGNOSIS

The Centers for Disease Control and Prevention recommends parents or guardians talk with a baby's doctor or health care provider for information about blood lead tests. The tests are usually recommended for children at 12 months and 24 months, according to the CDC, and may be continued annually depending on the results. Unfortunately, the harsh reality is that if a child's blood tests positive for lead, the damage has already been done. However, recognizing that a child has been exposed to lead allows a parent or guardian to keep the exposure from continuing, hopefully containing the problem and keeping the exposure to a minimum.

Lead exposure is an ongoing social injustice, especially for impoverished communities. Addressing the needs of our communities through the Catholic health ministry is our common calling. Kruse has seen the strength of community organizations working together. "It's about what we can do collectively to address the acute needs of the community."

KEELER FINA is a political science major at the University of South Carolina and interned in CHA's advocacy department in Washington, D.C.

NOTES

1. World Health Organization website, "Ten Chemicals of Major Public Health Concern," https://www.who.int/ipcs/assessment/public_health/chemicals_phc/en/.
2. Centers for Disease Control and Prevention, "Lead," https://www.cdc.gov/nceh/lead/default.htm.
3. Health Impact Project, The Pew Charitable Trusts, Robert Wood Johnson Foundation, "Childhood Lead Prevention and Response," https://www.pewtrusts.org/en/projects/health-impact-project/childhood-lead-prevention-and-response.
4. Jeff Karoub, "Flint Water Crisis: More than 7,700 Pipes Replaced Ahead of Schedule," The Associated Press, December 4, 2018, www.freep.com/story/news/local/michigan/flint-water-crisis/2018/12/04/flint-water-crisis-lead-pipe/2206609002/.
5. M.B. Pell and Joshua Schneyer, "The thousands of U.S. locales where lead poisoning is worse than in Flint," part of a Reuters series, "Unsafe at Any Level," December 19, 2016, www.reuters.com/investigates/special-report/usa-lead-testing/. See also Emily A. Benfer, "Contaminated Childhood: The Chronic Lead poisoning of Low-Income Children and Communities of Color in the United States, *Health Affairs* blog, August 8, 2017, https://www.healthaffairs.org/do/10.1377/hblog20170808.061398/full/.
6. "Statement on Childhood Lead Poisoning," American Academy of Pediatrics Committee on Environmental Hazards and Committee on Accident and Poison Prevention, *Pediatrics* 79, no. 3 (March 1987), http://pediatrics.aappublications.org/content/pediatrics/79/3/457.full.pdf.

JOURNAL OF THE CATHOLIC HEALTH ASSOCIATION OF THE UNITED STATES www.chausa.org

HEALTH PROGRESS®

Reprinted from *Health Progress*, March-April 2019