

MARYLAND LEAD POISONING PREVENTION ASSET AND GAP ANALYSIS REPORT

Prepared for the Maryland Lead Poisoning Prevention Commission

May 2020



Green & Healthy Homes Initiative®

2714 Hudson Street
Baltimore, MD 21224-4716
P: 410-534-6447
F: 410-534-6475
www.ghhi.org

May 6, 2020

Patricia McLaine, DrPH, MPH, RN
Chair
Maryland Lead Poisoning Prevention Commission
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230

Re: Maryland Lead Poisoning Prevention Asset and Gap Analysis Report

Dear Chairwoman McLaine:

Attached please find the Green & Healthy Homes Initiative's Maryland Lead Poisoning Prevention Asset and Gap Analysis Report that was prepared for the Maryland Lead Poisoning Prevention Commission. We thank the Maryland Departments of the Environment, Health and Housing and Community Development, local health departments and numerous other stakeholders who provided information to GHHI that allowed for a robust asset and gap analysis and the production of a comprehensive Report to the Lead Commission. The Report is designed to be a living document and we welcome input and feedback from the Lead Commission members on the Report. We hope that this Report provides the Lead Commission with valuable data and information on lead poisoning prevention resources, gaps and opportunities in the state that will inform the strategic decision making of the Lead Commission in furthering our collective goal of ending childhood lead poisoning.

We would welcome the opportunity to provide a final briefing to the Lead Commission on the Report at a future Lead Commission meeting. Thank you.

Sincerely,

Ruth Ann Norton

Ruth Ann Norton
President and CEO



Acknowledgements

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Dorchester County Department of Health

Talbot County Department of Health

Ann Arundel County Department of Health

Prince George County Department of Health

Montgomery County Department of Health

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Green & Healthy Homes Initiative Contributors:

Ruth Ann Norton, President and CEO

Wesley Stewart, Esq., Senior Advisor and General Counsel

Catherine Klinger, Vice President of Client Services

Ludeen McCartney-Green, Esq., Family Advocacy Manager and Attorney

Jamal Lewis, Policy and Technical Assistance Specialist

Kelsey McClain, Policy Research Analyst

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Executive Summary

The damage of lead exposure to the developing brain is lifelong and irreparable. While progress has been made in reducing childhood lead poisoning in Maryland since the passage of the Maryland Reduction of Lead Risk in Housing Law, 1,825 children under age 6 were tested and found to have elevated blood lead levels in 2018.¹ Low-income communities and communities of color in Maryland are particularly vulnerable to lead exposure, and the lifelong health effects associated with it, as they are likelier to live in communities with older housing stock and often lack access to lead poisoning prevention resources. Primary prevention through removal of lead hazards in a child's environment before exposure is the only completely effective way to mitigate lead's impact.

In April 2019, Governor Larry Hogan signed the Maryland Healthy Children Act (HB1233) into law, lowering the state's blood lead action level to align with the United States Centers for Disease Control and Prevention's (CDC) blood lead reference level for required case management and environmental investigation (reducing from 10 µg/dL to the 5 µg/dL current reference level). The passage of this law is the latest in Maryland's decades-long efforts to put in place the nation's most health-protective lead laws and standards.

Over the last 25 years, the State of Maryland has become a national leader in lead poisoning prevention. The heightened focus on lead poisoning prevention initiatives began in 1994 when the Maryland Reduction of Lead Risk in Housing Law (MRLRH) was passed by the Maryland General Assembly. The law created the nation's first statewide proactive rental inspection program, mandating lead hazard reduction and inspection certification, property registration and lead poisoning prevention education prior to occupancy for all pre-1950 constructed rental properties in the state. Since 1996 when the MRLRH was fully implemented, a series of innovative laws and policies were enacted that have complemented or improved on the original law and contributed to Maryland's status as a national leader in lead poisoning prevention through the efforts of MDE, MDH, MDDHCD, local health departments, property owners, GHHI, health care providers and other community and advocacy stakeholders. Key model prevention policies include but are not limited to:

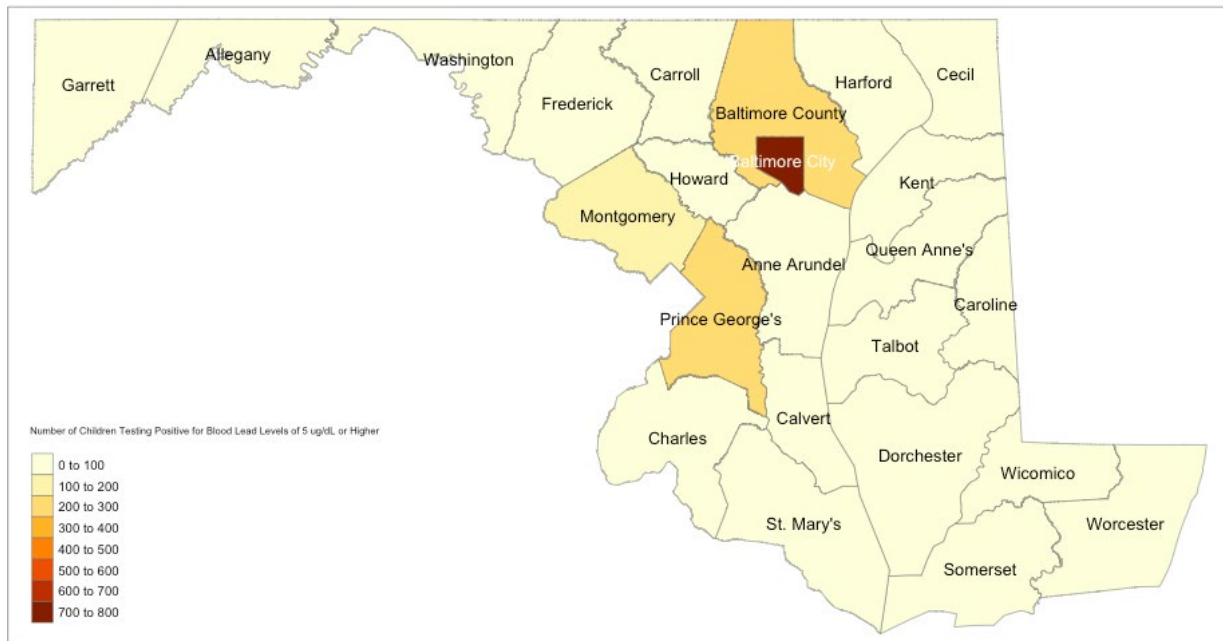
- Passage of HB1138 in 1997: Statewide requirements establishing blood lead testing of children as a requirement prior to entering school, childcare or day care.
- Passage of HB1221 in 2000: Established mandatory blood lead testing for all children at 12 and 24 months in MDH designated at risk areas throughout the State of Maryland.
- Passage of HB1168 in 1998 establishing rent escrow right for the repair of lead hazards in non-compliant rental properties and HB1245 "Clean Hands Bill" in 2004: Requires that rental property owners get their affected rental properties into compliance with the MRLRH's registration or inspection certification before they can gain access to District Court Rent Court eviction and rent collection processes. Legislation also requires that rental property owners certify compliance with the Maryland Reduction of Lead Risk in Housing Law.
- Passage of HB62 lead in products ban in 2008
- Passage of HB1033 in 2011 establishing mandatory lead dust clearance inspections and passage of HB644 in 2012 requiring all pre-1978 rental properties mandatorily comply with MRLRH Law
- Passage of HB1253 (Healthy Schools Facility Fund) in 2019 designating \$60 million in school repair funds to be available to remediate lead hazards in water in schools
- Development and implementation of \$4.17 million in FY 2018 Healthy Homes for Healthy Kids Program to utilize CHIP funding for lead inspections, resident education, and lead hazard remediation

- Implementation of coordinated state and counties enforcement of the MRLRH Law and enhanced housing code and Housing Choice Voucher (HCVP) lead standards enforcement by Baltimore City

In 2012, the Centers for Disease Control reviewed all available research and determined that there is no safe lead level in children at which harm does not occur. This confirmation of the danger posed by low level lead exposure in children, requires that Maryland conduct an assessment of its current state of remediation resources, lead related laws and state and local agency resources and devise new strategies and innovative solutions to achieve the state’s lead poisoning elimination goal.

Maryland requires universal testing for elevated blood lead at well-care visits for all children at ages 12 and 24 months. In 2018, approximately 24 percent of children age 0-72 months were tested for lead in Maryland. As illustrated in the figure below, Baltimore City was the jurisdiction with the highest number of elevated blood lead (EBL) levels in the state, with 712 children testing positive in 2018 for a blood lead level (BLL) of 5 µg/dL or greater. After Baltimore City, three counties --Baltimore County (220), Montgomery County (167), and Prince George’s County (235)-- all had substantial numbers of children with EBLs. All other counties in Maryland had children identified with EBLs--ranging from 4 to 62 cases of children annually with blood lead levels of 5 µg/dl or higher. When Maryland’s new case management action level of 5 µg/dL (effective July 1, 2020) is applied to 2018 lead surveillance data, the data shows a significant possible increase in the number of confirmed cases that will require investigation, case management, and potential support for abatement and/or enforcement measures. In 2018, 390 children who were tested had an elevated blood lead level at or above 10 µg/dL, and there were 235 confirmed cases of lead poisoning (a venous blood draw or two capillary tests that had results of 10 µg/dL or higher). In 2018, 1,435 children received blood lead tests indicating a blood lead level of 5-9 µg/dL, providing some indication of the potential number of additional confirmed cases after the change in Maryland’s case management action level is implemented.

Figure 1: Number of Children Testing Positive for BLL ≥ 5 µg/dL by Counties in Maryland in 2018 with Highest Totals of Children



Source: Adapted from CY 2018 Data Published by the Maryland Department of the Environment²

Investing in lead poisoning prevention policies and programs impacts access to opportunity within some of our state's most vulnerable households. Lead poisoning prevention is fundamental to the pursuit of our shared value of an equal opportunity to thrive for all children in our state. It is also an investment that benefits the economic bottom line for children, families, property owners, and government. Returns on this investment come in the form of increased academic achievement, increased lifetime earning potential, decreases in spending on special education, and decreases in incarceration.

While Maryland's existing policies have been instrumental in the 98% reduction in lead poisoning across the state since 1993, there are still thousands of children that are being impacted by lead exposure annually and more work remains to reach the goal of lead eradication.³ The following Asset and Gap Analysis and recommendations provide a comprehensive framework of the state's current assets, gaps, and opportunities for action based on those findings that can be undertaken by state and local governments and their partners within the community to eliminate lead poisoning in the state.

To collect this information, we relied on publicly available data, reports and budgets and conducted interviews with the following agencies:

- Maryland Department of Environment
- Maryland Department of Health (formerly the Maryland Department of Health and Mental Hygiene)
- Maryland Department of Housing and Community Development
- Anne Arundel County Health Department
- Baltimore City Health Department
- Howard County Health Department
- Montgomery County Health Department
- Prince George's County Health Department
- Maryland Lead Poisoning Prevention Commission
- Green & Healthy Homes Initiative

The analysis will cover the six aspects of lead poisoning prevention listed below:

- Blood lead testing and screening
- Case management
- Environment investigations and housing inspections
- Enforcement
- Grant and loan resources
- Outreach and education

Each of the sections for the six topics covered include sub-sections detailing the state's current resources and strengths, existing gaps, findings from the analysis and possible opportunities for improvement that can inform the Lead Commission's and state and local agency strategies.

Blood Lead Testing & Screening

Assets

Introduction to Lead Testing:

While the prevalence of elevated lead levels has declined over the years, there continues to be a significant number of children exposed to lead in Maryland that results in elevated blood lead levels.⁴ A lead test involves obtaining a blood sample to determine one's blood lead concentration level (measured in $\mu\text{g}/\text{dL}$). There are two primary types of blood tests: a venous test where blood is obtained from a vein or a capillary test where blood is obtained from a finger or heel prick. The venous test usually occurs in a doctor's office or lab and has a longer processing time compared to the capillary test, which can be conducted at a mobile site.⁵ If the initial test was a capillary test and it is elevated greater than or equal to $5 \mu\text{g}/\text{dL}$, a confirmatory test is conducted using a venous blood lead test.⁶ Venous tests are considered to be more reliable than capillary tests. As such, if the initial test was a venous test and it returns elevated greater than or equal to $5 \mu\text{g}/\text{dL}$, that is considered a confirmatory test.⁷ Based on the confirmatory test results, the child might require additional care including medical treatment or strategies to reduce lead exposure.⁸

Maryland Lead Testing Policy Changes

Maryland adjusted its blood lead testing requirements beginning in 2016. Before 2016, universal testing was only required for children enrolled in Medicaid's Early Prevention, Screening, Diagnosis, Treatment and Prevention (EPSDT) program and children who have ever lived in "high risk areas" as defined by 2004 Testing Targeting Strategy.^{9,10} In 2016, Maryland declared all children across the state to be at-high-risk of lead exposure and adopted COMAR 10.11.04, which expanded its universal testing policy such that all children born on or after January 1, 2015 must be tested for lead exposure with a blood test at ages 12 and 24 months. For children born prior to January 1, 2015, their testing follows the previous regulation's mandate.^{11,12} This testing protocol is delineated in "Table 2. Guidelines for Blood Lead Level Testing in Children 6 to 24 months of Age," which was obtained from the Maryland Department of Health's Webpage.¹³ In addition to implementing universal testing, Maryland increased access to point-of-care (capillary) testing with passage of COMAR 10.10.03.02B, which added whole blood lead testing as an acceptable test for a Letter of Exception and made it easier for healthcare providers to adopt point-of-care testing for lead in their offices.¹⁴

Figure 2: Guidelines for Blood Lead Level Testing in Children 6 Months to 72 Months of Age

Table 1: Guidelines for Blood Lead Level Testing in Children 6 Months to 72 Months of Age (COMAR 10.11.04, as of 3/28/2016)									
For ALL children born on or after 1/1/15, OR on Medicaid, OR ever lived in a 2004 At-Risk Zip code*									
6 Months	9 Months	12 Months	15 Months	18 Months	24 Months	30 Months	36 Months	48 Months	60 Months
Screen	Screen	Screen	Screen	Screen	Screen	Screen	Screen	Screen	Screen
Test if indicated	Test if indicated	Test Blood Lead Level	Test if indicated	Test if indicated	Test Blood Lead Level	Test if indicated	Test if indicated	Test if indicated	Test if indicated
For children born before 1/1/15, AND not on Medicaid, AND never lived in a 2004 At-Risk ZIP code*									
6 Months	9 Months	12 Months	15 Months	18 Months	24 Months	30 Months	36 Months	48 Months	60 Months
Screen	Screen	Screen	Screen	Screen	Screen	Screen	Screen	Screen	Screen
Test if indicated	Test if indicated	Test if indicated	Test if indicated	Test if indicated	Test if indicated	Test if indicated	Test if indicated	Test if indicated	Test if indicated
Screening		<ul style="list-style-type: none"> Perform Lead Risk Assessment Questionnaire (questions found in Lead Risk Assessment Questionnaire section of this document) Clinical assessment, including health history, developmental screening and physical exam Evaluate nutrition and consider iron deficiency Educate parent/guardian about lead hazards 							
Indications for Testing		<ul style="list-style-type: none"> Parental/guardian request Possible lead exposure or symptoms of lead poisoning, either from health history, development assessment, physical exam or newly positive item on Lead Risk Assessment Questionnaire. (Questions can be found in the Lead Risk Assessment Questionnaire section of this document) Follow-up testing on a previously elevated Blood Lead Level (Table 4) Missed screening: If 12 month test was indicated and no proof of test, then perform as soon as possible after 12 months and then again at 24 months. If 24 month test was indicated and no proof of test, then perform test as soon as possible. For more information about lead testing of pregnant and breastfeeding women, see: http://www.cdc.gov/nceh/lead/publications/leadandpregnancy2010.pdf. 							

* See back of chart for list of 2004 At-Risk ZIP codes

Table source: Maryland Department of Health Website¹⁵

Screening Rates for Medicaid’s Health Choice Managed Care Organization

As part of the Early and Periodic Screening, Diagnostic and Treatment (EPSDT) benefit, Medicaid requires all enrolled children to receive a blood lead test at 12 and 24 months of age. In Medicaid’s HealthChoice evaluation data, lead testing rates are measured for children aged 12 through 23 months and 24 through 35 months who are enrolled continuously in the same managed care organization for at least 90 days. The child is considered to have had a lead test if the test occurred during the current calendar year or the year prior. Because of this method of measurement, Medicaid rates cannot directly be compared to the data provided in Maryland’s Department of Environment annual surveillance report, which reports the number of children in the state that were tested within one calendar year. For enrolled children aged 12-23 months, the lead testing rate was 62.7% in 2017 compared to 60.7% in 2015^{16,17}. For enrolled children aged 24-35 months, the lead testing rate was 80.4% in 2017 compared to 77.6% in 2015.^{18,19}

Maryland School and Child Care Lead Testing Mandates

Maryland requires that a child that either previously or currently lives in an “at risk” area provide documentation of lead testing at first enrollment into pre-kindergarten, kindergarten, or first grade (Maryland Code Annotated, Family Law Article § 5-556.1)²⁰. Additionally, for child care centers or non-public nursery schools, children under six years of age must have documentation of lead screening within 30 days of entering.²¹ The proper documentation entails completion of the Maryland Department of Health and Mental Hygiene’s Blood Lead Testing Certificate.²² During interviews with select local jurisdictions, we inquired about their impressions of how strictly these requirements were enforced (see the following section on “Select Jurisdiction Interviews and Voiced Concerns”).

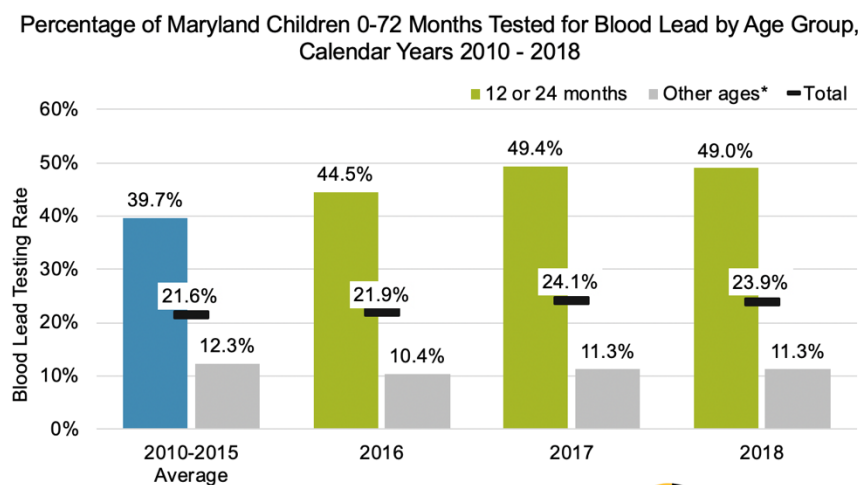
Gaps

Screening Rates Across Maryland Jurisdictions

In calendar year (CY) 2018, the total number of children age 0-72 months who received blood lead testing was 131,626 for a total of 138,349 tests.²³ Of these tests, 1,435 tests had a highest blood lead level between 5-9 µg/dL and 390 tests had highest blood lead levels greater than 10 µg/dL. During the year 2018, Maryland had 235 confirmed cases of lead poisoning. Currently the Maryland Department of Environment reports the number of children with an identified highest blood lead level above 5 and 10 µg/dL, as well as the number of confirmed cases (either one venous blood draw at or above 10 µg/dL or two capillary tests performed within twelve weeks of each other that both show results at or above 10 µg/dL). Case management is only required for confirmed cases.²⁴

After inception of universal testing, blood testing rates increased overall. The percentages of children tested at age 12 and 24 months in 2016 (44.5%), 2017 (49.4%), and 2018 (49%) are higher than the baseline average percent of children tested in 2010-2015 (39.7%).^{25,26} While there was an increase in testing in CY 2017 compared to baseline 2010-2015, the number of children tested in 2018 was approximately the same as 2017, suggesting rates may be beginning to plateau unless additional actions are undertaken.²⁷

Figure 3: Percentage of All Maryland Children Tested for Blood Lead by Age and Calendar Year



Source: Used with permission from Elizabeth Heitz Presentation to Lead Commission²⁸

*"Other ages" includes <12 months and 36-72 months.

