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DATA TRENDS & MULTI-SECTOR COLLABORATION

2021 REPORT



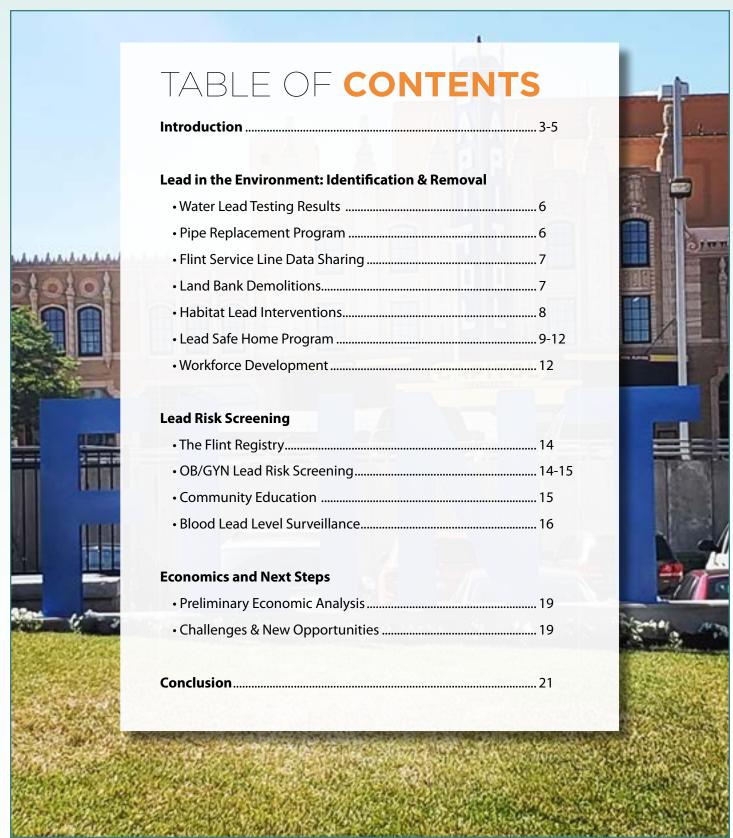


Photo by Ebony Stith/ Michigan State University



# INTRODUCTION



# BACKGROUND ON FLINT LEAD FREE

Founded in 2017, **Flint Lead Free** is comprised of a diverse group of public, private, and non-profit members, stakeholders, and partners including residents, property managers, housing organizations, legal services, community organizations, foundations, and city/county/state in Flint by 2022. **Flint Lead Free** serves as a clearinghouse of lead-related programming, education, and training for a variety of audiences such as residents, outreach workers, home visitors, construction workers, and Flint Registry staff. The program's primary prevention and data-driven focus seeks to identify lead risks and service gaps, strategically align resources, and determine cost-effectiveness, return on investment, and translatability of local lead elimination.

Primary prevention refers to the elimination of lead exposure before a child is poisoned. Because there is no safe level of lead exposure and no available treatment, primary prevention is the recommended intervention and contributes most significantly to lifetime savings on societal, healthcare, and education costs.

Flint is uniquely positioned to eliminate lead exposure because of a confluence of programs that include lead service line removal, lead fixture replacement, primary prevention and enhanced elevated blood lead level home investigation and abatement, water testing, as well as community-wide engagement and lead awareness.

To eliminate lead exposure in Flint, MI by 2022.

government with the mission to eliminate lead exposure Through tracking and reporting on environmental lead risks, blood lead levels, environmental assessments, and interventions and by providing a clearinghouse of lead-related programming and education/training, Flint, MI will be a model lead-free city through the collaboration of community, agencies, and nonprofit groups.

### **Leadership & Flint Registry**

A workgroup of the Flint Registry, Flint Lead Free is cochaired by Jenny LaChance, associate director of MSU-Hurley Pediatric Public Health Initiative, and Lydia Starrs, Program Officer at the Community Foundation of Greater Flint.

With grant support to Michigan State University from the Centers for Disease Control and Prevention's (CDC) National Center for Environmental Health (NCEH) and Lead Poisoning Prevention and Environmental Health Tracking Branch, the Flint Registry contributes to lead elimination efforts by enrolling individuals exposed to the lead-contaminated Flint water, screening for ongoing environmental lead exposure via a survey of environmental risks, and connecting individuals to lead-mitigating services.





Photo by Ebony Stith / Michigan State University

### **Flint Lead Free Members**

**Flint Lead Free** is a multidisciplinary group of partners from local, state, and national organizations. This diverse group of partners convenes regularly for strategic conversations related to efforts to eliminate lead exposure in Flint, share best practices, develop new partnerships and initiatives, and provide feedback to the Flint Registry.

- Altarum
- Center for Community Progress
- City of Flint
- Community Foundation of Greater Flint
- Flint Registry
- Flint residents/parents
- Genesee County Habitat for Humanity
- Genesee County Health Department
- Genesee County Land Bank
- Genesee Health System
- Greater Flint Health Coalition, Elevated Blood Lead Level Nurse Case Management Program
- Legal Services of Eastern Michigan
- Local Initiatives Support Corporation
- Michigan Department of Health and Human Services, Lead Safe Homes Program & Child Lead Poisoning **Prevention Program**
- Michigan State University Institute for Health Policy
- Michigan State University and Hurley Children's Hospital Pediatric Public Health Initiative

### **Flint Lead Free Report**

Flint Lead Free creates a periodic report that highlights lead-related trends emphasizing primary prevention efforts currently underway in the City of Flint. As Flint grows local capacity to increase primary prevention efforts, **Flint** Lead Free tracks, monitors, and reports data from programs and services to reflect both progress and challenges and to drive programming.