Figure 4: Lead Testing Rates of Maryland Medicaid Children by MCO

Lead Screening in Children (LSC)					
	2015	2016	2017	2018	2019
ABH					NA [□]
ACC	77.1%	79.4%	80.0%	80.0%	82.0%
JMS	87.2%	92.1%	91.0%	88.6%	90.9%
KPMAS	NA [□]	64.5%	66.1%	68.5%	83.5%
MPC	70.0%	73.8%	72.2%	74.7%	80.1%
MSFC	88.6%	82.6%	84.8%	83.0%	84.4%
PPMCO	71.9%	75.7%	78.6%	80.1%	80.5%
UHC	68.6%	74.9%	73.0%	72.0%	76.7%
UMHP	53.1%	67.7%	70.6%	74.5%	83.9%
MARR	73.8%	76.3%	77.0%	77.7%	82.8%
NHM	66.8%	66.5%	67.6%	68.9%	
2018 NCQA Benchmarks	25th	50th	75th	90th	
	62.53%	73.13%	80.08%	85.64%	

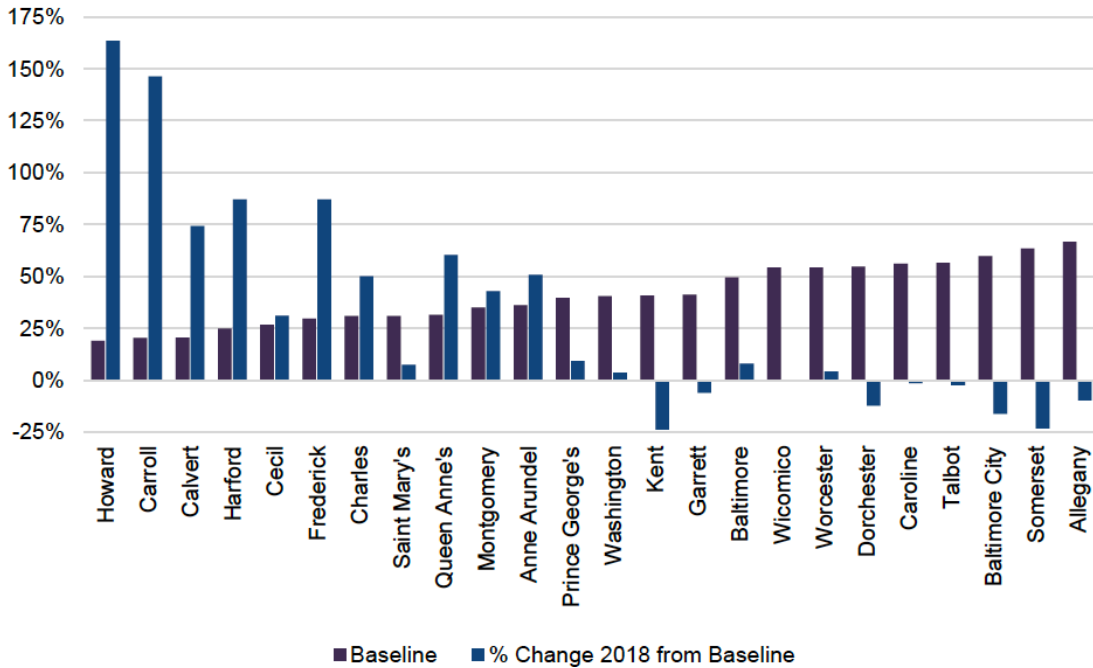
[□]This measure is Not Applicable due to an insufficient eligible population (e.g. <30 members).

Source: Statewide Executive Summary Report HealthChoice Participating Organizations HEDIS® 2019 Results Presented to Maryland Department of Health August 29, 2019 ²⁹

Despite improvements, the statewide testing rate for children age 0-24 months remains at 49% and at 23.9% for children aged 0-72 months. It is important to note that the MCO Medicaid testing rates are significantly higher than the statewide rate and the average rates broken out by jurisdiction, however due to differences in ways Medicaid testing rates are measured, they cannot be directly compared to the rates reported in the Maryland Department of the Environment’s Childhood Blood Lead Surveillance Annual Report. With the current testing rates, an unknown number of children at risk of lead poisoning are still going undetected. Furthermore, there is a significant variation in the Medicaid testing rates among the MCO’s in Maryland as shown by Figure 4. Figures 5 and 6 below from the Maryland Department of the Environment Childhood Blood Lead Surveillance in Maryland 2018 Annual Report show the percentage of children tested at 1 and 2 years in each jurisdiction as well as changes in testing rates³⁰. Several jurisdictions’ screening rates hover around or below 50%. Additionally, while many jurisdictions experienced increases in testing in 2018 compared to baseline numbers, several experienced decreases.³¹ Consequently, targeted outreach to increase testing rates in these jurisdictions, as well as among underperforming payers, should be considered.

Figure 5: Change in Children Tested by County Among all Payers*

Percentage Change in Children Tested at 12 and 24 months by County in Calendar Year 2018, compared with the Average Percentage of Children Tested between 2010 – 2015 (Baseline) (Source: Maryland Childhood Lead Registry)



Source: Maryland Department of Health Annual Report³²

*This chart displays testing rates without respect to payer type.

Figure 6: Change in Children Tested by Jurisdiction (All Payers)

Change in the Number and Percentage of Children Tested at Age 1 and 2 Years by Jurisdiction in CY 2018, Compared with Average Testing Rate Between 2010 – 2015 and CY 2017 (Source: Maryland Childhood Lead Registry)

County	Blood Lead Testing: Ages 12 and 24 Months									
	Average 2010-2015		2016		2017		2018		% Change 2018 from Baseline*	% Change 2018 from 2017**
	N	%	N	%	N	%	N	%		
Allegany	1,099	66.6	1,068	62.8	1,014	59.1	1,035	60.1	-9.8	1.7
Anne Arundel	5,960	36.2	7,824	45.2	9,371	53.6	9,573	54.6	50.8	1.9
Baltimore	11,302	49.6	12,528	52	13,114	53.9	13,078	53.6	8.1	-0.6
Baltimore City	11,969	59.8	11,172	53.2	11,264	53.1	10,666	50.1	-16.2	-5.6
Calvert	478	20.5	637	26.3	723	29.6	875	35.7	74.1	20.6
Caroline	591	56.1	583	51.6	607	53.2	634	55.3	-1.4	3.9
Carroll	882	20.3	1,424	32.3	1,974	44.4	2,228	50.0	146.3	12.6
Cecil	829	26.7	1,065	32.8	1,102	33.6	1,152	35.0	31.1	4.2
Charles	1,363	30.9	1,763	37.3	1,928	40.4	2,221	46.4	50.2	14.9
Dorchester	515	54.7	496	48.7	513	50	495	48.0	-12.2	-4.0
Frederick	2,048	29.6	3,504	48	4,077	55.3	4,100	55.4	87.2	0.2
Garrett	305	41.2	307	40.8	320	42	296	38.7	-6.1	-7.9
Harford	1,785	24.9	2,676	36.2	3,342	44.8	3,489	46.6	87.1	4.0
Howard	1,566	18.9	2,816	32.8	4,228	48.8	4,324	49.8	163.5	2.0
Kent	192	40.8	169	34.4	162	32.6	155	31.1	-23.8	-4.6
Montgomery	10,584	35	13,766	43.2	16,292	50.6	16,159	50.0	42.9	-1.2
Prince George's	11,086	39.6	12,540	42.8	13,503	45.7	12,862	43.3	9.3	-5.3
Queen Anne's	397	31.5	575	43.7	603	45.4	674	50.5	60.3	11.2
Saint Mary's	1,068	31	1,048	28.3	1,251	33.5	1,250	33.3	7.4	-0.6
Somerset	387	63.4	372	56.1	375	56.1	327	48.7	-23.2	-13.2
Talbot	530	56.5	551	55.5	547	54.5	554	55.1	-2.5	1.1
Washington	1,719	40.6	1,932	43.1	1,960	43.4	1,912	42.1	3.7	-3.0
Wicomico	1,574	54.3	1,625	52.4	1,795	57.3	1,698	54.0	-0.6	-5.8
Worcester	609	54.3	684	58.9	736	62.7	667	56.6	4.2	-9.7
Statewide	68,892	39.7	81,125	44.5	90,813	49.4	90,424	49.0	23.4	-0.8

*Change in the percentage of children tested by jurisdiction and statewide in 2018 compared with the average percentage tested by jurisdiction and statewide 2010 – 2015.

**Change in the percentage of children tested by jurisdiction and statewide in 2018 compared with the percentage tested by jurisdiction and statewide 2017.

Image source: Maryland Department of Environment 2018 Annual Report³³

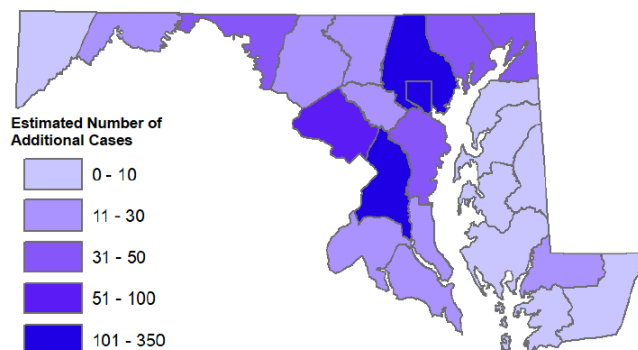
Children Without Screening

Given that every jurisdiction has testing rates below 100%, it is likely that there are children with elevated lead levels who are not being tested. Using a jurisdiction’s positive lead test results rate, the 2018 MDE Annual Report’s Appendix C, “Maryland Department of Health Progress Report on the Maryland Blood Lead Testing Initiative” estimates the number of additional children with blood lead levels >5 µg/dL that are being missed.³⁴ Based on the figure 7 below, we can see that Baltimore City, Baltimore County and Prince George County have the highest estimated number of additional children with EBLs. Targeted outreach and reduction

of barriers to increased blood lead testing in these three counties and other counties could also be considered as next steps to ascertain the true level of EBLs in the state.

Figure 7: Estimated Additional Cases of Blood Lead Levels at or Above 5 µg/dL

**Estimated Number of Additional Cases of Blood Lead Level ≥ 5 µg/dL
Among Children 1 and 2 Years Old by Jurisdiction,
Assuming 100% Testing Rates for All 1- and 2-Year-Olds in CY 2018¹**



Calculated by applying the jurisdiction rate of “New Cases” among 1- and 2-year-olds tested in CY 2018 to the number of children who were not tested in CY 2018.

Source: Maryland Department of Environment 2018 Annual Report, p. 31³⁵

In addition to a low state-wide testing rate, disparities exist in reported testing rates between Medicaid patients and non-Medicaid patients. In 2017, testing for Medicaid patients aged 12-23 months was 62.7 % compared to a 36.4% testing rate of children age 12-23 months statewide. 2017 rates of testing among Medicaid patients age 24-35 months was 80.4% compared to a 32.4% statewide testing rate for the same age group. The methods of measurement for Medicaid rates of testing are different from methods used to measure state-wide rates reported from the lead registry. This means these testing rates are not directly comparable. Still the higher rates of testing amongst Medicaid patients should be noted.^{36 37} Medicaid data also shows that testing rates can vary amongst different Managed Care Organizations (MCOs). 2018 testing rates of Medicaid patients aged 12-23 months varied from 57%-75% among different MCOs.³⁸

Selected Jurisdiction Interviews

Informational interviews were conducted with the following counties/state level officials on the status of lead screening in their jurisdiction. The questions asked and the respective responses are listed in the tables below.

Figure 8: Jurisdictions Interviewed About Blood Lead Screening

Jurisdiction	Person Interviewed & Role	Interview Date
Ann Arundel County	Case Manager	12/3/19
Baltimore City Health Department	Director, Childhood Lead Poisoning Prevention Program	12/4/19
Prince George County	Program Chief, Environmental Health	12/11/19
Montgomery County	Program Coordinator	12/6/19

	Babies Born Healthy & Lead Poisoning Prevention Program	
Maryland Department of Health	Applied Epidemiology Fellow Environmental Health Bureau Prevention and Health Promotion Administration Maryland Department of Health Director Environmental Health Bureau Prevention and Health Promotion Administration Maryland Department of Health	12/6/19

Question: What have been the primary barriers from the physician and patient side to get screened in your jurisdiction?

Jurisdiction	Health Care Provider Barriers	Patient Barriers
Anne Arundel County	Thinks all providers might not be aware of the universal testing plan.	Getting patients to a laboratory to do a venous level has been really challenging and it is frequently a time when patients are lost to follow up.
Baltimore City Health Department	Providers seem unwilling to invest in point of care testing because they do not see it as a good return on investment.	- “Transient population”: notes that the health department and providers have a hard time tracking down patients once venous results come back. - Transportation for patients to get to laboratory for venous sticks.
Prince George County	Providers seem not to fully understand the change to universal testing.	Despite getting orders for lead testing, patients aren’t getting tested. Additionally, have found that undocumented families and families with language barriers tend to seek less care.
Montgomery County	Does not know of significant barriers.	For providers that do not have point of care testing, getting patients to go to a laboratory to get a venous stick is challenging. The same is true for getting confirmatory tests.
Maryland Department of Health	Reaching health care providers to educate on universal testing is challenging.	Access to point of care testing is better but still limited.

What outreach efforts are you currently conducting to increasing screening in your jurisdiction?

Jurisdiction	Percent Children Screened*	Outreach Effort
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Anne Arundel County	54.6%	Report no known outreach efforts to providers at this time.
Baltimore City Health Department	50.1%	They are currently doing several outreach efforts: Have placed posters up on the importance of lead testing at 22 bus shelters and 7 light rail kiosks; City Health Commissioner made a video on lead testing directed to health care providers; have targeted social media ads to high risk communities on the importance of testing; have met with federally qualified health centers (FQHCs) to promote lead testing and the American Academy of Pediatrics (AAP) local chapter; have requested that Amerigroup's and United Healthcare's high volume, low performing providers to do targeted education.
Prince George County	43.4%	Participate in local health fairs. Have sent flyers in the past to elementary school age children's families to encourage testing.
Montgomery County	50%	Participate in intermittent outreach efforts by having booths at health fairs (about 8 times a year), go to community organizations to talk about lead awareness when requested and participate in Lead Week promotional activities. Also notes that their Maternity Partnership Program and Babies Born Health Program discusses lead risks and screening in their curriculums. Additionally, feels that majority of positive cases are from immigrant children and there should be more targeted outreach to these communities.
Maryland Department of Health		Currently do mailings to provider's state-wide. They are considering additional targeted testing and screening initiatives.

*Rates obtained from 2018 Maryland Department of Environment's Childhood Blood Lead Surveillance in Maryland Annual Report, Released October 2019.

How strictly do school and childcare systems enforce having proof of lead testing prior to starting? Are there any other school or childcare related concerns that you have?

Jurisdiction	School & Childcare Related Concerns
Anne Arundel County	Fall 2020 will be the first time the majority of children born after 2015 will be entering kindergarten and thus all children should have lead screening done, they are trying to anticipate and determine how to get students without insurance or a primary care doctor access to lead screening. This is particularly a concern with their County immigrant populations.

Baltimore City Health Department	Reports that while record checks happen, schools and childcare centers “nudge” parents to get tested but do not prohibit the child from attending until the record is received.
Prince George County	Report that they feel day cares more strictly enforce requirement compared to schools. They note that while there is enforcement in schools on immunizations, lead testing is not as strictly enforced. The three major day care organizations in PG county frequently request the health department to do trainings on issues like bed bug avoidance, asthma and lead testing, so the health department conducts this training once a year, budget permitting.
Montgomery County	Reports receiving occasional questions from community childcares asking if lead screening is required prior to entry - indicating that there could be some lack of knowledge on screening requirements.
Maryland Department of Health	While schools’ and childcare facilities may check for evidence of lead screening, failure to have documented screening does not stop the child from attending school/childcare. There is not the same level of enforcement at schools/childcare for lead compared to immunizations due to different authority.

Does your health department conduct its own lead testing?

Jurisdiction	School & Childcare Related Concerns
Anne Arundel County	No, but does have its own immunization clinic.
Baltimore City Health Department	Yes, department conducts it at their immunization clinic once a month, intermittently at community fairs and events, and at Head Start Programs as time permits. They then report lead results to MDE, patient’s doctor and if the patient does not have insurance or a provider, they connect the patient to Healthcare for the Homeless.
Prince George County	Yes, the health department does limited testing by appointment for uninsured families and perform it in conjunction with their immunization clinic.
Montgomery County	No, but does have its own immunization clinic.

Themes Identified

Over the course of research and interviews, the following themes were noted:

- Based on Maryland’s state data, it is evident that there is still a need to improve screening rates across the state, particularly in jurisdictions with lower rates. As discussed with the Maryland Department of Health, this can occur through targeted outreach and other testing initiatives. Targeted outreach could be stratified into three focus areas: jurisdictions with lower or declining testing percentages, jurisdictions with the highest rates of positive lead tests (i.e. a higher percentage of children tested, who are found to be exposed to lead), or jurisdictions where the largest number of children is anticipated to be exposed to lead. Additionally, the audience for

outreach could include providers, families, schools and childcare centers to help reinforce testing requirements.

- Based on interviews with the select jurisdictions, it appears that school and childcare testing requirements are not adequately enforced. Next steps could include interviewing childcare centers and schools to better understand their procedures for checking for completed lead testing and how they handle children without screenings to determine whether childcare providers and schools have access to the necessary resources and information. More refined data and additional interviews with Eastern Shore and Western Maryland health departments should also be conducted to examine regional variability, unique barriers and lessons learned.
- Knowing where to send kids who do not have insurance, or a primary care provider is a challenge across jurisdictions with limited health department resources and better partnerships with local clinics, immunization clinics and insurers could be helpful.

Opportunities and Recommendations

1. Point of Care Testing

Increasing the number point of care testing (on-site) locations is one way to increase the testing rates in Maryland. Onsite testing overcomes one of the main barriers to testing which is that often parents have to take their children to labs for blood lead testing that are in a different location than their provider clinic or pediatrician's office. Here are some ideas for where onsite testing can be offered:

- **Federally Qualified Health Centers (FQHCs)** – Federally Qualified Health Centers are federally funded community-based centers that provide comprehensive primary and preventative care services to persons of all ages, regardless of their ability to pay or their insurance status. FQHC's reduce the patient load on hospital emergency rooms by providing comprehensive services to underserved, underinsured, and uninsured Americans, including migrant workers and non-U.S. citizens. Baltimore City has worked with FQHC's to promote lead testing; however, the State of Maryland can encourage Baltimore City and other jurisdictions to better partner with FQHC's to offer onsite testing to their patients.

The states of Iowa, Pennsylvania, and Alabama, for example, have either piloted lead testing at FQHC's or are planning to pilot this effort intentionally in 2020. Iowa sent out a survey to 7 large medical network clinics and 6 small rural clinics and found that 54% have the capability to review patient records for compliance with blood lead testing guidelines and 65% have an electronic medical record system for sending out blood lead testing reminders.

- **WIC clinics** – The Women, Infant, and Children (WIC) Nutrition program provides resources to low-income pregnant, breastfeeding, and non-breastfeeding women, infants, and children under the age of 5, who are found to be of nutritional risk. The program provides direct healthy food assistance, nutrition education, and healthcare referrals to eligible populations and are often located in community settings that are more accessible to families. While local health departments and GHHI have partnered with WIC clinics to offer screening for lead poisoning and education about lead

poisoning prevention, the state should consider furthering their partnerships with WIC to continue to improve nutrition for children under 6 and increase blood lead testing rates. WIC serves about 8 million women, infants, and children through over 10,000 clinics nationwide. In Maryland, 135,000 people are served each month. Click the following link to [see Maryland WIC clinic locations](#). In 2016, the Centers for Medicare and Medicaid Services (CMCS) provided guidance that lead testing was within the scope of services that WIC clinics are able to provide, creating a tremendous opportunity to increase blood lead testing across the state for Medicaid children who are often the most at risk for lead poisoning.³⁹

The Louisiana Health Department Childhood Lead Poisoning Prevention Program (LHHCLPPP) piloted this type of partnership in their state in 2018-2019. The LHHCLPPP Program Manager and Regional Outreach Specialist worked with the WIC Clinic Site Director and other staff to educate parents on lead poisoning prevention and organize lead testing events at that location. The WIC clinic collects data on number of children tested at their site and sends that data to the Health Department on an on-going basis. For the period from January-March 2019, 227 children were tested at the Crescent City WIC clinic in Louisiana and 54% of those children were tested for the first time.

- **Head Start** – Head Start programs work to ensure that all children from birth to age 5, particularly those from low-income communities, are ready to start school. In the past, there have been partnerships in Maryland between local health departments and Head Start programs to offer blood lead testing for children. This partnership was successful at increasing awareness, increasing tenant’s rights education, and conducting blood testing initiatives. The state should look to continue this effort including working with the Head Start staff and Parent Health Care Advisory Committees to better reach higher risk neighborhoods where children with EBLs may be undetected.

2. Provider Report Cards

In order to increase blood lead screening, some state health departments have attempted to create provider report cards based on blood lead testing rates that will be publicly available. It is believed that publicizing lead testing rates for providers will incentivize poor-performing pediatricians to increase their testing rates after comparing themselves with their counterparts. New Jersey, Mississippi, and Missouri are all in the process of creating provider report cards that will compare provider lead testing rates. New Jersey is also developing a tier system of recognition for the top screening pediatricians in each county, where Certificates of Recognition will be presented to pediatricians based on certain criteria.

3. MCO Education and Test Rate Reporting

Currently the Maryland Department of Health rates MCOs based on performance measures for lead screening as part of a Performance Improvement Project (PIP) with the aim of increasing the percent of children who have had at least one capillary or venous lead blood test by 24 months of age.⁴⁰ Lead screening is also a HEDIS measure of healthcare performance for MCOs and can impact value based purchasing totals. However, these performance measures may have a greater impact if 1) scores of individual MCOs are more widely publicized for comparison, 2) they are used to conduct an analysis of the reasons behind lower rates for some MCOs, and 3) result in communication between MCOs regarding best practices for increasing testing rates.

4. Target Testing of Pregnant Women

In 2019, the Maryland General Assembly passed HB1233, which lowers the blood lead action level from 10 µg/dL to the CDC blood lead reference level (currently 5 µg/dL). As a result, it is now required for children under the age of six and pregnant women to receive case management and an environmental investigation if they test at or above 5 µg/dL. While pregnant women are now eligible to receive follow-up services, there is no policy in the state regulating blood lead testing of pregnant women. The State of Maryland should establish uniform guidance for the testing of pregnant women.

Currently, it is not recommended by the CDC for all pregnant women to be tested for lead. Instead, the CDC recommends that state and local health departments promote blood lead testing of pregnant women who are at increased risk of lead exposure based on community-specific risk factors.⁴¹ In areas where there is not an increased risk of lead exposure based on community-specific risk factors, the CDC also recommends that medical providers opt to perform a blood lead test if an assessment of individual environmental, occupational, and lifestyle risk factors reveals potential risk of lead exposure. Blood lead testing for pregnant women who are at risk should occur at the earliest contact with the patient and the results of the test should be included in both the patient's and child's medical records. In addition, pregnant women, testing at or above 5 µg/dL, should receive follow-up blood tests to confirm that a decline in blood lead levels has been achieved.

Maryland should consider issuing guidance for the testing of pregnant women similar to Michigan's Statewide Guidance for Pregnant Women Risk Screening Questionnaire, which they developed based on feedback from their Childhood Lead Poisoning Prevention Grantees that prioritizes testing for pregnant women residing in pre-1978 properties.

Case Management

Assets

Current Case Management Services to Families of Children with Elevated Blood Lead Levels in Maryland

Case management services for families of children with elevated blood lead levels are primarily coordinated by Maryland's Department of the Environment and conducted by local health department nurses. A list of local health department lead contacts for each county can be found [here](#). State policies have historically required that case management services be provided to families of children with blood lead levels of 10 µg/dL or higher. However, the passing of the 2019 Maryland House Bill 1233 now requires MDE to notify the parent or guardian and rental property owner (if applicable) of a child diagnosed with a blood lead level at or above 5 µg/dL. Effective July 1, 2020, MDE will assist local governments, if necessary, to provide case management to children with elevated blood lead levels greater than 5µg/dL. This includes environmental investigation for a child under age 6 or pregnant women.

Beginning in 2017, Maryland was approved to access funds from the Children's Health Insurance Program (CHIP) to expand case management services in nine jurisdictions: Baltimore City, Baltimore County, Charles County, Dorchester County, Frederick County, Harford County, Prince George's County, St. Mary's County, and Wicomico County. This program, known as the Childhood Lead Poisoning Prevention and Environmental Case Management program (or P2 program), is available to children (aged 0-18) who are 1) either enrolled in Medicaid or CHIP or eligible for Medicaid or CHIP, 2) reside in one of the above nine jurisdictions, and 3) possess a BLL of 5 or greater. This program has helped to provide additional case management capacity in these jurisdictions.

Case management services to families of children with elevated blood levels in Maryland follow a tiered approach based on blood lead level. For children that test at or above 5 µg/dL in Maryland, case management includes: lead and nutritional education, environmental history documentation, complete medical/nutritional history and physical examinations (H&P), iron deficiency evaluation and treatment, starting multi-vitamins, and follow-up blood lead testing. More information on each of these case management components is described below. The role of the case manager is to develop a relationship with the family and ensure that all appropriate action is taken to eliminate the lead hazard and to minimize the impact of past lead exposure. While there are varying practices of lead case management based on jurisdiction, there are two main components: the medical component and the environmental component.

Medical case management is completed in partnership with the child's medical provider or pediatrician. At the time a child is tested for lead, their medical provider should also test for iron, calcium and vitamin C deficiencies. If any deficiencies are identified, the medical provider will prescribe additional supplements and offer ways to increase nutritional intake of these nutrients. Maryland's Guidelines for the Assessment and Management of Childhood Lead Exposure provides the protocol and clinical guidance for responses to various elevated blood lead levels in children under age 6. These Guidelines were developed by taking aspects from recommendations made by the Centers for Disease Control and Prevention and the American Academy of Pediatrics (AAP) Pediatric Environmental Health Specialty Units (PEHSU), two of the leading authorities on lead poisoning case management.

The medical case manager then follows up with the family to ensure that proper action is taking place to mitigate the effects of lead exposure. During the initial contact with the family – either during a first home

visit or via telephone, the case manager will inquire about the results of the iron, calcium and vitamin C assessments as well as any nutritional supplements that were prescribed by the medical provider. The case manager is also required to provide the family with additional nutritional education designed to increase nutritional intake of iron, calcium, and vitamin C and reduce fat intake.

In Maryland, the case manager is responsible for being the primary source of information for impacted families where a child with an EBL resides. During initial contact with the family – via telephone or home visit – as well as subsequent contact, the case manager will provide general information on lead, in addition to the tailored information based on the results of both medical and environmental assessments (discussed below). In Maryland, the local health departments refer families to the educational materials on MDE's website. However, there are some jurisdictions that create their own additional materials based on the needs of their communities. For example, in Howard County it was reported that most of the lead exposure occurs from foreign or imported goods, so they created their own fact sheet on alternate sources of lead exposure.

Another critical component of medical case management is ensuring that the child receives the appropriate follow-up blood tests to confirm that the child's lead levels are decreasing. The State of Maryland follows a tiered schedule of follow up based on blood lead level. Any child testing between 5-9 µg/dL should receive a follow up venous test every 3 months until their blood lead level begins to decline. Any child testing between 10-24 µg/dL should receive a follow up test every 1-3 months. The complete follow-up guidance chart can be found [here](#).

The second component, environmental case management, involves assessing potential exposures of lead and eliminating those exposures in coordination with the environmental investigation. In Maryland, the environmental investigation is performed by an accredited risk assessor from MDE or the local health department, but the case manager plays an important role in confirming the child's primary place of residence and helping identify potential lead sources. During the home visit, the risk assessor will complete a survey of environmental history, designed to identify possible sources of lead exposure. The survey was developed by MDE and the questions include:

- The approximate age of the home
- The presence of peeling or flaking paint
- Any current or recent home renovations or remodeling
- Child's play location (e.g. porches, closets, rooms, outbuildings, and the location of visible bite marks on these painted components
- The location of the home near a lead-producing industry (e.g. battery plant, smelter, radiator repair shop).
- Occupational exposure
- Use of tap water
- Immigrant into the U.S. (I.e. Family country of origin, Date of relocation, Travel outside of the U.S.)
- Origin and type of cookware, imported canned goods, spices, medications, or religious or ceremonial powders that are used. These questions are often more relevant if the family has recently immigrated.

Through the responses to these questions, the case management and environmental investigation team can pinpoint potential sources of lead exposure. For example, if the child is a member of a family that recently immigrated, the source of exposure could be imported cookware, spices, cosmetics or other cultural items. In these situations, insights from the questionnaire completed by the risk assessor can help determine and prioritize product sampling needs. The case manager and environmental investigator can provide tailored

information to the parents and property owners about how to reduce lead exposure based on identified lead hazards.

Successful case management in Maryland requires effective and efficient communication between local nurse case managers, the child's medical provider, environmental investigators, MDE and MDH. MDE receives blood lead concentrations directly from the laboratories via FTP sites, Fax, or secure data packs that are emailed and uploads them into the Childhood Lead Registry, which performs childhood blood lead surveillance for Maryland. MDE's Childhood Lead Registry, maintained in the Systematic Tracking of Elevated Lead Levels and Remediation (STELLAR) surveillance system obtained from the CDC, supplies monthly results of all childhood blood lead tests to MDH, which loads them into Immuneset so they can be viewed by healthcare providers, who are using Immuneset. To track environmental investigations, MDE uses their enforcement database. For nursing case management, MDE currently adds memos to the STELLAR system to document conversations with local health department nurses or providers. In 2017, Maryland attempted to migrate from the STELLAR system to the Healthy Homes and Lead Poisoning Surveillance System (HHLPPSS), which allows for more streamlined data sharing and management.

EBL Case Response Process and Timeline

In Maryland, when a child aged 18 or younger is tested, the laboratory that analyzes the blood sample is required to report that information to MDE. MDE receives that information in three different ways: encrypted emails directly from the lab, a secured FTP site that can be accessed by the lab, and by facsimile.⁴² The method of data sharing depends on the medical provider. Elevated blood lead levels for children testing greater than 20 µg/dL must be reported within one business day.⁴³ These cases, and cases where the provider used a LeadCare II Analyzer, are often transmitted to MDE via fax.⁴⁴ If the first test was a capillary test, it is recommended by the Maryland Guidelines for the Assessment and Management of Childhood Lead Exposure that a confirmatory venous sample is obtained.

Once the elevated blood lead level is confirmed, MDE sends a notice and some educational material to the family and notifies the property owner. MDE also sends a notice to the local health department who will reach out to the family to schedule initial contact either through a home visit or by phone. Under COMAR 26.02.01.05, MDE is required to report the results of blood lead tests to the local health department in accordance with the following time frames:

- (a) EBL greater than or equal to 15 µg/dL by the close of business of the working day following the receipt of the final test results;
- (b) EBL 10 µg/dL through 14 µg/dL within 2 weeks of the receipt of test results; and
- (c) EBL 5 – 9 µg/dL (as of July 2020): Notification within 1-3 months (EBL of 10 µg/dL take priority)

Prior to the initial contact, the case manager will review the case files and may sometimes reach out to the medical provider to get more information. Then the case manager will reach out the family, by phone or in-person, to 1) complete the environmental history questionnaire, 2) provide general and tailored information on lead and lead poisoning prevention, and 3) encourage and monitor the family to get a follow up test to confirm the downward trajectory of the child's blood lead level. Counties that participate in the P2 program, funded by Medicaid, will conduct home visits. Most counties that do not participate in the P2 program will provide case management by phone. Some counties that do not participate in the P2 program will still conduct home visits either supported by County resources or without funding resources.

Environmental investigations, performed by MDE, also occur around the time of the initial contact with the family. Some local health departments will coordinate with MDE to make initial contact with the family together via the first home visit. In these situations, the case manager will complete the questionnaire and provide education to the family, while the risk assessor completes the investigation. Other health departments will make initial contact by phone to verify the address, then will accompany the risk assessor on a home visit. Those health departments that do not have the resources to conduct a home visit will complete telephonic case management. In these situations, the trained risk assessors will visit the home by themselves. MDE will follow-up with the local health departments to ensure proper case management protocols were followed and the child has or is scheduled to receive a follow-up test. Simultaneously, MDE, as the enforcement agency in Maryland, also provides the property owner with the results of the environmental investigation, which include recommendations to address the identified lead hazards. For affected properties, MDE ensures that the property owner satisfies the modified risk reduction standard. Once the lead hazards are remediated, MDE is able to close the case. To track all open and closed cases, MDE currently uses the STELLAR database.

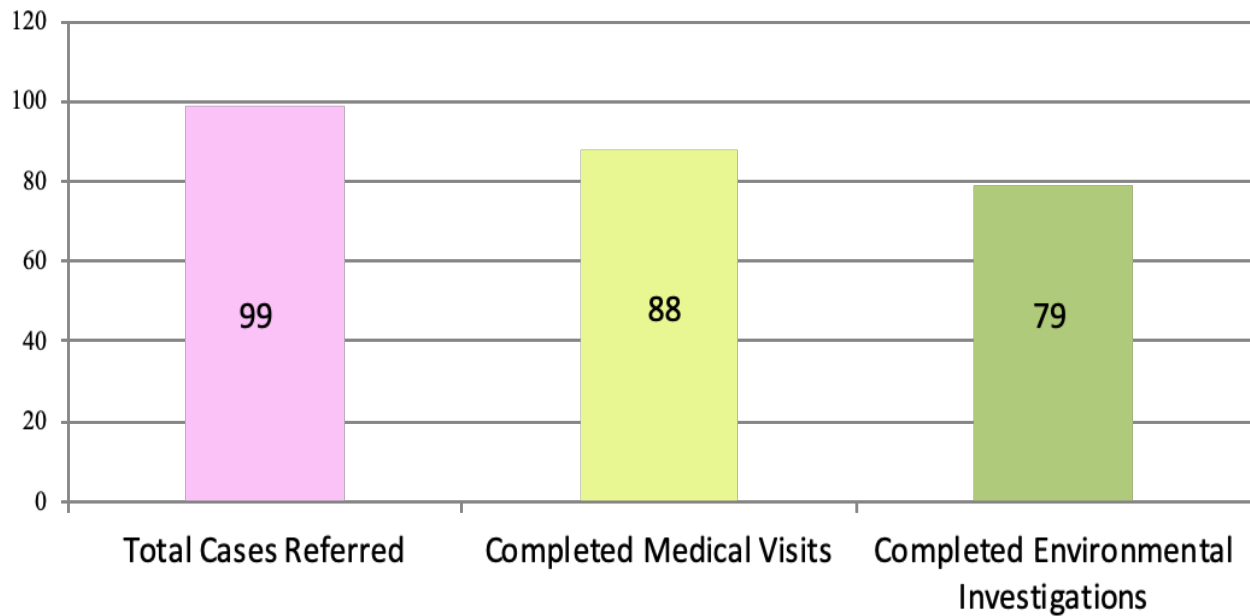
Gaps

Despite the state regulation, there is variability throughout the state in terms of medical case management services provided to children with blood levels of 10 µg/dL or higher as well as at lower blood lead levels. The lack of uniformity in case management services can be attributed to limited funding resources, varying staff capacity and barriers to sharing information between local, county, and state health, housing and environmental departments.

CDC recommendations serve as general guidelines for medical case management services to families of children with elevated blood levels in Maryland, though authorities from the Maryland Department of Health, Maryland Department of the Environment, and Baltimore City Health Department all acknowledge that funding levels, staff capacity, and information sharing barriers all limit the ability of health authorities to fully meet the recommendations at this time. It should also be noted that the inability to track down a child and family refusal of services are also a significant barrier to the government's ability to provide services.^{45,46,47}

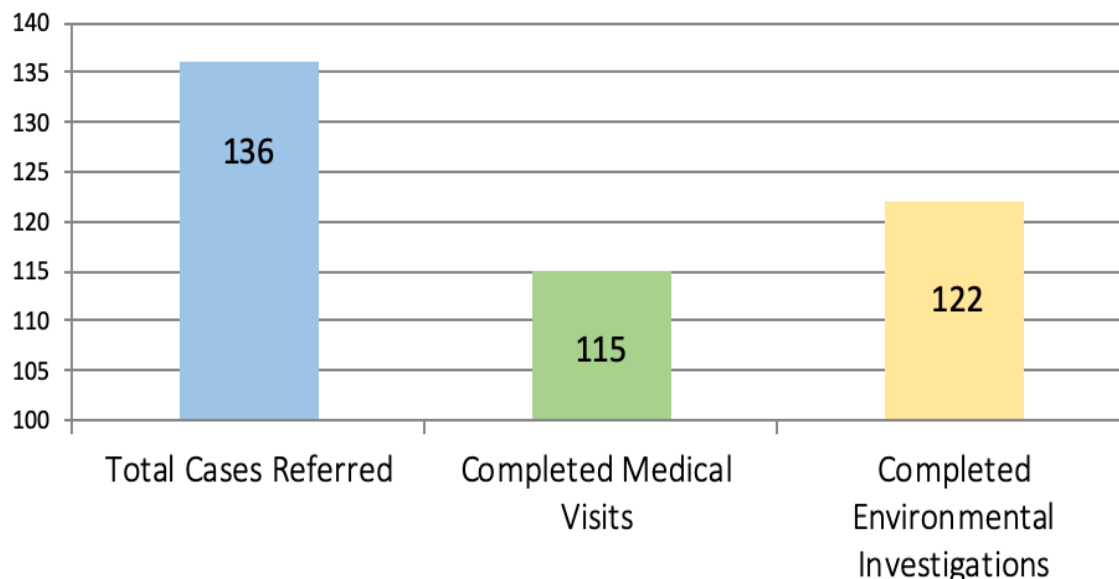
In Baltimore City, for example, an estimated 20% of confirmed cases of children with blood lead levels 10 µg/dL or higher did not receive an environmental inspection and 12% received did not receive medical case management services.⁴⁸ The City of Baltimore has four case managers who work in collaboration with four environmental sanitarians, both of which are funded by Medicaid, to conduct public health case management for all children with blood levels of 10 µg/dL or higher and is the exemplar throughout Maryland. The graph below demonstrates the confirmed cases and case management services in Baltimore City during CY 2018 and is based on data from the Baltimore City Health Department:⁴⁹

*Figure 9: Confirmed Cases in Baltimore City that Required Medical and Environmental Case Management in CY 2018*⁵⁰



In all other Maryland counties (excluding Baltimore City) of the 136 confirmed cases, 115 completed medical visits and 122 received completed environmental investigations.⁵¹ In most Maryland counties, there is one part time nurse case manager available to offer medical case management services to confirmed EBL cases. The following graph demonstrates the confirmed cases and case management services throughout Maryland counties (excluding Baltimore City).⁵²:

Figure 10: Confirmed Cases Statewide (excluding Baltimore City) that Required Medical and Environmental Case Management in CY 2018⁵³



Throughout Maryland, local health departments indicate that they lack the resources necessary to meet the current case management recommendations from the CDC and state guidelines for children with actionable blood lead levels. There are nine counties that receive additional resources from Medicaid via the P2 program to provide case management. However, the other Maryland counties are either rely on County resources or are not funded sufficiently.