It is our hope that this 2021 report will build on the last Flint Lead Free report released in 2018 (https://www.flintregistry.org/flint-lead-free/) and reflect the widespread community efforts to reduce lead exposure, share progress made from new investments and strategic partnerships, demonstrate the positive impact of lead elimination, and highlight the amazing work of partners.

This report is not inclusive of all lead-related activities currently taking place in Flint, and due to the time lag of collecting complete data, predominantly reflects trended information up to the end of 2019.

By continually engaging partners, Flint Lead Free is making intentional connections to strengthen collaboration, generate greater transparency, and increase access to services and information.



# LEAD IN THE ENVIRONMENT: IDENTIFICATION & REMOVAL



### FLINT LEAD FREE | 2021 REPORT

### **Flint Lead in Water Levels**

Recognizing no safe level of lead, the Environmental Protection Agency's Maximum Contaminant Level Goal for lead in water is set at a non-enforceable 0 ppb. The non-health-based action level for a water system is 15 ppb, and the action level for bottled water as set by the Food and Drug Administration is 5 ppb.

Flint undergoes Lead and Copper Rule (LCR) compliance testing during six-month intervals. Below figure from Michigan Department of Environment, Great Lakes, and Energy notes Flint's LCR monitoring results from 2016 to 2019. Beginning in 2019, LCR monitoring was performed under the strengthened Michigan LCR rule which requires a 5th liter sample to better detect the potential contribution of lead release from lead service lines. More information at <a href="https://www.michigan.gov/flintwater">www.michigan.gov/flintwater</a> and current LCR results at <a href="https://www.michigan.gov/mileadsafe">www.michigan.gov/mileadsafe</a>.



The data below reflect the total number of residential water tests with lead results equal to or above 10 parts per billion, consistent with the previous Flint Lead Free report. The results are from resident sampling kits distributed by the City of Flint. With a dramatic reduction of resources dedicated to water test

kit distribution, reduction in locations for test kit pick-up, and no ongoing communication campaign to encourage testing water, the overall number of residential water tests have steadily dropped. All results are posted online by the Michigan Department of Environment, Great Lakes, and Energy.

Calendar Year	2013	2014	2015	2016	2017	2018	2019
Number tested			672	25,604	4,482	1,337	431
Number ≥10 ppb			77	2,948	267	33	13
Percent ≥10 ppb			11.5	11.5	6.0	2.4	3.0

### **Flint Lead Service Line Replacements**

As a result of a 2017 settlement agreement, Flint began an effort to replace service lines damaged during the Flint water crisis. The mission of the program is to remove and replace lead and galvanized steel service lines. Per the settlement agreement, the pipe replacement program was to be completed by early 2020. Flint residents must opt-in to the service line replacement program by completing a form and providing consent for contractors to inspect the line entering their home. Activity is reported by the City of Flint in phases as crews steadily work across the city to identify, remove, and replace lead and galvanized service lines. Recent data reporting from the City of Flint (as of August 13, 2020) shows a total of approximately 25,935

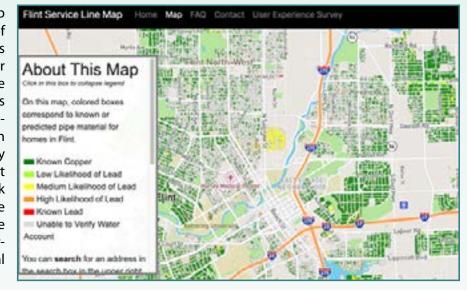
excavations at replacement eligible homes and approximately 9,695 lead or galvanized steel service lines replaced. According to the city, 172 residents have expressly declined to have their service lines inspected or replaced, and 780 residents have not responded to the City's request for permission to conduct a service line inspection or replacement. The City estimates that about 4,400 service lines at replacement eligible homes remain to be excavated. As the residential pipe replacement concludes, the City of Flint and local crews are gearing up for the next phase which will assess approximately 1,500 commercial properties for lead or galvanized pipes, for replacement by 2024. Service line replacement data below are reported by calendar year, with some overlap in lines replaced during phases I and II occurring over 2016 and 2017.

Calendar Year	2013	2014	2015	2016	2017	2018	2019
Number of Service Lines Replaced				644	5365	1615	1637

### Lead Service Line Data Sharing: Flint Service Line Map

As the City of Flint works to complete the pipe replacement project by the end of 2020, <u>BlueConduit</u> and the <u>Natural Resources Defense Council</u> (NRDC) released the <u>Flint Service Line Map</u>, an interactive tool that allows residents to examine residential water service line materials and predictions across Flint.