Additionally, there is no uniform data-sharing database between the Maryland Department of the Environment, Maryland Health Department, and local Health Departments which provides a further barrier to meeting the case-management demand. While MDE uses the Childhood Lead Registry in STELLAR to track blood lead testing, case management and environmental investigation, there are several issues and inefficiencies that have been identified with this database:

- Blood lead testing results are not automatically entered into STELLAR. Test results conducted from labs are sent to MDE through encrypted emails, a secure FTP site, or via fax and are entered into STELLAR by MDE. Test results from Point-of-Care (POC) testing are faxed to MDE and entered into STELLAR by the Maryland Correctional Enterprises. Use of POC testing is increasing, which means the number of faxed blood lead results are also increasing.
- Local health departments, except for Baltimore City, cannot access STELLAR to input case management notes. Baltimore City has their own form of STELLAR that interfaces with the STELLAR database used by MDE. Case management is tracked through periodic meetings between the local health departments and a representative from MDE and entered into STELLAR by MDE. Other local health departments, such as Dorchester and Talbot, are starting to utilize PAT Track 2.0 and have noted that this database is not the easiest to use.
- There are two working STELLAR databases in use by MDE. The first larger database is comprised of historical data (<2000). The second database is used primarily for current cases (2000-present). Historical STELLAR is only used for Public Information Act requests.

- Medical providers also do not access STELLAR. Communication between MDE, MDH, the local health departments and the medical providers is completed using Immunet. MDE will receive blood lead test results, send those results to MDH, who will then upload the data into Immunet for medical providers to access.
- The CDC no longer uses STELLAR which means data has to be transmitted into a system that is compatible with the system that CDC uses.

New State of Maryland Regulations Lowering the Blood Level Action Level

The Maryland Healthy Children Act (HB1233) lowered the blood lead threshold requiring action from 10 µg/dL to the CDC blood lead reference level, which is currently 5 µg/dL. This policy of expanding the definition of an elevated blood level for lead, which takes effect July 1, 2020, results in an additional estimated 1,435 cases requiring public health case management throughout the state according to MDH based on current surveillance data. It should be noted that MDH has stated that the above number of estimated cases is probably an overestimate. In the fiscal note for HB1233, MDE estimated an additional 900 *confirmed cases (i.e. cases that receive case management)*, which MDE notes may also be an overestimate given that levels between 5-9 µg/dL have decreased since that fiscal note response was composed. At present, it is not clear how Maryland will meet the case management needs of children testing above 5 µg/dL, as mandated by HB 1233.

Officials from the Maryland Health Department, Maryland Department of the Environment, and Baltimore City Health Department all also acknowledged that children with blood levels between 5 µg/dL and 10 µg/dL may require additional resources due to the complex nature of their exposure to lead. Despite this, many health departments throughout the state will not have additional resources to meet the increased demand. The Baltimore City Health Department as well as the Anne Arundel County Health Department both will receive one additional environmental sanitarian to meet the demand, though this does nothing to address the need for additional medical case managers. For nine jurisdictions (Baltimore City, Baltimore County, Charles County, Dorchester County, Frederick County, Harford County, Prince George's County, St. Mary's County, and Wicomico County), Medicaid has played a critical role for over 2 years in providing funding to help meet their additional case management needs.⁵⁴

There will be an additional estimated 1,435 cases of children with elevated blood levels of lead in the State of Maryland due to the Maryland Healthy Children Act and additional resources need to be allocated to ensure sufficient case management and environmental investigation staff exist. While the new regulation affords an important opportunity to enhance health outcomes among vulnerable children throughout the state, city and county health departments will continue to operate at limited capacity and likely will not be able to meet the demand for medical case management or the recommendations for case management protocols set forth without additional resources.

Opportunities and Recommendations

While secondary prevention, case management is an important aspect of long-term lead poisoning prevention. Below are some opportunities to improve Maryland's lead case managements activities.

1. The State of Maryland should consider investing in a case management system that allows MDE, MDH, local health departments, medical providers, and childcare facilities and schools to access information

collectively with all proper consents and privacy protections. Maryland currently uses STELLAR, but the CDC's HHLPPS system and the LeadTRAX system used by the state of New Jersey are also options.

2. The State of Maryland should consider extending case management activities to include outreach and follow-up with schools, school nurses and Head Starts of impacted children. Often, children with EBL's need extra academic support to overcome the negative impacts of lead poisoning. Involving school nurses, Head Start and childcare providers in the case management procedures would allow for increased accountability in ensuring that the child receives the help they need. This includes better coordination on IEP assessments for school age children with EBLs or EBL history. In addition, schools and Head Starts can act as another point of contact to ensure that the child receives appropriate follow-up blood lead testing.

3. The State of Maryland should look to increase funding for case management to increase personnel. Maryland was among the first states to use the Children's Health Insurance Program (CHIP) to fund case management services. Maryland should explore other innovative sources of funding that would enable further expansion of case management services. Maryland's Community Health Workers can also provide a lower cost case management and in-home resident education resources especially for lower level EBL cases.

Environmental Investigation

Assets

A key component of lead poisoning prevention efforts is the ability to identify lead hazards through an inspection process and establish protocols to remediate the identified lead hazards. The State of Maryland has several state and local policies and protocols that require lead inspections or lead risk assessments and mitigation of the lead hazard. While the Full Risk Reduction Standard requirements prior to occupancy of affected rental properties under the Maryland Reduction of Lead Risk in Housing Law is the main primary prevention tool being implemented in Maryland, there are two secondary prevention mechanisms related to properties where a child with an elevated blood lead level (EBL) resides that are important components of a lead poisoning elimination strategy. Environmental investigation of all EBL properties and Notices of Elevated Blood Lead Levels for affected properties in Maryland, accompanied by proper enforcement and compliance, are important strategies to reduce the blood lead levels of the poisoned child while preventing siblings or other children in the home from being poisoned.

Elevated Blood Lead Levels: Environmental Investigation and Follow-Up

After a family is notified of the elevated blood lead levels, the local health department's case management officer, usually a nurse, will coordinate with a trained and certified sanitarian or lead inspector (risk assessor). With the exception of Prince Georges County and Baltimore City, the inspector-risk assessors are deployed from the Maryland Department of Environment (MDE). There are four MDE risk assessors that are assigned to one of four regions of the state: Western Maryland, Eastern Shore, Central North or Central South. The lead risk assessor and local health department case manager coordinate communication with the family and schedule an in-person visit to the residence. As noted previously, for jurisdictions that do not have enough resources to administer a home visit, the case managers will provide telephonic case management and communicate separately with the risk assessor, who will schedule the environmental investigation.

During the home visit, the Lead Risk Assessor will also complete a questionnaire with the family members about potential lead poisoning risks that can help inform the investigation. Based on the questionnaire, the risk assessor will determine if primary testing, i.e. sampling of paint, dust or soil (the latter of which is less common) is needed. Secondary testing on items such as water, pottery, etc. may also be completed if the risk assessor believes them to be potential sources of lead exposure. According to MDE, lead dust testing should always be completed during an environmental investigation, but soil, spices, makeup and other potential sources are tested based on the results of the questionnaire and the initial assessment. MDE has used the 2012 U.S. Department of Housing and Urban Development (HUD) Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing as technical guidance for their lead risk assessments, but pursuant to Maryland Healthy Children Act of 2019 it will now be formally required beginning on July 1, 2020.⁵⁵

If the results of the environmental investigation show chipping, peeling, or flaking paint, then MDE will issue a notice of defect to the property owner. In Maryland, the type of housing determines whether any action is required to take place after the receipt of a notice of defect. Pursuant to Maryland's Reduction of Lead Risk in Housing Law, all affected properties, which are residential rental properties built prior to 1978 that are not certified lead-free or limited lead-free, that receive a notice of defect are required to meet the modified risk reduction standard within 30 days. If the work will take more than 24 hours to complete, the rental property owner must 1) permanently relocate the tenant to a property that is certified lead free or in compliance with the full risk reduction standard, or 2) temporarily relocate all tenants while work is completed to satisfy the notice or local Lead Violation if issued by a local health department. The rental

property owner must also obtain a lead inspection certificate from an MDE-certified inspector within 30 days of receiving the notice of defect or notice of elevated blood lead level. Conversely, an owner-occupied property with chipping, peeling, or flaking paint is not required to perform any lead risk reduction unless required by a local health department lead violation notice.

If the primary testing at the property shows chipping, peeling, or flaking paint *and* it is a rental property built before 1978, then the property owner must obtain an inspection from an MDE-certified inspector and receive a modified risk reduction certificate within 30 days of being notified.

Elevated Blood Lead Level Notices

The State of Maryland's Lead Poisoning Prevention Program (LPPP) has a series of protocols for when a child between the ages of 0-72 months is identified with an Elevated Blood Lead (EBL) level. For all types of properties, the protocol includes an initial environmental investigation of the property in which the child regularly resides, as well as case management follow-up from the local county health department. The Health and Surveillance unit of the LPPP within MDE receives blood lead levels, including EBLs, directly from the labs and are responsible for sending out EBL notices to families. At the same time, the surveillance team will send the property owner a written notice that an EBL case is presently a resident of the property. MDE requires a confirmation certified mail receipt to ensure the written notice was received.⁵⁶

Currently, these services are triggered by an EBL level of 10 µg/dL or above. Caregivers also receive lead fact sheets and educational materials about lead poisoning prevention and nutrition. The timeline of when families or guardians of the child must be notified of the EBL coincides with the severity of the EBL level in accordance with the following protocol:

- EBL > 15 µg/dL: Notification by the close of business day of the working day following the receipt of the final test results
- EBL 10 – 14 µg/dL: Notification within two weeks of the final test results⁵⁷
- EBL 5 – 9 µg/dL (as of July 2020): Notification within 1-3 months (EBL of 10 µg/dL take priority)

MDE started sending out notices for EBL cases equal to or greater than 5µg/dL on October 1, 2019, as required by law. While MDE is sending out notices, they are not currently conducting environmental investigations for EBLs 5 or greater. However, effective July 1, 2020, MDE will be required to complete an environmental investigation for those cases. The only jurisdiction to have commenced sending out notices and conducting environmental investigations for EBLs equal to or greater than 5 µg/dL is Baltimore City.

Maryland Reduction of Lead Risk in Housing Full Risk Reduction Standard

In 1994, Maryland passed the Reduction of Lead Risk in Housing Law, which established the first proactive rental inspection program in the nation. The law originally mandated that all pre-1950 rental properties be registered with the state and be certified to meet the full risk reduction standard before the property could be rented. The Maryland law was subsequently expanded to mandatorily include all pre-1978 rental units. In order to receive a risk reduction certificate, the property owner is required to have their rental property inspected to verify that all chipping paint has been remediated and that the property passes a lead dust clearance inspection. Property owners could also opt to bring their properties to a lead-free standard, which would mean the removal of all lead hazards, including all lead-based paint, from the property and would also exempt them from the requirements under the Maryland law. Additionally, property owners can opt to have their properties certified as limited lead free, indicating that the interior surfaces of the property are lead free and that there is no chipping, flaking or peeling paint on the exterior surfaces of the property. Limited lead-free properties must be re-inspected and re-certified every two years. The following chart shows the

distribution of pre-1978 rental properties that are certified as lead free, certified as limited lead free, or are registered with MDE and subject to maintaining the lead safe standards described in the Reduction of Lead Risk in Housing Law.

Figure 11: Maryland Department of the Environment Registration Totals

Registration Totals	
Lead free units	240,504
Limited lead free units	45,580
Units registered	127,584
Total renter-occupied units built before 1980	422,028
Consolidated Plan 2015-2019; MDE Annual Enforcement & Compliance Report FY 2019	

It should be noted that the total number of rental units built before 1980 includes properties that were built in 1978 and 1979 and are therefore not subject to the Reduction of Lead Risk in Housing Law. It should also be noted that the number of registered units reported at the end of FY 2019 (127,583) represents a drop in the number of registered units compared to the FY 2018 report (133,809). MDE might consider to investigating the reasons behind the reduction in registered units. Additionally, MDE might consider mapping rental registrations in order to locate jurisdictions with lower compliance rates. This would allow MDE to conduct targeted follow up with property owners and to take enforcement actions if necessary.

Gaps

EBL Cases Across Maryland

In 2018, of the 131,626 children ages 0-72 months who received blood lead testing, there were 295 new cases of children with a highest EBL level that was at 10 µg/dL or greater and 1,114 new cases of children with a highest EBL level at 5-9 µg/dL. The four counties with the largest number of children with EBL levels include Baltimore, Baltimore City, Montgomery, and Prince Georges.⁵⁸ Of these counties, Baltimore and Baltimore City held the largest number of confirmed cases with identified lead hazards due to lead paint from 2016 – 2018.⁵⁹

Changes to Standard Protocols and their Implications

Under Maryland’s new lead law (outlined in HB 1233) and in line with existing Centers for Disease Control (CDC) standards, confirmed cases of EBL levels between 5-9 µg/dL will require an environmental investigation by MDE (and the Baltimore City Department of Health). In Baltimore City alone there were an additional 383 children with their highest blood level between 5-9 µg/dL indicating possible additional confirmed cases and increased need for preliminary environmental investigations. Examples of these totals for other Maryland counties include 140 for Baltimore County; 147 in Prince Georges County; and 112 in Montgomery County.⁶⁰ As noted in the Fiscal and Policy Note of HB 1233, “lowering the reference level more than triples the number of cases requiring some type of action by MDE (based on 2017 data).”⁶¹ In addition to the investigations required for the residence of the child who presents with high EBL levels, a comprehensive review of all properties belonging to the property owner is conducted, including examination of whether they are registered with the state and have met the relevant risk-reduction standards under Maryland law. This process is both time and resource intensive, and MDE does not currently have the staffing capacity to meet such responsibilities set forth in HB 1233.⁶²

For MDE to have the capacity to meet the expected significant increase in investigation and compliance workloads, which must be met to comply with HB 1233, the Fiscal Note for HB 1233 outlines the additional staffing that will be required. This includes:

- By Oct 1, 2019:
 - 1 Environmental compliance specialist supervisor
 - 2 administrative specialists
 - 5 environmental compliance specialists
- By May 1, 2020:
 - 5 “additional environmental compliance specialists to promulgate regulations for conducting environmental investigations and to handle the significantly greater caseloads anticipated as a result of lowering the EBL reference level [to 5 µg/dL]”⁶³
- Fiscal 2021
 - 2 additional staff (1 assistant Attorney General; 1 administrative specialist) “to perform quality assurance review of modified risk reduction certificates, assist with administrative tasks associated with case development and investigations, and generally implement the lower EBL reference level”⁶⁴

To meet these hiring needs, the Fiscal and Policy Note outlines the following budget for State Expenditures:

	<u>FY 2020</u>	<u>FY 2021</u>
New Positions	13	2
Salaries and Fringe Benefits	\$443,345	\$962,170
Vehicle Purchases/Operations	121,631	11,875
Other Start-up Expenses/Equipment	147,870	10,180
Other Operating Expenses	<u>49,721</u>	<u>62,228</u>
Total State Expenditures	\$762,567	\$1,046,453

Based upon current environmental investigation protocols, in order for Maryland to successfully implement these same protocols for the new child EBL levels set to take effect in July 2020, there must be a minimum of approximately \$1.8 million in additional funds allocated towards MDE’s Lead Poisoning and Prevention Program for these positions. Thus, funding specifically towards LPPP for the items outlined above will be a crucial part to ensuring that Maryland’s new lead law changes are successfully implemented.

Opportunities and Recommendations

1. Increase the number of Lead Risk Assessors/Inspectors at MDE who are capable of conducting environmental investigations in the properties of EBL children. The number of inspectors can be increased by:
 - a. Increasing MDE Land and Materials Administration’s Lead Poisoning Prevention Program budget to hire additional inspectors
2. Increase the number of MDE’s Lead Surveillance Section staff as necessary to meet any increased need in preparing and issuing Notices of Elevated Blood Lead Level to rental property owners of properties where Persons at Risk are identified with an EBL, pursuant to the changes required by HB 1233.

Enforcement

Assets

Lead laws are enforced at the federal, state, and local levels. The United States Congress has passed several laws in efforts to protect communities from lead in paint, water, soil, and dust. Comparatively, the Maryland General Assembly has passed even more stringent laws to combat childhood lead poisoning and since the early 1990's has significantly enforced regulations and implemented guidelines that have reduced cases of lead poisoning by more than 98 percent.

Federal Enforcement Efforts

Federal enforcement efforts are carried out primarily by two federal agencies: U.S. Environmental Protection Agency (EPA) and Department of Housing and Urban Development (HUD).

U.S. Environmental Protection Agency (EPA)

Lead in Paint

Recognizing that lead paint is the leading cause of childhood lead poisoning, the EPA promulgated the three rules under the authority of the Toxic Substances Control Act (TSCA): the Renovation, Repair, and Painting Rule (RRP), the Pre-Renovation Education Rule (PRE), and Lead-Based Paint, Activities, Certification, and Training Rule (LBP).⁶⁵ These rules confer three primary duties related to lead paint:⁶⁶

- Firms that do lead abatement work must be properly trained and certified by an accredited provider, provide notice to the EPA of the abatement work, and follow lead-safe work practices.
- Firms that conduct renovations, repairs, or painting in pre-1978 housing, childcare facilities, and preschools must be properly trained and certified by an accredited provider (or receive training from a certified renovator), follow lead-safe work practices, and provide a lead hazard pamphlet to the owners and occupants before beginning renovations.
- Firms must maintain adequate records for at least three years to demonstrate compliance with these rules.

Under the TSCA, the EPA may conduct inspections of contractors hired for lead abatement work and bring civil administrative actions for violations of RRP rules.⁶⁷ The EPA conducts compliance monitoring by reviewing adherence to disclosure requirements, targeting inspections to “lead hot spots,” and conducting random inspections.⁶⁸ The EPA RRP Rule applies to renovation activities that disturb paint in a pre-1978 property above the de minimis level and where a person receives compensation for their services. The RRP Rule is currently enforced in Maryland by the EPA through its regional office in Philadelphia as Maryland has not completed the process to become an EPA authorized state.

If a first-time violator’s violation is not severe, is unlikely to re-occur, or the violator is in substantial compliance, the EPA may begin enforcement proceedings by issuing a notice of noncompliance that indicates the corrective actions required.⁶⁹ If not corrected, the EPA may file a civil administrative complaint, which might impose conditions in addition to a civil penalty.⁷⁰ From October 2017 through September 2018, the EPA entered into civil settlements or orders with eight different Maryland-based companies,⁷¹ with civil penalties ranging from \$350⁷² to \$67,180.⁷³ The EPA may refer civil and criminal judicial actions to the U.S. Department of Justice for prosecution, though no data on such actions in Maryland was readily available.⁷⁴

Lead in Soil

The Resource Conservation and Recovery Act (RCRA) authorizes the EPA to enforce requirements for the “safe handling, treatment, storage, and disposal of hazardous wastes” such as lead.⁷⁵ While the EPA retains enforcement power, states with authorized RCRA programs enforce these regulations.⁷⁶

Lead in Drinking Water

Lead is regulated in public drinking water supplies under Safe Drinking Water Act (SDWA), a federal law that was initially passed in 1974. SDWA requirements apply to “public water systems.” Schools that are served by a public water system are not subject to SDWA monitoring and treatment requirements because those schools do not meet the definition of a public water system. The vast majority of public water suppliers do not include schools in their sampling plans.

The EPA enforces drinking water protections through the Lead and Copper Rule (LCR), which requires that the corrosivity of water be controlled to prevent lead from mobilizing.⁷⁷ In 1991, EPA published the lead and copper rule to minimize lead and copper in drinking water. Compliance is based on a three-pronged approach⁷⁸ :

- (1) treatment technique requirements, including corrosion control and source water treatment;
- (2) lead service line replacement program; and
- (3) public education.

In November 2016, EPA released the National Drinking Water Action Plan⁷⁹, calling for collaboration from all levels of government, utilities, community organizations, and other stakeholders to increase the safety and reliability of drinking water. While EPA’s Lead and Copper Rule has resulted in considerable reductions of lead and copper in drinking water, it is now 25 years old and both the rule and its implementation are in need of a substantial overhaul. According to the National Conference of State Legislatures, the plan encompasses six priority areas, one of which is revising the lead and copper rule to include best practices on lead service line replacement and revised guidance for testing for lead in drinking water at schools.

In 2019, the EPA proposed revisions to the Lead and Copper Rule⁸⁰, which include:

- Identifying the areas most impacted by requiring all water systems to complete a lead service line inventory via thorough testing for elevated lead levels.
- Requiring water systems to reevaluate their corrosion control treatment system at the new proposed trigger level of 10ppb.
- Mandatory replacement by the water system of the water system-owned portion of the lead services lines
- A requirement for water systems to test drinking water outlets in schools and childcare centers
- Notification of all customers if elevated levels of lead are present in the water system
- New sampling procedures designed to target areas with higher lead levels

The EPA also provides guidance for Reducing Lead in Drinking Water in Schools and Childcare Facilities with its [3T’s Toolkit](#). Originally released in 2006, the EPA updated its guidance in 2016. The toolkit includes

recommendations for Training, Testing and Taking Action for schools and childcare facilities looking to develop and implement a program to protect their children from lead in water.

Housing and Urban Development (HUD)

Title X, also known as the Residential Lead-Based Paint Hazard Reduction Act of 1992, authorizes HUD and the EPA to enforce certain lead paint disclosure requirements of known lead hazards before the sale or lease of pre-1978 housing.⁸¹ Individuals can report that they did not receive the appropriate forms by calling a hotline 1-800-424-LEAD.⁸²

The Lead Safe Housing Rule, also mandated by Title X, has a profound impact on reducing childhood lead poisoning. The Rule protects residents from being exposed to lead hazards by mandating the disclosure of known lead hazards and the inspection and remediation of lead-based hazards present in federally owned and federally assisted housing built prior to 1978. In Maryland, the Lead Safe Housing Rule governs a large number of pre-1978 constructed public housing units and Housing Choice Voucher Program units. There are about 450,000 housing units within the federal assistance programs that are estimated to have been built before 1978 and have children under the age of 6 residing. Enhancing the Lead Safe Housing Rule will increase accountability on the part of the federal government to protect residents from lead-based hazards present in the home.

State Enforcement Efforts

Maryland Department of the Environment

The Lead Poisoning Prevention Program (LPPP) oversees activities designed to reduce the incidence of childhood lead poisoning. These activities involve accreditation and oversight of lead paint abatement service providers, maintenance of a registry of blood lead levels, investigation of childhood lead poisoning cases, and enforcement of the statute and regulations. The Technical Services and Operations Program (TSOP) works closely with LPPP and is responsible for the maintenance of the registry of rental properties and enforcement of the rental registration requirement⁸³.

Lead in Residential Paint

The Maryland Reduction of Lead Risk in Housing (MRLRH) Act was originally passed in 1994 to regulate pre-1950 rental properties and was updated in 2015 to mandatorily include rental properties built from 1951 to 1978. In 2019 it was further amended to lower Maryland's blood lead action level and align it with the CDC blood lead reference level of 5µg/dL. The MRLRH Act governs many of Maryland's enforcement activities related to lead paint in housing. This law requires that owners of pre-1978 rental properties comply with registration, conduct proactive rental inspection and certification requirements, meet lead paint risk reduction standards, and provide educational materials to tenants.⁸⁴

Rental Registration

Owners of rental properties are required by MRLRH to register properties built before 1978 with the MDE and pay a \$30 annual fee, renew such registrations annually, and report changes of ownership and property management within 30 days.⁸⁵ Registration can either be completed online or with a paper form. MDE's Lead Rental Registry Property Search⁸⁶ is an online database that offers access for both the property owner

and tenants through a user-friendly interface that provides data (owner's name, registration status, and last payment information) for affected properties in the rental market.

MDE's Rental Registry Section issued over 6,000 Notices of Violation to property owners who failed to renew their registrations in FY 2018.⁸⁷ TSOP has collaborated with the Maryland Department of Assessment and Taxation (SDAT) to identify rental properties and use the data to get non-owner-occupied, pre-1978 properties registered. The largest number of enforcement actions continue to be related to lead poisoning prevention as a result of a continuing enforcement initiative for property owners who failed to renew rental registrations for the lead rental. The MRLRH authorizes MDE to impose a penalty of \$20 per day that an affected property is not registered or that registration is not renewed or updated.⁸⁸

TSOP is primarily responsible for administrative duties for lead rental registration which consists of a total of 24 full-time staff positions.⁸⁹ Approximately, 17 staff positions are assigned for administrative duties to process registration fees and 5 for inspection and enforcement of registration.

Rental Risk Reduction

Pursuant to Maryland's Environment Article § 6 –815, at every change of occupancy, owners of affected rental properties are further required to meet the full risk reduction standard. To do so, owners – via the accredited lead paint visual inspector or lead paint risk assessor – submit a report verifying that the property passes inspection, including a test for lead-contaminated dust.⁹⁰ At the beginning of a new tenancy, the owner is required to provide the tenant a copy of the Lead Inspection Certificate to demonstrate the property was inspected prior to occupancy and has successfully passed the test for lead-contaminated dust. During the tenant's occupancy, if the owner receives either a Notice of Defect or a notice that a child under the age or six or pregnant woman of the affected rental property has an elevated blood level, under MD Env. Article § 6-819, rental property owners must meet the modified risk reduction standard. This standard requires the owner to either provide alternate housing for occupants or cure the defect by hiring a certified lead abatement contractor to conduct the risk reduction activities and pass a lead dust test to confirm that all lead hazards were abated.⁹¹ In the case of a notice of EBL, the modified risk reduction standard is triggered even though there is not necessarily a defect.

If the rental owner has not completed the modified risk reduction and received a modified risk reduction certificate within 30 days, they will receive a notice of noncompliance. MDE investigators follow up to determine whether the noncompliance is due to the property owner or to another party, such as the tenant refusing to vacate.⁹² The Maryland Environment Article authorizes a penalty of \$500 for each day an owner fails to obtain the applicable passing lead paint risk reduction inspection certificate.⁹³

In FY 2017 and FY 2018, inspection coverage reached 42% of the number of registered properties and the number of sites with inspections.⁹⁴ In 2018, this amounted to 56,169 inspections – 2,826 were conducted by the MDE and 53,330 by accredited inspectors.⁹⁵ According to MDE data, 5% of sites inspected in 2018 had significant violations and there were 952 significant violations that involved an environmental or health impact.⁹⁶ In FY 2018, MDE took 6,402 administrative enforcement actions, obtained one injunction, and referred one case to the Attorney General for possible criminal prosecution.⁹⁷ These actions resulted in \$1,387,213 in penalties.⁹⁸ These penalties go into the Lead Poisoning Prevention Fund.⁹⁹ A significant MDE enforcement action used the alternative approach of Supplemental Environment Project (SEP) – SEP is where penalty actions are offset with dollars directly spent on environmental projects to improve the bad

actors environmental stewardship and reduce the public health risk, specifically MDE entered in 5 SEPs during FY 2018 that involved the replacement of leaded windows. This SEP total value was \$6,101,000.

The MDE currently has four environmental investigators, each of which is assigned a geographic region of the State.¹⁰⁰ There are also seven additional staff at MDE, who are accredited as risk assessors and can fill in as needed.¹⁰¹ MDE staff, who complete environmental investigations, also do compliance work related to those investigations, as well as other compliance activities if their time allows.¹⁰²

A comparative analysis describes from the Department of Legislative Services cites MDE took 8,249 enforcement actions in fiscal 2017, a 44% decrease from the 14,829 enforcement actions that it took in fiscal 2016 but significantly higher than the 10-year average of 4,910¹⁰³. This is largely due to a recent increase in enforcement activity in the Lead Poisoning Prevention Program (LPPP). MDE asserts that more violations across the LPPP were resolved through compliance assistance, which allows the opportunity to educate a property owner before a violation occurs and resolve non-serious violations in a timely manner hence the reduction in enforcement.

Child Care Facilities

Childcare facilities are actively involved in enforcing Maryland's universal lead testing law, as documentation of a child's blood lead analysis is required at first entry into public pre-kindergarten, kindergarten, or first grade.¹⁰⁴

Childcare facilities must also comply with lead regulation. Under Title 13A of the State Board of Education, providers of child care in the home or accredited centers must provide a lead-safe environment.^{105, 106} The Maryland State Department of Education records and publishes lead safety violations online.¹⁰⁷ Between 2010 and 2019, this database indicates that violations were found at 272 different childcare facilities statewide. As inspections and enforcement actions often take place only after a complaint or detection of an elevated blood level, this number is likely far lower than the true number of childcare facilities in violation of lead laws.¹⁰⁸

Maintenance & Repair

Persons who perform maintenance, repairs, or renovations that involve disturbing three or more square feet of lead paint in all residential, commercial, and public buildings must comply with COMAR 26.16.01.¹⁰⁹

Lead in Water

The MDE, acting pursuant to Environment Article §6-1501-6-1502, enacted Lead in Drinking Water standards that require public and nonpublic schools to test their drinking water outlets. Under this regulation, schools must take action if these tests detect lead levels of 20 parts per billion (ppb).¹¹⁰ This was based on EPA's outdated 2006 guidance, "3Ts for Reducing Lead in Drinking Water in Schools," which included a 20ppb recommended action level. However, 20 ppb was not originally selected by the agency based on health or a rigorous review of the science. Currently the EPA's action level for lead in water in schools is 20 ppb. Proposed revisions to the Lead and Copper Rule released in 2019 include a trigger level of 10 ppb that, if the proposed revisions are passed, would activate additional monitoring and corrosion control efforts.¹¹¹ Maryland's Lead in Drinking Water regulation for schools became effective in April 2018¹¹² and as of January 10, 2020, 4.0% of the 54,727 samples submitted exceeded this action level, 49% of which were from drinking water outlets.¹¹³

The passage of HB1253 in 2019 implemented a Healthy School Facility Fund in the amount of \$30 million dollars to allow schools, both public and non-public, who test drinking water outlets and results of lead concentration above 5 parts per billion could apply for grant funding.¹¹⁴ The schools with the highest need will be prioritized for funding to help with lead remediation of pipes, plumbing, and installation of drinking water outlets. Despite successful legislation passed in Maryland to establish lead testing and reporting requirements and funding for remediation costs, the elevated level of lead as recommended by the EPA remains 20 ppb.

Lead in Consumer Products

Lead in consumer products, especially products coming from other countries, remains a source of lead poisoning. When an elevated blood lead level is detected, the MDE or local health department accredited risk assessors may test objects in and around the home for lead.¹¹⁵ Maryland law prohibits the manufacture, sale, importation, or distribution of lead-containing children's products through a retail outlet, catalog, or the internet.¹¹⁶ If a product is found within the home, MDE advises that the family discontinue use to avoid further exposure to the child. Future enforcement efforts may target adulterated products sold online.

Local Enforcement Efforts

Only two of Maryland's local jurisdictions—Baltimore City and Prince George's County—employ sanitarians who conduct local lead enforcement. However, Maryland Counties deploy significant resources toward local housing code enforcement and inspections. Increased data sharing and collaboration could empower these county-level enforcement personnel to identify and refer lead hazards for correction before children are poisoned. Three jurisdictions are profiled in greater detail below.

Baltimore City

Baltimore City require owners of rental properties to obtain licenses from the Housing Commissioner.¹¹⁷ As of January 1, 2019, the rental licensing requirements was expanded from multi-dwelling units to include all rental units – both 1 and 2 dwelling units. To obtain or renew a rental license, the property must comply with federal, state, and municipal laws regarding lead paint,¹¹⁸ including providing the Commissioner with a copy of the Lead Inspection Certificate to accompany the application for a license. The Baltimore City Housing Code further considers lead paint a “serious defect” that must be abated within 30 days of notice and prevents landlords from increasing rental fees and other retaliatory actions.¹¹⁹

The Baltimore City Building and Fire Code gives city officials the authority to apply for a search warrant without prior notice for the last-reported address of a child who has a blood lead level of 15 µg/dL or more.¹²⁰ If such a search in a multiunit building leads to the discovery of untreated lead hazards, officials may enter into other units to determine compliance.¹²¹ Baltimore City further restricts reoccupying dwellings subject to uncorrected lead paint violations.¹²²

The Baltimore City Health Department is one of the few in the state that employs sanitarians. Four of these environmental health specialists focus on lead-enforcement efforts and a fifth individual will be hired in 2020. The city's 18 additional environmental health specialists primarily focus on restaurants, but are cross-trained to conduct lead investigations.¹²³ These officials can write citations and place liens on owner-occupied homes.¹²⁴ The Baltimore City Health Department takes further legal action when Lead Hazard Violation Notices are not corrected in a timely manner.¹²⁵ A list of lead paint violation notices is available here: <https://health.baltimorecity.gov/lead/lead-violations>. It is important to note Baltimore City does not have

additional data on the total number of lead paint violations that were issued for the fiscal year or the number of lead paint violation notices that were abated.¹²⁶

In 2007, the Baltimore City Building Code incorporated several standards for lead-safe demolition. Applicants seeking to demolish buildings must obtain appropriate permits, comply with hosing/wetting requirements to reduce lead dust, and post signs pertaining to the work schedule.¹²⁷ In doing so, it became the first City to recognize the imminent risk that demolition of older homes can release substantial amount of lead dust and paint chips in the environment and by adopting a demolition safe standards specifically aimed at suppressing lead dust exposure was the best method to reduce further lead poisoning.

Baltimore County

Baltimore County requires that owners of six or fewer rental properties register and license these properties. The County imposes civil fines of \$25 per day a violation occurs and \$200 for every day the owner fails to comply with a correction notice.¹²⁸ The licensing process requires a home inspection – the lead-paint inspection can double as the rental unit inspection as long as the inspector is properly accredited. The Department of Permits, Approvals, and Inspection had approximately 72 Full Time Equivalent personnel working on inspections and enforcement in 2018, though it is not clear how many specialize in lead hazards.¹²⁹

Prince George's County

Like Baltimore City, Prince George's County also employs a sanitarian that assists with lead enforcement activities.¹³⁰ The County's Building Code prohibits peeling, chipping, or flaking paint on interior surfaces.¹³¹ The FY 2019 Budget for the County's Department of Permitting, Inspections, and Enforcement makes inspecting residential and commercial properties to ensure compliance with the Building Code a priority. With 60 inspectors in the County,¹³² additional collaboration between the MDE and Prince George's County could help proactively reduce lead hazards before children are poisoned. The County confirmed at least 45 cases of lead poisoning where a child was exposed to sources other than lead paint, i.e. spices, cosmetics, and pottery amongst the immigrant and refugee population that have immigrated to the U.S. and re-settled in Maryland.¹³³ This recent discovery through environmental investigations has led to questions on establishing best practices to address enforcement and educate families on the potential risks of lead exposure that cultural traditions and/or foods pose to a child.

Private Enforcement

Through funding support provided by MDE and other match funding, Green & Healthy Homes Initiative (GHHI) has an in-house Family Advocate Attorney¹³⁴ who provides legal representation to over 100 tenants annually in District Courts throughout the State of Maryland in Rent Court Proceedings (i.e. Rent Escrow, Failure to Pay Rent, Retaliatory Actions, etc.) and engages in various negotiations and agreements for termination of lease, temporary or permanent relocation, and waiver of rent payments.

Providing legal representation serves an important role in increasing compliance with the Maryland Reduction of Lead Risk in Housing Law to ensure rental property owners of noncompliant affected properties repair lead hazards. It is a core component of the GHHI's approach to supporting MDE and the state's enforcement efforts and lead poisoning elimination plan. Property owners of noncompliant properties are often referred to GHHI for resources and compliance education as well. Clients with legal needs involving lead hazards in their home and tenant's rights assistance are referred to GHHI by various partners including

local health departments, clinical partners, outreach events, self-referrals, community organizations, and state housing departments. Legal representation empowers and supports tenants as they deal with the needs of a child with an elevated blood lead level and hazards in the property where they reside where a landlord is unresponsive. Most of the clients represented are low-income and are unable to afford private attorney representation for the repair of lead hazards in their home. Tenants typically appear in court unrepresented and uneducated about the seemingly complicated legal process and their rights to have their property brought into compliance. The legal representation provided ensures that tenants' rights are protected as they appear with an attorney prepared to advocate on their behalf. The Family Advocate Attorney assists tenants residing in non-compliant properties in them in getting their property treated and certified, handling temporary relocation arrangements during the hazard reduction intervention, and ensuring that lead certified contractors and lead safe work practices are utilized.

Gaps

While federal rules provide important guidance to actors in Maryland, it is unclear how federal agencies become aware of alleged violations and how many alleged violations are prosecuted or referred for further action.

Lead Disclosure Law – Title X

The primary intent is disclosure and education of lead-based paint residential housing; however, the law needs to be enhanced to include mandatory inspections of properties that will trigger additional financing from owners for lead remediation measures. The current provision in Title X allows for optional lead testing by purchasers prior to sale has not been as effective as a voluntary prevention tool in triggering owners who are purchasing pre-1978 constructed properties to conduct lead testing prior to sale and lead hazard remediation prior to sale or shortly thereafter.

EPA Final Rule on Lead Dust Standards and Lead Dust Abatement Standards

In June 2019 the EPA issued an update to the standard for lead in dust on floors and windowsills for housing and child-occupied facilities. The new standard identifies 10µg/ft² as the threshold for lead in dust on a floor, and 100µg/ft² as the threshold for lead in dust on a windowsill. Above these levels, the property is considered lead hazardous, and must be made lead safe through approved remediation techniques. However, flaws in the regulation result in a lack of correlation with dust standards which identify a lead hazard, and the post-remediation standards which must be met to achieve clearance, which are still 40 µg/ft² and 250 µg/ft², respectively. This results in a bizarre situation in which a lead abatement contractor may leave a property with higher levels of lead dust than it had before lead hazards were remediated.

Lead Poisoning Prevention Funds

MDE's 2021 budget as reported in the Maryland State Budget Volume III for 2021 for Lead Poisoning Prevention Fund (LPPF) as the Special Fund Expenditure provides the following breakdown:

Figure 12: Maryland State Budget for Lead Poisoning Prevention Fund FY 2018 - FY 2021

FY 2018 Actual	FY 2019 Appropriation	FY 2020 Appropriation	FY 2021 Allowance
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\$4,740,244	\$5,454,018	\$5,335,546	\$5,133,475
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The penalties and fees received through various enforcement actions are placed in the LPPF, however, it is unclear how the funds are being reinvested or distributed to assist with more funding resources for State lead remediation programs, if any. A breakdown would provide greater transparency on whether funds could be reallocated to help MDE meet other needs under the Maryland Reduction of Lead Risk in Housing Law.