The information represented on the map came from the City of Flint's inspection of thousands of water pipes since 2016 and is updated as the City reports new data. For homes where the City has not verified the pipe material, the map displays the results of BlueConduit's home-by-home predictive model, a mathematical model used in decision-making by legal teams, the City Council, and the City's pipe replacement program to target homes at highest risk for lead service lines. The publication of the map makes the model predictions for the risk of lead pipes at each home with a verified water account available to the general public for the first time.



The map is about more than just communicating water pipe material information to the people of Flint; it is about making sure that that information is actionable. To that end, community feedback was integrated throughout the development of the map to ensure that the map reflected the needs of Flint residents. The map was built to be user-friendly and accessible to people with diverse abilities and needs. Ongoing collection of <a href="feedback">feedback</a> and updates to the map website ensures data is transparent and useful. As pipe replacement continues, the City of Flint is checking service line information against the map and providing additional details to BlueConduit to update the map with the newest data.

The Flint Service Line Map empowers residents with information about the status of the pipe replacement project at their address, what they can do to get their line material confirmed and/or replaced, and steps they can take to reduce lead exposure. The Flint Water Service Line map clearly communicates the water pipe materials to Flint residents, giving the people of Flint a powerful tool to help them advocate for safer drinking water infrastructure.

### **Genesee County Land Bank Authority Demolition Data**

In 2014 the Genesee County Land Bank Authority received Hardest Hit Funding to demolish more than 4,700 blighted or abandoned properties in Flint and Genesee County. Flint housing stock is predominantly pre-1978 and while not a requirement under the Lead Renovation, Repair, and Painting Rule, the Land Bank follows the recommended guidelines for Flint homes identified for demolition to be removed using lead safe demo practices that mitigate lead exposure to workers, surrounding properties, and residents. The following table details, by fiscal year, the number of houses demolished in Flint.

Fiscal Year (October 1 thru September 30)		2014	2015	2016	2017	2018	2019
Number Demolished	496	296	132	352	546	556	1030

# Genesee County Habitat for Humanity Home Repair Lead Interventions

Since 2015 Genesee County Habitat for Humanity (Habitat) has been helping Flint families address dangerous conditions in their homes via their Home Repair Program, ensuring stability and health through housing interventions. Repairs eligible include roof repair/replacement, structural damage, porch repair, electric, plumbing, HVAC, handicap accessibility, siding, exterior paint, weatherization, or energy efficiency. Depending on the needs of the household, numerous repair program interventions can potentially bring about the identification of lead hazards internally or externally. Lead safe work practices require Habitat to complete repair projects in a way that protects the health of residents and Habitat is committed to resolving the lead risk exposure through mitigation and abatement. A strong partner of the Lead Safe Home Program (further described in this report), Habitat partners with them to identify opportunities to leverage funding resources

when lead mitigation and abatement is required. When a resident applies for the Home Repair Program, Habitat reviews the applicant circumstances and makes recommendations for other programs they may qualify for, including the Lead Safe Home Program. Once the lead inspection has been completed, Habitat fills gaps by addressing housing issues that cannot be corrected through Lead Safe Home Program and writes specifications around these components—allowing Habitat to stretch available repair funding further, while offering homeowners' families the health and safety benefit of lead remediation services. In partnership with United Way, Habitat began distributing point of use (faucet), pitcher, and shower filters and cartridges in response to the water crisis in Flint. These filter distributions are part of a wider community distribution of filter resources for Flint families to help protect them from lead exposure in their water. The data table below reflects lead mitigation interventions across a variety of housing programs provided by Habitat between 2015 and 2019.

Calendar Year	2015	2016	2017	2018	2019
Homes Repaired in Partnership with MDHHS Lead Safe Home Program	0	0	4	9	3
Reverse Osmoses System	5	35	18	18	0
3M Filter	0	0	157	0	0
Faucets	1	3	165	32	0
Faucet Filters	0	0	29	29	463
Faucet Cartridges	0	0	0	0	964
Pitcher Filter	0	0	1198	0	51
Pitcher Cartridge	0	0	0	0	102
Shower Head	0	0	52	5	0
Shower Filter	0	0	4211	1927	0
Shower Filter Cartridge	0	0	2145	9146	6216
Water Heater (new)	1	9	59	18	0
Water Heater (flush)	0	0	10	0	0
Boiler (new)	0	0	1	0	0
Porch Repair	4	10	8	8	3
Windows Replacement	16	240	20	103	45
Doors Replacement	0	13	7	10	0
Siding Repair/Replacement	0	7	0	3	2
Fascia Repair/Replacement	0	6	2	3	2
Soffit Repair/Replacement	0	4	2	3	1

### **Lead Safe Home Program Overview**

The Michigan Department of Health and Human Services (MDHHS) Lead Safe Home Program (LSHP) aids owner occupants and rental property owners in identifying lead-based paint, lead in soil or dust, and lead in water hazards within their home and provides resources to remediate the identified hazards. In 2016, the Centers for Medicare & Medicaid Services approved a five-year Michigan State Plan Amendment (SPA) for a Title XXI state-designed Health Services Initiative for expanded lead abatement activities in Flint. The SPA allows the MDHHS LSHP to expand eligibility and coverage for pregnant women and children and focuses on abatement of all lead hazards in homes of Medicaid children and pregnant women.