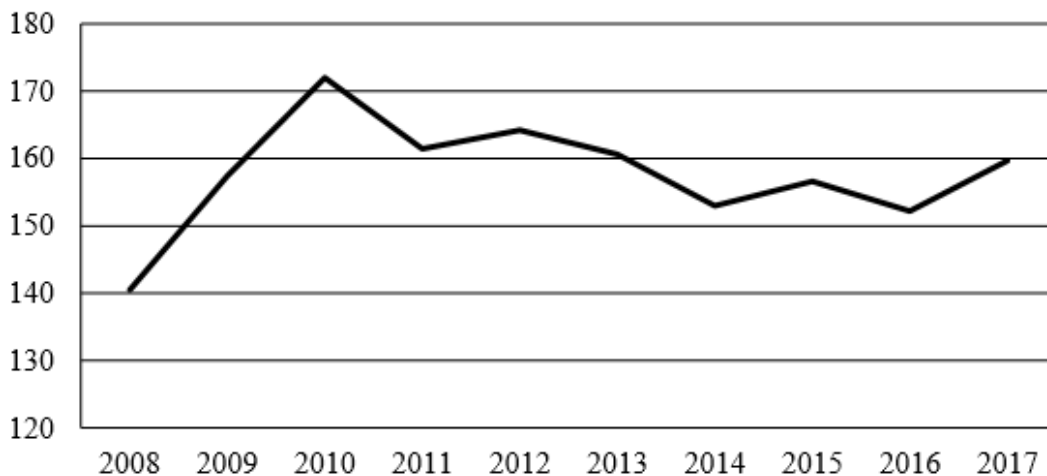
It is important to note that there is a significant decrease (3.8%) from FY 2020 budget to FY 2021. An interview with MDE indicated there was a funding stream from a CDC supplemental grant that was awarded to MDE for Investigations and Technical Assistance, and the grant will end thus reducing the overall budget for MDE in FY 2021.

Staff Allocation

A recent analysis by the Department of Legislative Services noted that MDE was one of the few agencies that was *chronically* understaffed.¹³⁵ As the exhibit illustrates below for six years (2010 – 2016), there was a steady decline on the number of inspectors hired with an increase that eventually occurred in Fiscal Year 2017. See Figure 13:

Figure 13: Maryland Department of the Environment Inspector Staffing Numbers

Exhibit 2
Inspectors in the Maryland Department of the Environment
Fiscal 2008-2017



Source: Department of Legislative Services

We reviewed the current allocation of staff within Technical Services and Operations Program (TSOP) and LPPP and noticed a significant number of employees assigned to lead rental registration and a comparatively lower number of inspectors for the enforcement of affected property inspection certification and accreditation. This finding points to a deficiency in the number of inspector positions. That is an important need to address due to the new regulations going into effect on June 1, 2020 that will require additional staffing capacity to support the increase of environmental investigation at the level of 5 µg/dL or above.

Rental Registration Compliance

Due to the required reinspection, the number of limited lead-free units fluctuates, and the lack of transparent, clear reporting makes it challenging to have an accurate rental registration compliance rate. Further, the last publicly available data MDE provided on lead-free units was in 2011.¹³⁶ We find this gap a significant finding and recommend more clear, up-to-date reporting to allow a comprehensive assessment and targeted enforcement.

Figure 14: Proportion of Pre-1950 Rental Units (Excludes Lead-Free Units) Registered by County (2011)

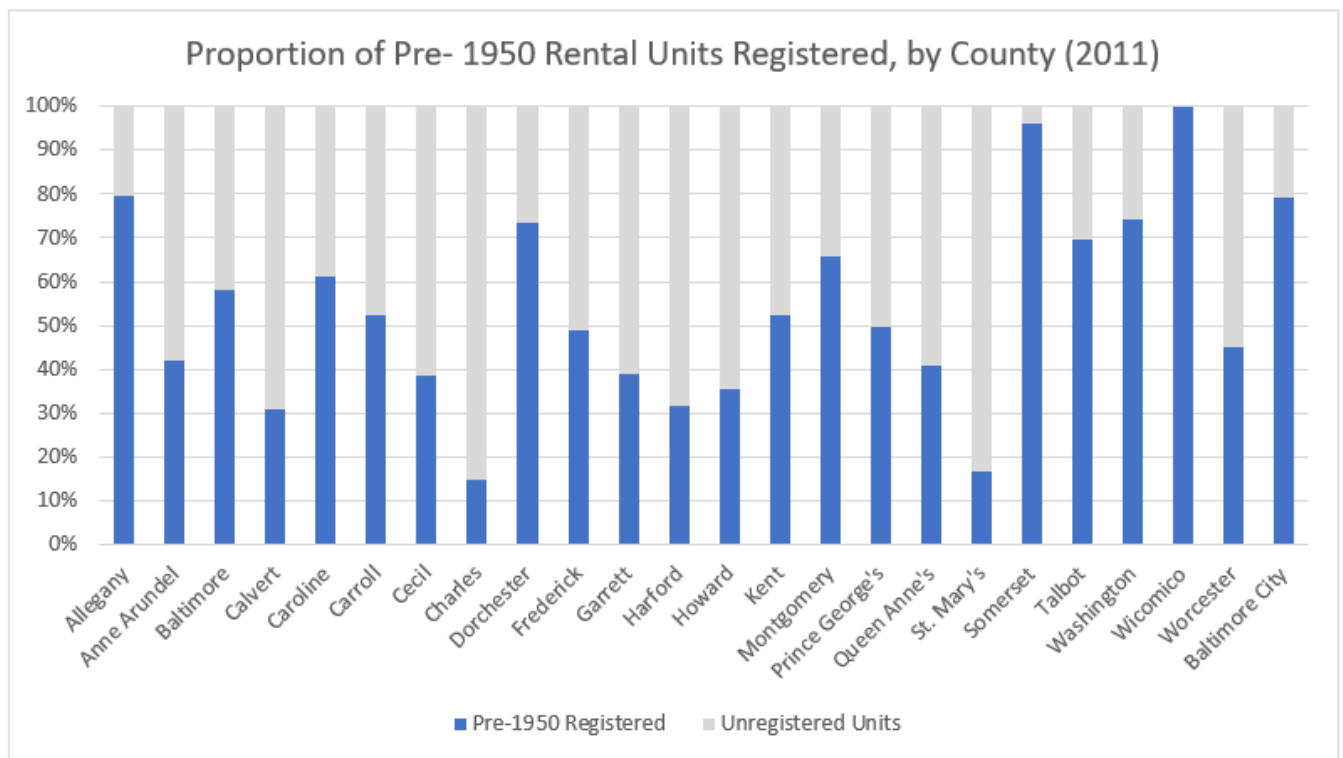
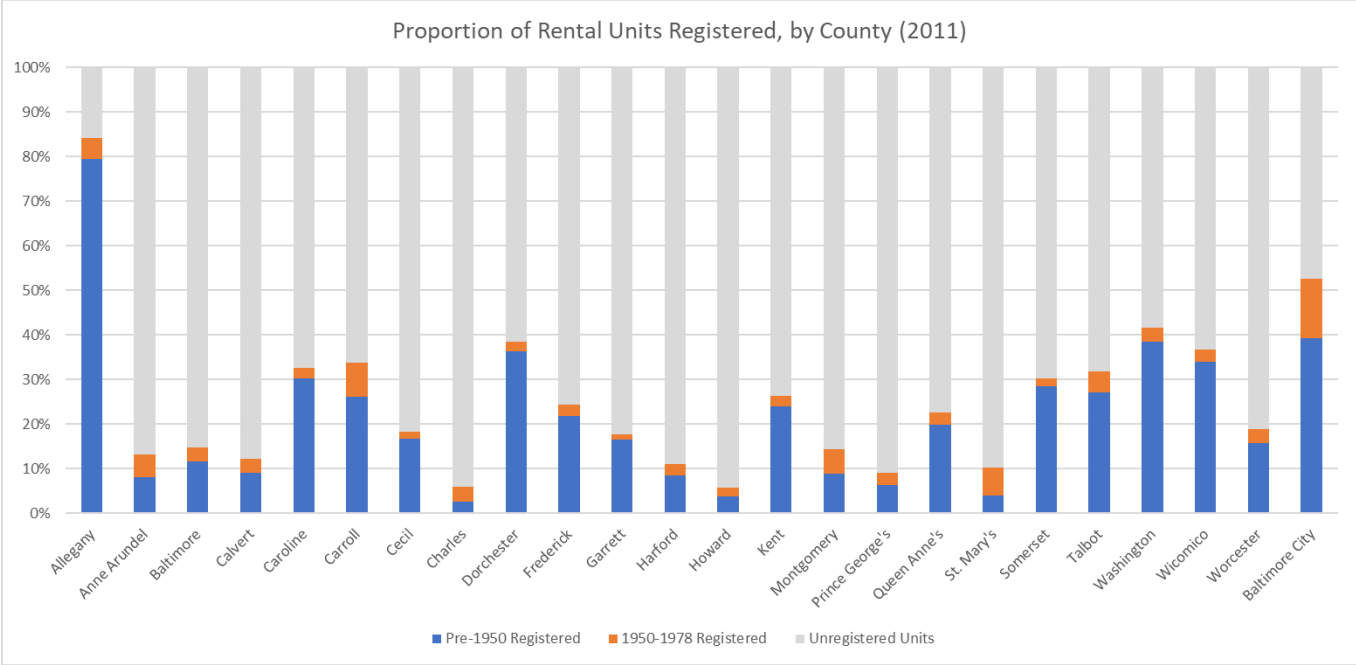


Figure 15: Proportion of Pre-1978 Rental Units Registered (Excludes Lead-Free Units), by County (2011)



Inspection Certification Compliance

According to MDE’s published Rental Property Registration and Inspection Chart November 2011, there were approximately 253,000 total risk reduction certifications issued since the law’s full enactment in 1996. The Department and the State are not able to provide a reliable inspection certification compliance rate with the MRLRH full risk reduction compliance requirements because the state’s database system does not 1) monitor whether the property is currently occupied, 2) provide real-time information on lead-free certification or limited lead-free certification with a reinspection within the last 2 years, 3) track properties with full risk reduction certification as related to current or prior tenancy, and 4) account for properties receiving multiple or duplicate risk reduction certifications.¹³⁷ As a result, the state is unable to derive an accurate figure for the number of rental property units that have received risk reduction inspection certification since the law went into full effect on February 24th, 1996. This prevents the State from being able to calculate the rental inspection compliance rate. MDE is currently in the process of developing a new database called the Lead Rental Certification and Accreditation Database (LRCA) which will improve the ability to track certificates and link certificate data with registration data but will not calculate compliance. This database is expected to become available in November of 2021.

Further, of concern, a May 2018 Audit Report by the Office of Legislative Audits (OLA) found that MDE’s Lead Poisoning Prevention Program did not establish a sufficient process to ensure that property owners of pre 1978 rentals had a compliant lead inspection certificate.¹³⁸ In a response to OLA’s May 2018 report, MDE did not concur with OLA’s finding and outlined their current process for ensuring that all affected properties receive a valid lead paint inspection certificate. Currently, MDE reviews 10 random properties registered each month for valid inspection certificates on file, if required by law. In addition, at the time of

the audit completion, OLA identified 10,832 affected properties that were not in compliance with the inspection certification requirement. MDE clarified in their response that of the 10,832 properties identified by OLA, only 2,099 properties were built prior to 1950 and thus are required by law to have a valid inspection certificate on file. Of the 2,099, MDE found that 837 properties either had valid certificates at the time of the response or were no longer affected properties. Thereby, leaving 1,262 properties to be investigated.

The remaining 8,733 properties (of the original 10,832 identified by OLA) were built between 1950 and 1978 and are therefore only required to obtain an inspection certificate after a triggering event (i.e. change in occupancy or the issuance of a notice of defect). As noted in MDE's response to OLA, it is difficult and can require labor-intensive methods to determine whether a property built between 1950 and 1978 is required to have an inspection certificate. Still, having an accurate inspection certification compliance rate is a critical data point for the State's strategic planning purposes, deployment of resources, and to meet and address environmental goals that may be at risk.

Owner-Occupied Homes

Enforcing lead laws in owner-occupied homes is far more difficult than in rental properties.¹³⁹ These homes are not regulated by Maryland's Reduction of Lead Risk in Housing Act. While these properties must comply with state and local building codes, properties with lead violations also often fail to comply with other aspects of the building code. In many cases, owners lack the funds to make repairs and correct these violations.

A comprehensive enforcement analysis should include detailed data on where owner-occupied homes in violation of lead laws are located and the types of common co-occurring violations.

Lead in Baby Foods

In current news and reports, lead in baby foods has become a growing concern and whether enforcement should be strengthened or expanded is noteworthy for further discussion. In 2017, Environmental Defense Fund (EDF) evaluated approximately 11 years of Food Drug Administration's Total Diet Study data and found that baby food in particular had a "meaningful and surprising source of lead," such that if it were completely eliminated, it would result in societal benefits at more than \$27 billion annually.¹⁴⁰ In 1993, the FDA has established a Provisional Tolerable Total Dietary Intake (PTTDI) level for lead of 6 µg/day for young children.¹⁴¹ However, FDA has failed to align its standards for dietary intake since CDC has now lowered the reference level to 5 µg/day. In May 2017, FDA affirmed that it continues to use the PTTDI as the maximum daily intake level for lead exposure, but also indicated it is reevaluating its standard. We urge FDA to swiftly review its standards to be a collaborative force to combat different avenues of sources of lead, such as food-in particular baby food that directly affects young children. The American Association of Pediatrics set a goal of less than 1 ppb of lead in baby food and other foods marketed to young children.¹⁴² We need FDA to consider efforts to research and develop ways to incorporate standards to ban lead in all food, especially where the lead exposure is targeting our children.

Opportunities and Recommendations

We recognize the State's comprehensive enforcement and compliance assistance to combat and reduce lead exposure in Maryland; however, this asset and gap analysis presents a few opportunities to support recommendations that can establish a roadmap to strategically eliminate childhood lead poisoning. Below are a few opportunities for impact:

Federal Laws Enforcement

1. **Strengthen Title X Lead Disclosure Rule.** The State of Maryland should consider passing a law that would require the seller to receive a lead risk assessment on their property prior to sale. Currently, seller is only required to disclose information on existing lead hazards on the property if they are aware of lead hazards. In theory, sellers could claim no knowledge of lead hazards and that would satisfy the requirement under Title X. Maryland should close this loophole by requiring a lead risk assessment at point of sale to implement stringent lead disclosure standards for homes built before 1978.
2. **Increase Enforcement of RRP to Improve Compliance Rates and Standards.** The EPA currently enforces the RRP rule in Maryland. However, the State can apply to be authorized by the EPA to administer and enforce the RRP rule. Several states including North Carolina, Rhode Island, Utah, Alabama, Wisconsin, Oregon, Washington, Georgia, Massachusetts, Mississippi, Iowa, Kansas, Oklahoma, and Delaware have been authorized by the EPA to enforce RRP. In order to receive authorization by the EPA, the state of Maryland May have to modify its lead rules and regulations. While assuming enforcement of the RRP program requires additional resources, it also allows the state to recoup the fees from contractor certifications and project fees that can be used to support enforcement efforts and increase compliance rates.

Assuming enforcement of RRP is an important and critical step in ensuring that contractors in the state are educated on the importance of following lead-safe work practices, particularly in pre 1978 homes. However, monitoring home renovations to confirm that lead-safe work practices are being employed has proven to be difficult. The State of Maryland should also consider mandating that all home renovations be registered in a database, administered by MDE, before any renovation work can be done. This database would enable the opportunity for MDE to monitor and enforce implementation of RRP and other healthy housing standards.

In accordance with HB644 passed in 2012, MDE should release regulations requiring lead dust clearance inspections following renovations under a Maryland enforced RRP Rule and provide sufficient enforcement personnel to implement the regulations. In addition, Baltimore City's Office of Permit and Building Inspections, and other local permitting offices throughout the state, should assist with improving compliance by requiring contractors who are conducting activities that replace windows or disturb paint in a pre-1978 property covered by the RRP Rule to provide proof of RRP Rule Lead Renovator Firm certification to be approved for a permit.

State and Local Laws Enforcement

3. **Increase Affected Property Compliance Assistance by Local Jurisdictions.** MDE has cooperated effectively with local city and county licensing offices to increase rental property compliance rates with the Maryland Reduction of Lead Risk in Housing Law. This initiative should continue and be expanded to all jurisdictions that have a rental property registration and/or licensing process in coordination with MDE so that more non-compliant properties are identified at the local level and referred for state enforcement.

4. **Improving Electronic Lead Safe Registry Database.** In accordance with the MRLRH Law, MDE and the Maryland State Department of Assessment and Taxation (SDAT) should implement an enhanced electronic database to publicly provide the status of whether an affected rental property has a valid, passing Maryland lead inspection certificate. The online publicly accessible database would provide clear transparency and full disclosure on whether a property has a lead free, limited lead-free, full-risk reduction, or modified risk reduction lead inspection certificate. It will also strengthen accountability for property owners who place a property on the rental market without a valid, passing lead inspection certificate. Currently, MDE hosts a Lead Rental Registry that provides free public access to determine whether an affected property has an active registration.¹⁴³ However, it does not provide the same access to verify whether there is a compliant Lead Inspection Certificate. Currently, the tenant options are limited to: 1) requesting an actual, physical copy from the landlord, 2) directly calling or faxing MDE a request for verification, or 3) submitting a Freedom of Information Act request. These methods are limited and do not provide the full transparency and readily available information that renters need prior to signing a lease to rent an affected property. This registry would enable tenants to access timely inspection information and make more informed, lead safer choices in selecting lead free or lead certified housing when considering residing in pre-1978 rental properties. According to MDE, a database is currently in development and will make inspection certificates available to the public. Furthermore, MDE should consider mapping registration and lead certification compliance to better inform outreach, education, and enforcement efforts to increase compliance. In addition, MDE should build the capability into the system to automatically investigate properties that do not have a valid registration certificate on file but complied in previous years. Investigation and enforcement actions that should include a letter to the occupant, publicize the unit as potentially non-compliant in the paper as well as an in-person visit by MDE enforcement staff.
5. **Increase or Reallocate Staffing for Inspection and Enforcement.** Increase staffing capacity in MDE's LPPP in the inspection and enforcement assistance section to adequately meet the increased services needed following the expansion of the Maryland Reduction of Lead Risk in Housing Law to mandatorily encompass all pre-1978 constructed rental properties and the reduction in the blood lead action level in Maryland.
6. **Risk Reduction Inspection Certification Rates.** The Department's database should be overhauled or replaced in order to allow the Department to track and reliably report on inspection compliance rates. The solution would involve addressing the duplicate certificate issue whereby the properties that have received multiple inspections certificates since 1996 would only count as one property for the purposes of calculating overall inspection compliance rates and the number of affected properties having received any lead hazard intervention and inspection certification. In addition, to determine an accurate inspection compliance rate that includes individual units in multifamily properties, unit-specific information would also need to be included in the database. According to MDE, a new database is currently in development and will include inspection certificate data.
7. **Improve Reporting for Lead Free Certification Rates.** The inability for MDE's database to adequately track unduplicated limited lead-free properties separately from lead-free units provides a significant

gap in understanding how much investment is needed for ongoing inspection compliance of affected properties (non-exempted) as well as determining the resources necessary for lead hazard remediation in the remaining number of non-lead free certified properties. Again, an accurate inspection compliance rate that includes individual units in multifamily properties, limited lead-free and lead-free information would need to be included for individual units. MDE's tracking ability will be improved with the implementation of the LRCA database, which is expected to launch in November of 2021.