### **Community Education & Outreach**

### Lead Safe Home Program Engagement through Genesee Health System Community Health Worker Project

The Genesee Health System (GHS) is contracted through the MDHHS Healthy Homes Section to provide outreach services through a network of Community Health Workers following a documented engagement protocol to Medicaid households in Flint, Michigan, eligible for Lead Safe Home Program (LSHP) Services through the Michigan Child Health Insurance Program Health Services Initiative. The purpose of this project is to maximize the number of children less than nineteen years of age and pregnant women and their unborn babies protected from lead poisoning, and the number of housing units where lead hazards are controlled through increased enrollment in the LSHP. The LSHP, through the Medical Services Administration, provides a list monthly of Medicaid enrolled individuals residing in the city of Flint to GHS for outreach and engagement.

### **GHS LSHP Outreach and Application Support**

The following data represents the number of households referred to Genesee Health System (GHS) for engagement into to the Lead Safe Home Program (LSHP) and number of LSHP applications generated by GHS for enrollment. For these applications, GHS had a direct hand in every step of the submission process, which drastically increased the completion success rate.

	2017	2018	2019
Number of Individuals Successfully Contacted	2	1,299	645
Number of Applications Provided by GHS <sup>1</sup>	2	729	557
Number of Applications Received by LSHP <sup>2</sup>	2	469	182
Number of Medicaid households referred to GHS for engagement in LSHP	*	1,891	1,340
Application Completion Rate	100%	36%	28%

<sup>1</sup>GHS total applications provided to residents which may or may not result in a completed and submitted application to LSHP

### **Purpose of Tables**

This set of tables provides information about activities conducted by the MDHHS-LSHP in the city of Flint by calendar year, through 2019, regardless of funding source. These data represent lead identification and abatement activities conducted on city of Flint homes in a historical manner. LSHP cases are completed over a period of 12-18 months and these data points represent the activities that occurred during this snapshot in time.

### Interpretation of Tables

The LSHP process is lengthy given its complexity and the period from application to completed abatement may span one or more years. Depending on factors including when it was received, applications may not move forward to environmental investigation or abatement until the following or subsequent years. Therefore, these tables should not be used to demonstrate the progress of a case over one calendar year. Data users should take caution when associating

one variable with another. Summation of the count across years provides the reader with a total number of activities provided for the period. Summation of the count within a year does not provide conclusive data as one household can receive multiple services in a given year.

### **Environmental Investigations**

The purpose of an Environmental Investigation (EI) is to determine the existence of a lead hazard at the subject property and to determine the location, type, and severity of existing or potential health hazards associated with exposures to lead. A lead-based paint hazard is any condition that causes exposure to lead from dust-lead hazards, soil-lead hazards, lead-paint or lead in water.

Between 2016-2017, the LSHP was completing Els on residential properties without an application for the LSHP. Therefore, during this time, there were more Els than applications received. Beginning in 2017, a completed and approved LSHP application is required for the El service.

The data in the following table represent the number of Els conducted in the city of Flint, the number of these Els completed on a home housing a child with a blood lead level ≥



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5µg/dL, the number Els completed identifying any type of lead hazard and the type of lead hazard identified. The types of hazard identified provide a breakdown of the number of homes identified with the specific lead hazard.

In some cases, specific to homes occupied or visited by children with elevated blood lead levels, the environmental investigator will identify additional hazards not specifically linked to the home structure itself. These hazards could include jewelry, cosmetics, spices, toys, furniture and hobbies or jobs, and these data are not collected in aggregate form.

Calendar Year	2013	2014	2015	2016	2017	2018	2019
1. Environmental Investigations completed	0	0	15	141	259	340	194
1a. Environmental Investigation completed on homes with Child with BLL ≥ 5µg/dL		0	13	117	62	8	6
2. Environmental Investigations identifying any type of lead hazard	0	0	15 (100%)	116 (82%)	206 (80%)	321 (94%)	189 (97%)
2a. Paint Hazard <sup>1</sup>	0	0	14	111	199	294	176
2b. Soil Hazard <sup>2</sup>	0	0	5	33	33	44	14
2c. Dust Hazard <sup>3</sup>	0	0	14	100	180	261	156
2d. Water Hazard <sup>4</sup>	0	0	2	19	97	102	40

<sup>1</sup> A lead-based paint hazard is defined as any housing component identified by approved lead paint analysis as containing lead paint in deteriorated condition or designated as friction/impact surfaces.

<sup>&</sup>lt;sup>2</sup>Applications Received by LSHP refers to total applications received by all means of submission and referral

<sup>\*</sup>Data not collected.

<sup>&</sup>lt;sup>2</sup>A soil hazard is defined by Housing and Urban Development (HUD) as any bare soil area accessible to and frequented by children that test above standard protocol measures (below), including foundation drip line and child play areas: Dripline 1,200 ppm, Child Play Area 400 ppm

³A dust hazard is defined a measurable sample of lead in house dust above the standard protocol measures: Floors ≥ 10 μg/ft². Window Sills ≥ 100 μg/ft². and Window Troughs ≥ 100 μg/ft²

<sup>&</sup>lt;sup>4</sup> A lead in water hazard is defined as a measurable sample of lead present in water from the faucets, plumbing materials or service lines within a home, above the standard protocol measure of 15 ppb.

### LSHP Applications for City of Flint Households

Except for the years 2016-2017, prior to providing abatement services on a home, a property owner and/or occupant must first submit a LSHP application and that application must be received by the LSHP. This application collects data necessary to determine eligibility of a household for the LSHP. If eligible, the LSHP then aids owner occupants and rental property owners in identifying lead hazards within their home and provides resources to remediate the identified hazards.

The data in the following table represent the number of LSHP applications received, the number of LSHP applications approved and the number of LSHP applications ineligible. In some instances, the LSHP application could be received in a previous year and approved in the following year.

An application may be ineligible for services if that the household did not meet eligibility requirements as outlined in LSHP policy. A household is eligible for re-application if the ineligibility factor is resolved or changed. Reasons for ineligibility may include the household being over income or not enrolled in Medicaid, failure to complete application or provide necessary documentation after several attempts by LSHP staff, home in a condition which reflects inhabitability or being structurally unsound or failure of applicant to return contact to LSHP staff for scheduling.

Calendar Year	2013	2014	2015	2016	2017	2018	2019
1. Applications received for city of Flint Homes	2	17	16	95	360	726	441
2. Applications approved for city of Flint Homes	0	11	14	82	283	350	287
3. Applications ineligible for city of Flint Homes	2	6	2	13	77	376	154

The data below represent the number of applications received from homes occupied by a child with a blood lead level  $\geq 5 \mu g/dL$  as well as individuals residing in a city of flint home where a LSHP has been submitted including number of children under 6 years of age, number of children under 6 years of age with a blood lead level  $\geq 5 \mu g/dL$  and number of pregnant women.

Calendar Year	2013	2014	2015	2016	2017	2018	2019
1. Applications received for city of Flint Homes occupied by at least one child with $BLL \ge 5u/dL$	2	3	8	26	14	13	16
2. Number of children under 6 years of age residing in city of Flint homes with submitted LSHP application	2	15	21	114	179	361	277
3. Number of children 6 years to 17 years of age residing in city of Flint homes with submitted LSHP application	1	9	12	84	341	574	450
4. Number of children under 6 years of age with BLL $\geq$ 5µg/dL residing in city of Flint homes with submitted LSHP application	2	4	11	32	19	18	20
5. Number of pregnant women residing in city of Flint homes with submitted LSHP application	0	3	3	6	4	6	10

### **LSHP Abatements**

The LSHP provides lead abatement activities on households in the city of Flint. These abatement activities are completed to properly encapsulate, enclose, remove and/or replace identified lead hazards. An approved LSHP application is required before abatement work can take place.

The data below represent the number of LSHP abatements complete and the number of LSHP abatements in progress during the referenced year. LSHP abatements in progress is defined as those units where lead hazards have been identified, a LSHP application received and approved, the project bid and awarded to a lead contractor, but work has not yet been completed. In many instances, the LSHP application could be received in a previous year and abatement not completed until the following year.

Calendar Year	2013	2014	2015	2016	2017	2018	2019
1. Abatements completed	0	5	7	43	51	112	153
2. Abatements in progress	0	0	0	3	57	47	44

### **Lead Workforce Development Data**

### Lead Training, Accreditation and Workforce Development

The Michigan Department of Health and Human Services (MDHHS), Healthy Homes Section is the EPA-authorized entity for the state of Michigan to administer lead training, accreditation and enforcement for lead training providers, lead professionals and firms. Additionally, the Healthy Homes Section identifies gaps in lead and construction workforce and develops initiatives to build capacity of workforce.

The data below represents the number of individuals, state-wide, receiving accreditation in a lead discipline between January 1 and December 31 of the referenced calendar year, the number of individuals receiving training through the MDHHS lead training scholarship program between January 1 and December 31 of the referenced calendar year and the number of firms receiving lead abatement accreditation between January 1 and December 31 of the referenced calendar year.

Calendar Year	2018	2019
1. Total individuals certified statewide	1,724	1,775
2. Individuals trained through MDHHS lead training scholarship program statewide	127	70
3. Lead Abatement firms certified statewide	221	160



Photo courtesy of iStockphoto

<sup>\*</sup>Note: Data are not available prior to 2018.



# LEAD RISK SCREENING



### FLINT LEAD FREE | 2021 REPORT

### The Flint Registry

In January 2019, the Flint Registry launched widespread public enrollment. The Flint Registry is a project that connects people to services and programs to promote health and wellness and helps understand how the Flint water crisis has affected the Flint community. The Flint Registry is for those who were exposed to lead-contaminated water. The Flint Registry screens enrollees for ongoing environmental lead exposure via a survey of environmental risks. Based on enrollee responses, the Flint Registry may refer individuals to Lead Safe Home Program and/or the City of Flint pipe re- placement program. In 2019, the Flint Registry referred 440 participants to the Lead Safe Home Program and 836 participants to the City of Flint pipe replacement program. The Flint Registry continues to enroll and refer to these and many other public health promoting services and programs.