8. **Improve BCHD Notice of Violations Tracking and Violation Clearance Rates.** Baltimore City issues lead paint violation notices and makes it publicly available via online website, yet it does not release the total number of violations that are issued for each year *or* the number of violations that have been abated for that year. The lack of information limits the ability to review compliance rates and to determine whether enforcement measures are effective. The City should develop, implement and improve Lead Violation property compliance reporting.
9. **Increase Private Enforcement.** To assist MDE and local health departments in areas where they are unable to provide legal advice or negotiate terms during landlord-tenants' dispute that may arise when a tenant is required to temporarily relocate during the lead remediation of the rental property, more resources and funding should be appropriated in support for attorneys to advocate for tenants who reside non-compliant properties or properties with outstanding Health Department Lead Violations. In addition, the additional resource would provide a broader reach for tenant advocate attorneys to provide continuing education, training and forums to educate new members of the Maryland Judiciary across all 24 counties on lead laws and its applicability in District Court rent/housing court.
10. **Lower the Action Level for Lead in Drinking Water in Schools.** Amend the elevated (permissible) level of lead in drinking water from 20 parts per billion to <5 parts per billion and improve enforcement mechanisms to require remediation of any source that contains lead in schools and childcare facilities at or above 5 ppb. The EPA recognized that the 20 ppb for lead in water in schools was not a health-based standard and removed that action level in its October 2018 update to its 3Ts guidance and instead recommends action when there is an "elevated level of lead." As EPA's guidance no longer specifies an action level, it leaves the current regulatory limit in Maryland uncertain. Therefore, it is prudent for the state to identify its own appropriate, lower health protective standard for lead in water in schools. Montgomery County reduced its action level for lead in water in schools to 5 ppb in 2019 and Prince George's County currently utilizes 10 ppb for its action level for lead in water in schools. Further, according to a recent report by Harvard School of Public Health and University of California, "Early Adopters: State Approaches to Testing School Drinking Water for Lead in the United States," the State of Illinois and Washington, DC currently utilize an action level of 5 ppb in schools.
11. **Allow Utilities to Replace Lead Service Lines without Permission of Property Owner.** The State of New Jersey recently passed a law that would allow local municipalities to implement ordinances that would allow public water utilities to access private property and replace lead service lines. Replacing lead service lines can be complicated because there is often a utility owned portion and a privately-owned portion. In many jurisdictions that are prioritizing lead service line replacement,

utilities are only replacing the portion of the lead service line that they are responsible for. This type of partial lead service line replacement is both inefficient as the privately-owned portion often has to be replaced at a later date and ineffective as it can increase the occupants' potential exposure to lead by disturbing the privately-owned portion of the service line. New Jersey's new law circumvents this problem by allowing utilities to access private property to replace the full lead service line. The State of Maryland should consider passing a similar law.

12. **Prospective Housing Code Enforcement:** In order to support housing quality, health and safety beyond the risk for lead exposure, Maryland's health-protective, statewide lead inspection and certification laws can be supplemented by adopting one of several national models for prospective housing code enforcement. Prospective housing code enforcement is a critical public health tool, which enables jurisdictions to use one of several risk-based approaches to target and proactively inspect rental housing for property maintenance code violations, rather than relying on a complaint-based inspection protocol. Complaint-based housing code enforcement often has built-in barriers and disincentives for tenants to engage with the system, particularly where residents are vulnerable (due, for example to poverty or immigration status) or the system lacks protections for tenants from retaliatory eviction or rent hikes. A prospective housing code enforcement protocol removes those barriers and can allow states or cities to more effectively target at-risk housing for periodic inspection.¹⁴⁴ Housing code enforcement can also address chipping, peeling paint and structural defects in owner occupied properties that generate lead hazards that pose a risk to occupants in the property.

Cities and states making use of prospective housing code enforcement often implement a mix of the following strategies:

- Risk-based targeting of housing code inspections based on community-level housing data (including age, condition or history of complaints or violations)
- Enhanced enforcement for property owners with a history of housing code violations
- Risk-based targeting of inspections based on community-level or individual-level health data, including lead violation rates, asthma rates or risk for lead exposure
- Property inspections based on a periodic schedule

In order to implement prospective rental inspections, jurisdictions must have a good registration system for rental housing, which can be supported in Maryland through the existing system for mandated pre-1978 rental registry, have the ability to issue and collect fines for non-compliance, which Maryland does effectively for violations of the lead laws, and be able to restrict access to rental licenses or certificates of habitability for a property owner with outstanding violations in any property.¹⁴⁵

13. **Develop a State Taskforce to address Lead in Consumer Products.** Convene stakeholders who can establish a collaborative workgroup and develop policies and guidelines to recommend to the state and to the Consumer Protection and Safety Commission (CPSC) to address ways to combat the sale of leaded products and strengthen standards and enforcement actions that reduce the lead content in consumer products sold in Maryland, including online from websites, such as Amazon, LLC.

14. **Increase Enforcement of Lead Safe Demolition Standards.** Baltimore City is the first jurisdiction to adopt comprehensive lead safe demolition standards in Maryland. The State should advance legislation to adopt similar standards statewide that include best practices for demolition of pre-1978 constructed properties that include resident notification, wetting and debris removal requirements that correspond to safe demolition work schedules.

15. **Improve funding and loan resources for owner-occupied properties that have been issued violation notices or contain lead hazards.** Maryland should consider providing increased funding for lead hazard remediation in owner-occupied properties including properties with outstanding Health Department Lead Violations, housing code violations, or Notices of Elevated Blood Lead Levels. While Maryland has strong laws governing the mandatory inspection and remediation of lead hazards in rental properties, there is generally no affirmative duty for owner occupied properties to take action preventively to address lead hazards. In addition, following the issuance of a Lead Violation Notice or Notice of Elevated Blood Level for a property where an EBL child resides, low to moderate income homeowners in some instances lack the financial resources to pay for the lead hazard remediation to be conducted safely by a certified contractor or to obtain a loan if necessary. Increasing resources and incentives for owner occupied properties would assist homeowners to remediate lead hazards in their properties.

Grant & Loan Resources

Assets

A patchwork of grant and loan resources exist at the federal, state, and local government levels and among nonprofit and philanthropic organizations for addressing hazards from lead-based paint. Most of the available lead poisoning prevention funding comes from federal and state programs so the following section will focus on these sources.¹ Maryland is seen as a leading state in innovative lead hazard control funding, evidenced through such efforts as its use of Maryland Medicaid Children's Health Insurance Program (CHIP) funding to sustain state initiatives to address childhood lead poisoning.

Federal Programs

The primary source of funding for lead abatement activities comes from the Federal Government's Department of Housing and Urban Development (HUD). Within HUD, the Office of Lead Hazard Control and Healthy Homes is the office responsible lead abatement activities, including administering lead hazard control grant programs, providing guidance on HUD's lead paint regulations, and tracking HUD's efforts to make housing safe.¹⁴⁶ The main grant program that HUD administers both in terms of dollar amount and the number of grants is its Lead Hazard Reduction (LHR), Lead-Based Paint Hazard Control (LHC) and Lead Hazard Reduction Demonstration (LHRD) Grant programs.

HUD's lead grant programs were created by the Residential Lead-Based Paint Hazard Reduction Act, which contains specific criteria on how the funds can be used.¹⁴⁷ For grants to multi-family rental housing, at least 50 percent of the units must be occupied or intended for families with incomes at or below 50 percent of the area median income level, with remaining units having families with incomes at or below 80 percent of the area median income level. For grants that assist owner-occupied units, the families must have incomes at or below 80 percent of the area median income level and at least 90 percent of the units assisted by the grants must have a child under the age of 6. For both programs, at least 90 percent of the grant amount must go directly to costs that identify and control lead-based paint hazards; meaning that a maximum of 10 percent of the grant award can support administrative costs of the grant program.¹⁴⁸ Additionally, HUD policy guidance for its grant programs specifies allowable expenses for both direct and indirect costs; at least 65 percent of the LHC and LHR grants and at least 80 percent of the LHRD grant must go directly to the following activities:

- Performing inspections and testing to determine the presence of lead-based paint and/or lead hazards from paint, dust, or soil;
- Completing interim control or lead-based paint abatement activities, such as repairing all rotted or defective substrates that lead to rapid paint deterioration;
- Undertaking minimal housing intervention activities that are specifically required to carry out effective hazard control;
- Providing temporary relocation for families or individuals displaced during lead hazard control activities; and
- Supporting costs associated with lead hazard control activities --for activities that would not happen without such cost, including transportation for staff that perform lead hazard control.¹⁴⁸

¹ This information was collected from publicly available databases, press releases, and budget documents and also incorporates contextual information obtained from interviews with government agencies.

An additional requirement of HUD's lead grant programs is grant matching. The LHC and LHR programs require grantees to match 10 percent of the grant award through matching contributions from state, local, and private funds; for the LHRD program the required match rate is 25 percent of the grant award. To cover this requirement, grantees rely on varied funding sources; for example, a recent Government Accountability Office report noted that Baltimore planned to use Community Development Block Grant funds to cover costs related to personnel, operations, and training in a lead hazard control grant application.¹⁴⁶ Lastly, HUD provides supplemental funding alongside its main lead abatement grant programs through its Healthy Homes program. As noted by HUD in its most recent Congressional Budget Justification, lead hazard control funds are generally used to remove or repair lead paint in a residence but these funds are not able to be used for other unsafe conditions in those same residences; the supplemental funds provided through the Healthy Homes program allows funds to be used alongside lead abatement efforts to address other health concerns such as lead-containing water supply component replacement.¹⁴⁹

In Fiscal Year (FY) 2019, the City of Baltimore was the only jurisdiction in Maryland to receive funding through HUD's LHR and Healthy Homes Supplemental Funds grant programs. For this most recent grant period, Baltimore was awarded \$9.1 million from the LHR program with \$600,000 in additional supplemental funding from the Healthy Homes program. With this funding, Baltimore intends to address lead hazards in 500 housing units for low-income families with children.¹⁵⁰ The City also intends to use these funds to perform home environmental assessments and healthy homes interventions in 120 units and to collaborate with medical and social service providers.¹⁵⁰

Numerous other federal programs exist that can be used to assist homeowners in completing repairs to address lead hazards, although many of these programs are not specific to lead-related repairs. These programs include ones such as USDA's Section 502 Direct Loan Program and Section 504 Home Repair Program as well as HUD's Community Development Block Grants Program. Although not specifically devoted to lead abatement they represent important alternative avenues to assist homeowners in needed repairs. For instance, USDA's programs are largely targeted to rural areas, which generally receive less funding from other state and federal programs due in part to their lower population density.

State Programs

In Maryland, three departments at the state level share responsibility for addressing lead hazards. The Maryland Department of Health (MDH), the Department of the Environment (MDE) and the Department of Housing and Community Development (DHCD) all have an important role in Maryland's efforts to reduce lead poisoning; of these agencies, DHCD is the primary agency that assists landlords and homeowners with lead abatement efforts. Maryland's DHCD manages a lead program, which offers grants and loans that can be used to address various structural and maintenance issues, including lead paint abatement. The goal of DHCD's lead program is to help homeowners with low and moderate incomes to complete essential repairs that they could not otherwise do--repairs that represent safety code violations, constituting an unsafe living condition for the family. These loans and grants have interest rates ranging from zero to four percent according to the type of work needed and a household's ability to pay.¹⁵¹ To be eligible for this program, applicants must have a household income of 80 percent or less than the median income equivalent to their household size.¹⁵² DHCD's Special Loans Program has a total of \$8.4 million available for its lead hazard reduction, indoor plumbing, and other housing rehabilitation. In FY 2019, DHCD helped abate lead hazards in 51 homes totaling almost \$2 million in funding.¹⁵³

Additional assistance for addressing lead hazards is provided through the Children's Health Insurance Program (CHIP). Funding through CHIP supports Maryland's Healthy Homes for Healthy Kids program and the Childhood Lead Poisoning Prevention and Environmental Case Management program. In 2017 the Maryland Department of Health submitted a state plan amendment that was later approved by the Centers for Medicare and Medicaid to use federal funds available through Maryland's CHIP program for the two programs mentioned above.¹⁵⁴ This amendment led to an infusion of \$7.2 million dollars for the State's initiative to reduce lead poisoning and improve asthma. **Error! Bookmark not defined.** Those eligible for these CHIP-funded programs include children aged 0-18 who are enrolled or eligible for Medicaid, and with blood lead levels greater than or equal to 5µg/dL or have a diagnosis of moderate to severe asthma.

While only active for two quarters in FY 2018, Maryland Medicaid reported that the Healthy Homes for Healthy Kids program resulted in lead abatement in 22 homes, while the Childhood Lead Poisoning Prevention and Environmental Case Management program reached 183 children.¹⁵⁵ Maryland's Childhood Lead Poisoning Prevention and Environmental Case Management program is an expansion of county-level programs to provide environmental assessments and in-home education programs focused on reducing exposure to lead and other environmental toxins. Currently this program is operational in 9 counties in Maryland (Baltimore City, Baltimore County, Charles County, Dorchester County, Frederick County, Harford County, Prince George's County, St. Mary's County, and Wicomico County). An official from the Maryland Department of Health noted that these counties were selected to cover those with the highest prevalence of cases, a geographic distribution across the state, and a mixture of both urban and rural jurisdictions.

In addition, in November 2019, Maryland Medicaid submitted and was approved for an amendment to the original State Plan Amendment to its Medicaid/CHIP program. Effective September 1, 2019 Maryland can receive reimbursement through the Medicaid program for environmental inspections conducted by accredited risk assessors; the amount reimbursable is \$418.49 per inspection.¹⁵⁶ This reimbursement covers inspections of the primary residence where a Medicaid enrollee age 21 or younger tested positive for lead with a BLL of 5 µg/dL or greater. One important limitation is that the actual testing of samples such as water, paint, or other substances is not covered due to federal guidelines of the Clinical Laboratory Improvement Amendments (CLIA). Still, this development will still help reduce the burden on state resources for funding environmental inspections.

In FY 2019, the MDE received \$445,000 from the Centers for Disease Control and Prevention for childhood lead poisoning prevention programmatic activities.¹⁵⁷ MDE officials noted that in the past their program received funding through CDC grants to cover case management expenses, however, the current grant is specific to fund education and outreach efforts by the department; \$300,000 of the grant is designated to support outreach programs for the City of Baltimore. Some of these changes may relate to changes at the federal level. For example, the FY2020 Federal Budget proposed a 51 percent cut to the CDC's Lead Poisoning Prevention Program.¹⁵⁸ Such declines in federal funding can put further strain on limited state resources.

The table below summarizes funding for all programs that can be used to address hazards from lead-based paint. Importantly, this excludes any programs that can be used to address lead hazards, but which did not have funding for Maryland in FY 2019, such as USDA 533 Housing Preservation Grants. It is important to also consider that many of the resources noted above are not focused solely on lead abatement; therefore, the actual total funding spent on lead abatement is much lower than the sum of the numbers provided in Table 1. Bolded number represent grants that are purely for lead remediation. Non-bolded numbers

represent general housing rehabilitation grants that could possibly be used to fund lead remediation. While these grants do not focus primarily on lead remediation, they do represent opportunities to use additional grant dollars to fund lead work.

Figure 16: Summary of funding available for lead hazard reduction activities in Maryland in FY 2019

Fund/Program	Purpose	Target Population	Funder	Implementer	FY19 Amount
<i>Federal</i>					
Healthy Homes for Healthy Kids	Expansion of lead identification and abatement programs.	Low-income children (Medicaid/Medicaid-eligible)	CMS/Maryland Medicaid	DHCD	\$4,170,000** 159 160
Baltimore City Lead Hazard Reduction Grant (2018-2021)	Lead remediation in 250 housing units	low- and very low-income families	HUD		\$3,500,000
Baltimore City Lead Hazard Reduction Grant Healthy Homes Dollars (2018-2021)	Healthy homes assessments and interventions in 250 housing units	low- and very low-income families	HUD		\$600,000 (these dollars can be allocated for LSL replacement)
Baltimore City Lead Hazard Reduction Grant (2019-2024)	Remediation of lead in 500 housing units	low- and very low-income families	HUD	City of Baltimore	\$9,100,000
Baltimore City Lead Hazard Reduction Grant Healthy Homes Dollars (2019-2024)	Healthy homes assessments and interventions in 250 housing units	low- and very low-income families	HUD	City of Baltimore	\$600,000 (these dollars can be allocated for LSL replacement)
HOME Investment Partnership Grants Program	Provide grants to States and localities to fund building, buying, and/or rehabilitating affordable	Low-income households	HUD	Localities throughout Maryland	\$16,617,569

	housing for rent or homeownership or providing direct rental assistance.				
Community Development Block Grant Programs*	Provide grants to states and localities to provide decent housing and a suitable living environment, and to expand economic opportunities	Low- and moderate-income persons	HUD	Localities throughout Maryland	\$50,850,985
Single-Family Housing Direct Home Loans (Section 502 Direct Loan Program)	Assist applicants to obtain decent, safe and sanitary housing in eligible areas by providing payment assistance to increase an applicant's repayment ability.	Low-income households in rural areas	USDA	Homeowners throughout Maryland	\$9,276,803
Rural Housing: Repair Loans and Grants (Section 504 Home Repair Program)	Provide loans to homeowners to repair, improve or modernize their homes or provide grants to elderly low-income homeowners to remove health and	Low-income homeowners and low-income elderly homeowners in rural areas	USDA	Homeowners throughout Maryland	\$1,731,508

	safety hazards.				
Lead Poisoning Prevention Program	Conduct surveillance to determine the extent of childhood lead poisoning at the state and county levels, educate the public and healthcare providers about lead poisoning, and ensure that lead-exposed children receive necessary medical and environmental follow-up services.	State and local health agencies working to address lead poisoning	CDC	MDE	\$445,000
<i>State</i>					
DHCD's Special Loans and Administration, Lead Program	Assist homeowners with low and moderate incomes to complete essential repairs that they could not otherwise afford to complete.	Homeowners with low and moderate incomes	State of Maryland	DHCD	\$1,937,323 (amount expended)

Notes: *The information provided in the table above primarily taken from usaspending.gov as well as Maryland and Federal budgetary documentation. **The funding levels provided for the Healthy Homes for Healthy Kids and Childhood Lead Poisoning Prevention and Environmental Case Management programs assume that FY2019 funding levels are the same as they were in FY2018.

***Community Development Block Grants:** While CDBG dollars can be allocated for lead hazard remediation, few jurisdictions specifically allocate these funds to lead remediation. There is an opportunity to increase the percentage of CDBG funding that is used for lead-based paint testing and abatement:

Figure 17: Community Development Block Grant Totals Allocated to Lead Remediation FY 2017

FY2017	Amount of CDBG Dollars	Amount Allocated to Lead	Percent of Total Allocated to Lead
Maryland	\$ 5,401,025.96	\$ -	0%
Anne Arundel County	\$ 1,886,095.59	\$ -	0%
Baltimore County	\$ 4,908,747.32	\$ 169,941.48	3.46%
Baltimore City	\$ 17,412,592.69	\$ 598,685.56	3.44%
Frederick	\$ 539,673.15	\$ -	0%
Harford County	\$ 992,848.25	\$ -	0%
Howard County	\$ 1,093,842.85	\$ -	0%
Montgomery County	\$ 4,615,940.26	\$ -	0%
Prince George's County	\$ 7,151,369.07	\$ -	0%
Annapolis	\$ 243,119.89	\$ -	0%
Bowie	\$ 190,355.42	\$ -	0%
Cumberland	\$ 625,779.58	\$ -	0%
Gaithersburg	\$ 450,515.14	\$ -	0%
Hagerstown	\$ 676,719.72	\$ -	0%
Salisbury	\$ 383,505.91	\$ -	0%
Totals	\$ 46,572,130.80	\$ 768,627.04	1.65%
Source: https://www.hudexchange.info/programs/cdbg/cdbg-expenditure-reports/?filter_Year=&filter_State=MD&filter_Grantee=&program=CDBG&group=Expend			

Totaling Maryland's current grants that focus primarily on lead remediation, along with an estimate of the amount of CDBG dollars that are being allocated to lead, produces an estimate of Maryland's current investment in Lead Remediation. It should be noted that some of these grant totals represent funding that will be made available over a couple of years. These numbers therefore do not represent a yearly rate of funding:

Figure 18: Total Funding for Lead Remediation from Current Grants

Estimated Total Funding for Lead Based Paint Hazard Remediation from Current Ongoing Grants in Maryland	
Healthy Homes for Healthy Kids	\$ 4,170,000.00
HUD Lead Hazard Reduction Grants	\$ 12,600,000.00
Lead Based Paint Hazard Control Program	\$ 1,978,386.00
Jurisdictions' Allocations of Community Development Block Grants	\$ 800,000.00
Total	\$ 19,548,386.00

In addition to grants focusing on lead remediation, Maryland currently has grants that support other aspects of lead poisoning prevention such as education, case management, and program accreditation.