Photo by Mike Naddeo

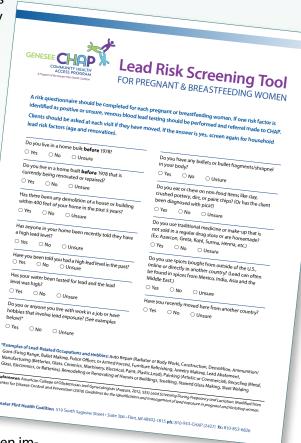
### Greater Flint Health Coalition – Genesee CHAP OB/GYN Primary Prevention Lead Risk Screening Program

The Greater Flint Health Coalition's Genesee Community Health Access Program (CHAP) has developed and implemented an OB/GYN Primary Prevention Lead Risk Screening intervention, with a goal to support the creation of a lead safe environment before a baby is born. It is anticipated this intervention will result in reduced rates of childhood lead poisoning and improve maternal and child health outcomes for participating mothers and families. Additional goals of the program are to:

- Increase awareness regarding lead risks for pregnant women
- Increase identification and venous lead testing rates of pregnant woman identified with a positive environmental risk factor
- Provide early education, intervention and remediation of lead hazards
- Ensure connection to a medical home
- Provide needed Genesee CHAP social determinant of health (SDOH) services for pregnant women identified through the program
- Create a standardized, replicable lead assessment tool

Genesee CHAP developed a locally relevant, evidence-based Lead Risk Screening Tool for use in Flint/Genesee County prenatal care settings. CHAP educated and built partnerships with hospital and physician group partners, areas OB-GYN specialists, and the Maternal and Infant Health Program. Together,

these partners adopted the screening tool and intervention as has been implemented.



When screened using the Lead Risk Screening Tool (see Appendix A), if a pregnant woman answers "yes" or "unsure" to any question, this then triggers a healthcare provider referral to Genesee CHAP for lead education, connection to possible environmental lead remediation services, and other CHAP services, including those that address the social determinants of health. CHAP community-based nurses engage the referred pregnant women, refer to Michigan's Lead Safe Home Program as appropriate, and work to address any family SDOH needs. CHAP also provides feedback to referring providers regarding the outcome of services delivered by CHAP nurses.

Based on specific concerns or hazards identified, interventions facilitated include the following:

- Lead risk education
- Medical home connection
- Referral to MDHHS Lead Safe Home Program as appropriate,
- Addressing SDOH needs (e.g. food, transportation, car seats, safe sleep, pack and plays, insurance, WIC, MIHP services, and community resources) that can help the expecting mother maintain a healthy pregnancy and ensure a safe environment for their soon-to-be delivered newborn.

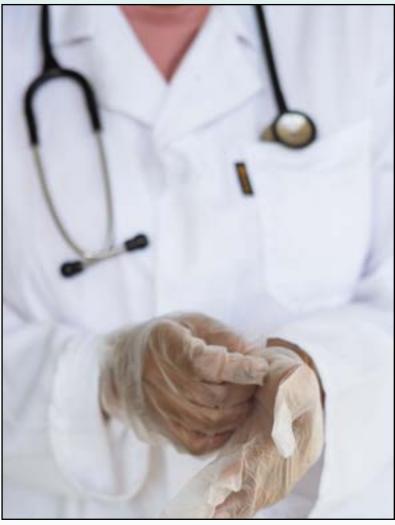


Photo credit: www.pexels.com

### **2019 Flint Outcomes**

From the start of the pilot program on July 1, 2019 through December 31, 2019, there were 166 total OB Lead Risk Screening Referrals from Flint, of which 138 (83%) were for expecting mothers covered by Medicaid insurance. 86% of referral reasons were fully resolved (i.e., reached and provided with lead education), while 13% were unable to be reached, and only 1% declined services. The top reasons for referral were a "Yes" or "Unsure" response to questions about living in a home built before 1978, living in a home built before 1978 that is currently being renovated or repaired, or water has been tested for lead and the lead level was high. Note: An additional 73 referrals were received for women who lived or received their OB care in Genesee County, but who did not live in the city of Flint.

### **Community Education**

Genesee Health System conducted trainings in August and October 2018. Each five-hour training day had two parts: the first was open to the community and focused on how to use filters correctly, how to communicate about filter use, information about sources of lead and the Lead Safe Home Program, and other environmental hazards; the second served as a train-the-trainer session to instruct Community Health Workers (CHWs) and other participants how to effectively communicate gained knowledge and skills. Between the two trainings, 150 people were trained, 135 of whom were CHWs working directly with Flint families, and several were from the Flint Registry.

# Blood Lead Testing & Results for those residing in Flint – 2013-2019

Child blood lead testing in the State of Michigan is reported to the MDHHS Childhood Lead Poisoning Prevention Program (CLPPP). They are responsible for providing:

- Blood lead surveillance, data, and reports
- · Lead poisoning education and outreach
- Support to local health departments to provide
  - \* Health services for children with elevated blood lead levels
  - \* Health services for children at risk of lead poisoning
- Funding to local health departments and/or alternatives for Elevated Blood Lead Level (EBLL) nurse case management

Since May 1, 2016, children in Genesee County with a Blood Lead Level (BLL) at or greater than 4.5 µg/dL have been referred to the Children's Healthcare Access Program EBLL Nurse Case Management program managed by the Greater Flint Health Coalition. The goal of EBLL Nurse Case Management Services is to bring every child's venous blood lead level below 4.5 micrograms per deciliter (mg/dL) and prevent future EBLLs by overseeing the reduction or elimination of sources of lead (or potential sources of lead) in the child's environment. Nurse Case Management services support the child's continued health and safety, connects them with environmental, social, and medical services, and ensure coordination with their medical home and Medicaid Health Plan (as applicable).

For adults, the Michigan Adult Blood Lead Epidemiology Surveillance (ABLES) program works with MDHHS by collecting the results of blood lead testing, confirming diagnoses, and investigating exposure circumstances. The ABLES program is housed in the Occupational and Environmental Medicine Division of Michigan State University's College of Human Medicine.

### **Interpretation of Blood Lead Level Testing**

Blood lead testing of children has been traditionally used as a detector of environmental contamination. High risk children

should be tested at 1 and 2 years of age during well-child doctor visits. These are the ages when children developmentally have strong hand to mouth behaviors and are most at risk for household lead exposure (paint, dust, etc.). High risk is designated by the CDC and American Academy of Pediatrics and includes risk factors such as age of home, Medicaid status, parental hobbies/occupation, etc. Blood lead testing for adults is done: 1) required by Michigan OSHA regulations (1910.1025(j)(1)(i) The employer shall institute a medical surveillance program for all employees who are or may be exposed at or above airborne concentration of lead of 30 micrograms per cubic meter of air averaged over an 8-hour period. for more than 30 days per year. for individuals with; 2) patient or health care provider are concerned about possible exposure (i.e. hobby involving firearms); or 3) health care provider concerned that patient's symptoms indicate possible lead toxicity. Since the recommendation for blood testing is not universal and must be determined by an algorithm of risk factors or known/suspected exposure, blood lead testing rates are low and only capture a small segment of the population.

Blood lead testing only reflects recent and/or ongoing exposure to lead. With a short detection window in blood (half-life approx. 28 days), blood lead testing does not capture historic and/or cumulative lead exposure. In addition, blood lead surveillance programs (performed at the routine ages of 1 and 2 years) do not adequately reflect lead in water exposure which burdens a younger and more developmentally vulnerable population.

Of note, following the widespread recognition of the Flint water crisis, there was expanded testing for blood lead levels (see increase in number of children tested in 2016). Although more children were noted to have BLLs >4.5 and  $>10 \,\mu g/dL$ , the percent decreased because of the increased denominator.

For the following three tables examining blood lead levels, Flint residence is defined as "Flint" when it is listed as the residence from the collected address. Each person is included only once per year in annual counts. If a person had multiple tests in the year, the highest BLL from a venous test was counted. If no venous test was performed, the highest BLL from a capillary blood draw was counted. If the type of test was unknown, the highest BLL obtained from an unknown sample type was counted. These data were obtained from MDHHS Health Data warehouse, current as of 2020.

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### Children who are less than 6 years residing in Flint, MI

Calendar Year	2013	2014	2015	2016	2017	2018	2019**
Estimated number of children*	9558	9119	9020	8784	8549	8543	8543
Number tested	3504	3500	3803	7394	3487	3340	3137
Percent tested	36.7%	38.4%	42.2%	84.2%	40.8%	39.1%	36.7%
Number ≥4.5 μg/dL	103	129	113	176	95	78	77
Percent ≥4.5 μg/dL	2.9	3.7	3.0	2.4	2.7	2.3	2.5
Number ≥10 μg/dL	17	20	22	40	21	15	12
Percent ≥10 μg/dL	0.5	0.6	0.6	0.5	0.6	0.4	0.4

<sup>\*</sup>Based on Annual Community Survey estimates from the US Census Bureau shared by MDHHS. \*\*2019 estimates are not available so 2018 estimate used.

### Children who are 6-17 years residing in Flint

Calendar Year	2013	2014	2015	2016	2017	2018	2019
Number tested	583	429	1168	7947	1802	1253	929
Number ≥4.5 μg/dL	*	6	7	44	15	7	6
Percent ≥4.5 µg/dL	*	1.4	0.6	0.6	0.8	0.6	0.6
Number ≥10 μg/dL	*	*	*	8	*	*	*
Percent ≥10 µg/dL	*	*	*	0.1	*	*	*

### Adults residing in Flint

Calendar Year	2013	2014	2015	2016	2017	2018	2019
Number tested	153	128	854	16902	3494	2827	2180
Number ≥5 μg/dL	17	13	23	262	60	26	18
Percent ≥5 μg/dL	11.1	10.2	2.7	1.6	1.7	0.9	0.8
Number ≥10 μg/dL	7	*	*	48	12	7	*
Percent ≥10 µg/dL	4.6	*	*	0.3	0.3	0.2	*

<sup>\*</sup> Counts between one (1) and five (5) are not reported (replaced with \* in the table above). Other counts are also not reported if they can be used to calculate the suppressed counts. This is done to protect the privacy of people who had a blood lead test.

For additional information on Flint adult blood lead results from 2010-2017, please see this report: <a href="https://oem.msu.edu/images/annual reports/2020/Flint ABLES Report.pdf">https://oem.msu.edu/images/annual reports/2020/Flint ABLES Report.pdf</a>.



# **ECONOMICS AND NEXT STEPS**



### **Preliminary Economic Analysis**

From decreased economic productivity to added health care, education, and criminal justice expenses, the societal costs of preventable lead exposure are great. A report by Pew and Robert Wood Johnson Foundation noted an estimated cost benefit of \$84 billion annually from eliminating lead exposure in the United States. Preliminary economic analysis of Flint's lead elimination efforts, using Altarum's Value Prevention Tool and incorporating data from Flint, estimates the lead prevention activities will generate \$53.3 million dollars in future economic benefits for children when considering the number of pipes replaced and homes abated from 2016-2019.

These benefits include the impacts of reduced lead exposure for Flint children, and the resulted long-term impacts on health, lifetime earnings, and longevity. The benefits are estimated conservatively, measuring the impacts for children currently under the age of six and benefits expected for future kids born into remediated homes over the next 10 years.

### **Challenges & New Opportunities**

While there is significant primary prevention activity taking place in Flint, there have been recent partnerships and opportunities which continue to grow these efforts. This is critical during a time when the worldwide COVID pandemic has resulted in a decrease in BLL screening, a pause in many home inspections and abatements, and a delay in lead pipe replacements.

In 2018 the City of Flint received its first Housing and Urban Development Lead-Based Paint Hazard and Healthy Housing Grant. The \$2.2 million award will help build the City's capacity to address lead exposure in Flint homes, incorporate healthy housing practices into city planning and development efforts, and provide lead inspection training and certification to city staff. In 2020, after changes in City of Flint administration, the Lead-Based Paint Hazard Control project launched in partnership with Flint Local Initiatives Support, Corporation and the Greater Flint Health Coalition. During the last two years of the grant period the program is planning to address lead exposure in 70 homes, investing up to \$15,000 per home, in the City of Flint. Mitigation and abatement efforts will support lead removal in windows, doors, porch flooring, etc.

In 2018, the City of Flint and Flint Lead Free co-chair, participated in an interview conducted by the National Center for Healthy Housing (NCHH) as part of their local research for a state-funded grant project called the Technical Assistance for Code Transformation and Innovation Collaborative (TACTIC). The project involved a thorough review of local housing codes and provided recommendations on how lead poisoning prevention activities can be integrated into existing housing codes. In 2019, NCHH received funding from the state to assist municipalities from the first TACTIC report as they explore ways to prevent lead exposure through code transformation. NCHH and the City of Flint are actively planning next steps and will develop a process for implementing recommendations in the report with technical assistance from NCHH.

In 2019, **Flint Lead Free** member, Local Initiatives Support Corporation received a two-year grant to plan and implement Flint Healthy Homes, an intersectional partnership that works to address health and well-being upstream by addressing the social determinants of health at a systems level, concerning housing, to achieve health equity and eliminate health disparities. With lead prevention and mitigation identified as an area of focus for the collaborative, Flint Healthy Homes will coordinate efforts to build community and partner knowledge and awareness, develop and implement a uniform citywide approach to healthy housing through policy and practice change, and develop a competent, multi-disciplinary workforce to achieve healthy environments for all Flint families. Flint Lead Free will be an active partner in the healthy housing efforts, ensuring data driven goals and strategies are incorporated in all lead primary prevention activities and programs.

Over the next year, **Flint Lead Free** will continue to identify and engage relevant stakeholders to ensure all the appropriate voices are included in strategic conversations. **Flint Lead Free** will continue to track and update primary prevention programs and services, lead elimination data, and lead-related training opportunities. Future reports also hope to include mapping to better visualize and target lead elimination effort, as well as the updated economic benefits of lead elimination. **Flint Lead Free** recognizes and will continue to work to overcome ongoing challenges to achieve lead elimination such as workforce development and competitive compensation, awareness of and trust in programs, wait time for abatement, sustainability of resources, and the creation and enforcement of stronger codes and regulations.



### **Conclusion**

This **Flint Lead Free** report attempts to quantify lead-related activity in Flint over time. Although data challenges exist, including a time lag for obtaining the numbers, the yearly trends reveal an unprecedented, coordinated and growing multi-sector effort to decrease children's lead exposure burden. With an

emphasis on primary prevention, sources of lead are being identified and eliminated before children are unnecessarily exposed. And as such, there is a quantifiable societal economic benefit.

Despite these positive trends, the legacy of lead lingers disproportionately in the environments of our most vulnerable children. Contrary to the science of lead's neurotoxicity, but in deference to the bottom line of industries, the use of lead in paint, plumbing, gasoline and other applications was widespread and continued for decades. Resources need to be sustained and increased to continue to advance **Flint Lead Free's** efforts and to share best practices with similarly

impacted communities. We look forward to continuing this positive and proactive work with our many partners.

The Flint Registry extends our appreciation to the members of Flint Lead Free and the Report Subcommittee for their feedback and support in the development of this report.

### **Primary Authors**

- Mona Hanna-Attisha, MSU-Hurley Children's Hospital Pediatric Public Health Initiative
- Jenny LaChance, MSU-Hurley Children's Hospital Pediatric Public Health Initiative
- Lydia Starrs, Community Foundation of Greater Flint

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### **Contact Information**

Ebony Stith | Communications Manager Flint Registry 200 East 1st Street, Flint, MI 48502 stithebo@msu.edu 810-600-9147 Flintregistry.org