Figure 19: Maryland Lead Funding Programs That Do Not Fund Remediation Work

Fund/Program	Purpose	Target Population	Funder	Implementer	FY19 Amount
Childhood Lead Poisoning Prevention and Environmental Case Management	Expansion of county level programs to provide environmental case management and in-home education programs to reduce lead poisoning and asthma.	Low-income children (Medicaid/Medicaid-eligible)	CMS	MDH/ LHDs	\$3,000,000** <small>161 162</small>
MDE's Land and Material Administration, Lead Accreditation Fund	Manage lead paint abatement services accreditation programs.	Maryland residents with EBLs	State of Maryland	MDE	\$201,045
MDE's Land and Material Administration, Lead Poisoning Prevention Fund	Investigate lead poisoning cases, maintain lead poisoning	Maryland residents with EBLs	State of Maryland	MDE	\$5,545,018

	registries, track the incidence of lead poisoning, conduct paint surveys of residential buildings, and educate healthcare providers and the public.				
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Notes: *The information provided in the table above primarily taken from usaspending.gov as well as Maryland and Federal budgetary documentation. **The funding levels provided for the Healthy Homes for Healthy Kids and Childhood Lead Poisoning Prevention and Environmental Case Management programs assume that FY2019 funding levels are the same as they were in FY2018.

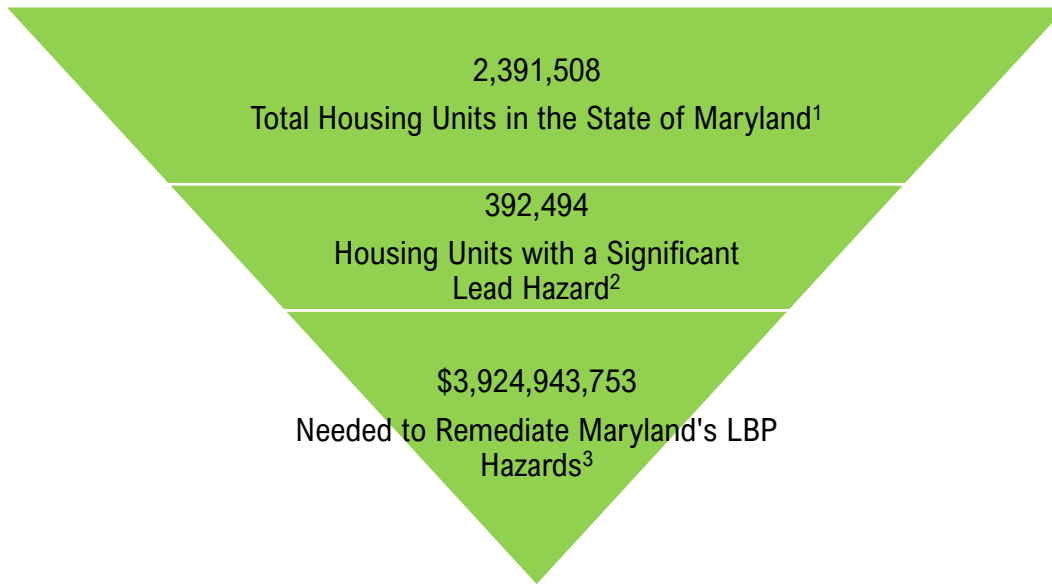
Gaps

Available funding has by and large remained constant or declined in recent years, leading to uncertainty in whether there is sufficient capacity to meet changes in the state’s definition of elevated blood lead (EBL) levels.

One of the primary barriers for Maryland DHCD’s lead abatement efforts, as identified by a DHCD official, is the lack of a funding mechanism for addressing urgently needed repairs. As an example, the same official noted that the Maryland Energy Assistance Program operated by the Maryland Department of Human Services is structured in such a way that it can quickly release funds needed to address an emergency situation for families in need. In contrast, applications to DHCD’s lead program generally take 6 months to 1 year to process and approve. One contributing factor to this delay in processing is that each DHCD staff member is, on average, processing around 120 applications each year. An unfortunate outcome of this process is that by the time applications get approved, DHCD might be out of funds, which then requires homeowners to wait until the next funding cycle to cover the costs of urgently needed repairs. A DHCD official noted that the agency has exhausted all of the funds for its lead program before the end of the fiscal year for the past three years. This year, DHCD’s program is on track to expend all of their available funding by April 2020.

The following table shows the total amount needed to bring Maryland housing to a lead safe standard that is in accordance with a standard of lead hazard remediation that addresses all chipping, peeling lead paint, replaces leaded windows with lead free windows and passes a lead clearance inspection. Comparisons of the following funding needs in the state with the current funding available reveals serious gaps.

Figure 20: Cost to Remediate Hazards from Lead Based Paint in Maryland's Housing



1. Based on the 2011 ACS 1 Year Estimates
2. Calculated According to 2011 ACS 1 Year Estimates and the American Healthy Homes Survey Lead and Arsenic Findings (2011) prevalence of Lead Based Paint Hazard by Housing Age; minus 75,000 certified lead safe units.
3. Assumed average of \$10,000 per unit for remediation; includes window replacements.

In addition to funding for lead hazards that come from paint, there is also a need to fund the abatement of lead hazards in water. Maryland has an estimated 74,000 lead service lines.¹⁶³ On average it costs \$6,000 to replace a lead service line, meaning the total cost for replacing Maryland lead service lines is estimated to be \$444,000,000. While some of this cost will be borne by utility providers, and some lead service line replacements can be paid for through the Healthy Homes Supplemental Funds of Maryland's HUD funded Lead Hazard Remediation Grants in Baltimore City, there is a remaining funding need for the remediation of lead hazards in water.

Figure 21: Cost of Lead Service Line Replacement in Maryland



1.Cornwell, D.A., Brown, R.A. and Via, S.H. (2016), National Survey of Lead Service Line Occurrence. Journal - American Water Works Association, 108: E182-E191. doi:10.5942/jawwa.2016.108.0086

*Some of the cost of lead service line replacement will be borne by utility providers.

Opportunities and Recommendations

States and local jurisdictions across the country are looking for new and creative ways to increase the amount of funding available for lead poisoning prevention activities. Below are a number of public and private funding sources that should be considered by the state and local jurisdictions to scale up funding to meet the demand for lead grant funding for low and moderate income pre-1978 properties.

State Lead Poisoning Prevention Fund

Overview

One concept that is gaining traction among policy makers is that of a dedicated Lead Poisoning Prevention Fund, where revenues and operating expenses from various lead programs are created and used solely for the purpose of primary and secondary prevention. While Maryland does have a statewide Lead Poisoning Prevention Fund, there are tremendous opportunities to increase the magnitude and impact of the fund.

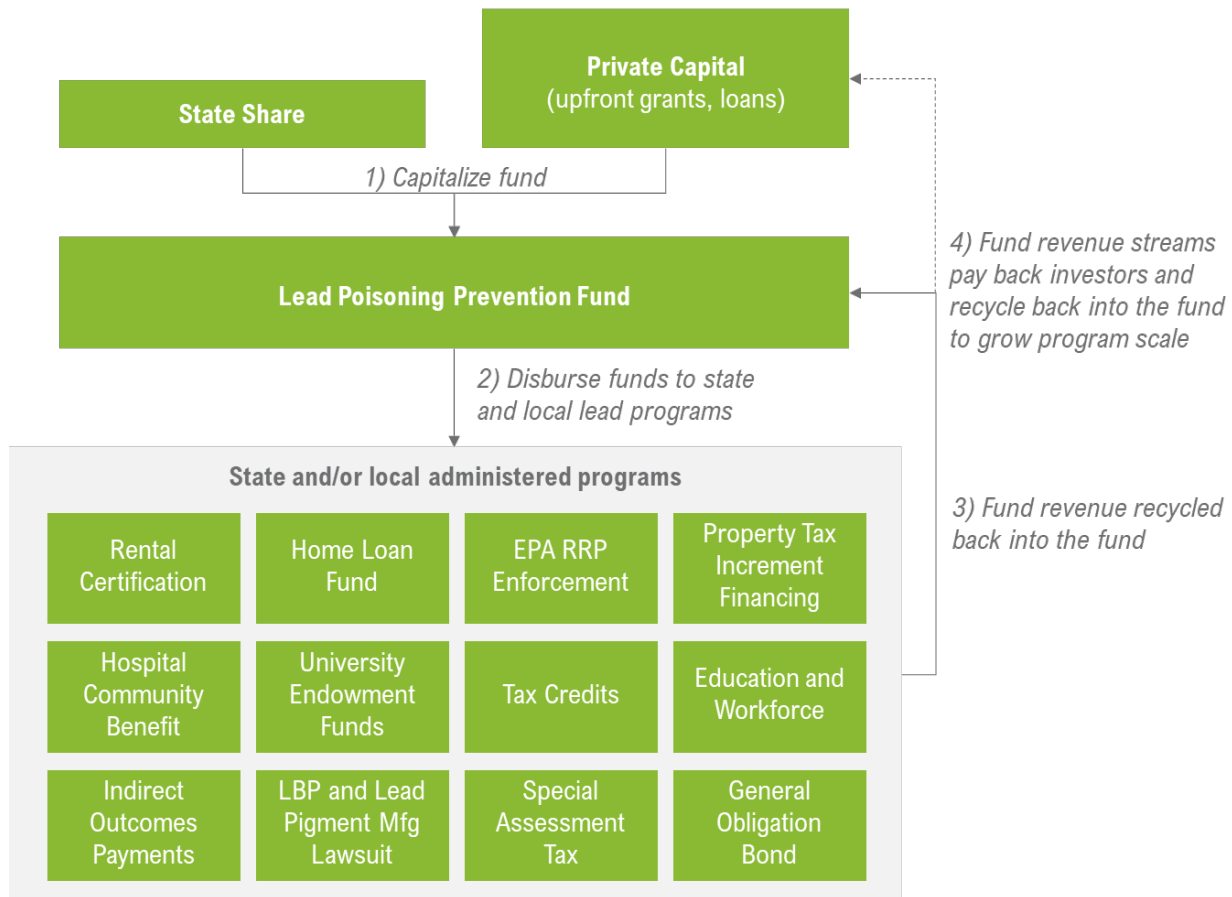
A public-private lead fund operates by raising public and private capital to spark lead poisoning prevention activities at the state and local level. This include expanding the capacity of current service providers to perform lead remediation (essentially super-charging activities already supported by HUD and CMS), and enhances the capacity for state and local agencies to enforce evidence-based policies that could self-sustain in the longer term.

States and municipalities borrow often to fulfill needed infrastructure improvements based upon the notion that these are long term investments that improve social wellbeing. Social infrastructure such as the elimination of lead hazards is therefore not much different conceptually and could be financed similarly. The key is to garner political support for this notion and to identify new or existing funding streams that could be tapped to repay the investment. For example, collection of rental certification fees and enforcement of existing laws could generate enough revenue to cover operating costs but also provide additional funds to supplement low-interest loans or grants for qualifying landlords.

Figure 23 depicts how the combination of investment capital could flow into programs that operate at the state and local levels. Policy makers would need to decide which program components should be administered at the state or local level depending on existing capacities and expertise.

Figure 22: Lead Fund Concept

Maryland's Potential Lead Fund



State Lead Fund Components

As shown in Figure 23, an initial lead fund concept includes the following program components. Note that this is a preliminary list is meant to spur discussion about what may or may not be feasible for Maryland. The below sections outline each potential component of a lead fund and describes key parameters, revenue sources, and considerations needed for further analysis of what may be feasible. A lead fund could ultimately be comprised of one or more of these components.

Home Loan Fund

For some homeowners and small landlords, access to affordable capital may be a barrier to remediating home lead hazards. A home repair fund would allow owners to finance remediation projects they would otherwise not be able to afford.

Interest rates could be established on a sliding scale based on the homeowner's financial standing. Loans could also be forgivable, or convertible based on lead-related milestones. For example, a loan for a low-income homeowner could be converted to an education grant to a family's college saving's account.

EPA RRP Enforcement

The aim of EPA's Renovation, Repair, and Painting Program is to ensure that homeowners and residents can protect themselves from lead hazards when contractors perform work in their homes. Enforcement of RRP has been a challenge across the country and a lead fund presents an opportunity where enforcement and financial sustainability can be mutually reinforcing. Fines from violations would support regular inspections of home repair jobs.

Real Estate Investment Value through Property Tax Increment Financing

Similar in concept to a common development financing tool (TIF), this financing tool could allow local jurisdictions to use expected increases in property tax revenue from remediated homes to finance upfront costs. Recent research suggests that incremental increases in property value of a single property could be up to 32%; however, tax generated from this would not be enough to fully fund the cost of the upfront remediation. These funding streams, though, could be directed back into the lead fund to defray program costs. An appropriate measure of market value increase would need to account for other factors that would lead to increases in the absence of lead remediation.

Alternatively, a special assessment contingent on the fair market value of a property could be used to generate revenue. If market value does not increase, there would be no assessment.

Alignment with HUD High Impact Neighborhoods or other neighborhood-level initiatives would help to reinforce increases in home value. For example, revenue from increased market value could match HUD High Impact investment dollar for dollar, thus magnifying the value of home improvement at the community level.

An application of this idea should take into consideration the property owner's financial well-being such that increasing value, fees, or taxes are aligned with anti-displacement efforts overall.

Hospital Community Benefit Funds

All tax-exempt hospitals are required by law to improve community health through a combination of programs, initiatives, and investments. This collection of activities is supported by a hospital's community benefit funds. The Affordable Care Act does not stipulate how a hospital should distribute community benefit dollars across programs or investments, so there is some flexibility in how they are allocated.

According to the FY18 Maryland Hospital Community Benefit Report, Maryland's 51 non-profit hospitals spent \$1.75 billion in non-profit health system community benefit investments.¹⁶⁴ These investments currently overwhelmingly directed to mission-driven health services, health professional's education, and charity care, all of which represent over 85% of all community benefit expenditures. Charity care includes all uncompensated patient care. Health professional's education includes funding for physicians/medical students, nurses/nursing students, and other health professionals as well as scholarships for professional education. It is unclear from the report what is included under mission-driven health services.

Investing hospital community benefits dollars in upstream social determinants of health, including housing conditions, can lower health systems' downstream costs and reduce unpaid care needs. The FY18 report

also highlights that over \$31 million, which is about 1.83% of all community benefit expenditures, has been invested in community building activities that include physical improvements to housing, environmental improvements, and workforce development. It is unclear from this report whether any of these investments are going to lead poisoning prevention. The State of Maryland should work with all Maryland non-profit hospital systems to consider significant contribution from hospital community benefit funds to the statewide lead fund.

University Endowment Funds

Lead poisoning has a direct impact on academic achievement over the life course, including children's ability to graduate from high school and gain the skills needed to be successful, productive members of the state's workforce. The total endowment for all 12 University System of Maryland Institutions is \$1.29 billion.¹⁶⁵ Directing just 0.05% of the endowments of these universities would fund over \$64 million in investments in lead poisoning prevention.

Tax Credits

A tax credit is another potential tool for the state to use to divert resources to lead- in this case to provide incentives for individuals to invest in lead remediation. Like the special assessment tax, this option is not currently modeled if there is not an appetite for new taxes or tax credits.

Education and Workforce

While not a revenue-generating component of the fund, GHHI recognizes the importance of scaling education (community outreach, case management and education) and workforce (training and certification) to support absorption of additional program investment. As such, the preliminary fund concept includes allocations for these activities.

Other Funding Options

Indirect Outcomes Payments

A potential indirect source of fund revenue could be outcomes payments from sectors that accrue benefits from lead poisoning prevention. For example, outcomes payment based on the milestone of attaining a threshold third grade reading rate could be triggered from the Department of Education into this fund. The same could be possible for other areas like health, justice, and workforce outcomes- where improved outcomes based on achieving specific milestones result in payments into this fund.

Lead-Based Paint and Lead Pigment Manufacturer Lawsuit

Lead Paint Manufacturer Lawsuit. The State of Maryland Attorney General or a group of local jurisdictions should consider pursuing a lawsuit against lead-based paint and lead pigment manufacturers that could generate additional resources for lead hazard reduction and abatement in the state. On October 15th, 2018,

the United States Supreme Court refused to grant the Writ of Certiorari to review the California Court of Appeals ruling that Sherwin Williams, Conagra and NL Industries are responsible for lead paint contamination in thousands of homes built before 1951. The cities and counties claimed that the lead paint and lead pigment manufacturers violated California's public nuisance law by actively selling and promoting the use of lead paint despite knowledge of its health hazards.

With the State of California Court of Appeals issuing this ruling and the U.S. Supreme Court declining to hear any further appeals in the case, the two paint companies were responsible for paying a \$409 million judgment to a Fund that will support the cleanup and remediation of lead-based paint hazards in residential housing in the following 10 California counties and cities: Cities of Oakland, San Diego, and San Francisco and the Counties of Alameda, Los Angeles, Monterey, San Mateo, Santa Clara, Solano, and Ventura. NL Industries also reached a settlement with the parties for \$60 million in damages that will contribute to the total of \$409 million in lead inspection and lead hazard control intervention costs. This is an unprecedented and landmark decision that has set the stage for other jurisdictions, including the State of Maryland, to pursue similar actions that could bring new resources to support the state's lead poisoning prevention activities in residential properties. The state should consider meeting with the State of Maryland Attorney General or local city and county leaders to see whether suing the lead paint and lead pigment companies is a viable option for the state or for their respective jurisdictions to generate additional revenue for the Fund to remediate lead hazards.

Note: While affirming the lower court decision, the California Court of Appeals did remand the case back to the trial court and restricted the damage award to damages related to lead hazards in properties constructed prior to 1951. The original bench trial award of \$1.15 billion was reduced by the trial court as a result to \$409 million. Recently the jurisdictions reached an agreement with the paint companies to reduce the damage award to \$305 million from \$409 million in return for greatly flexibility in how the lead funds were spent and for how long.

Increasing Allocations of Community Development Block Grants for Lead

Lead remediation and abatement is eligible to be funded through Community Development Block Grants. Despite this, less than 2% of the CDBG dollars given to jurisdictions in Maryland in FY 2017 were specifically allocated for lead paint testing and abatement.¹⁶⁶ Larger amounts of this funding could be leveraged to fund lead poisoning prevention and lead hazard remediation. See Figure 23.

Special Assessment Tax

Based on lack of appetite for new taxes in today's climate we did not include this option in the preliminary model. However, we note that there is precedent for successful implementation of this concept, in which city or county government applies a special assessment to all real estate parcels in the community. Revenue from fees are then used for lead poisoning prevention programs. An example of this financing tool is used in Alameda County where revenues are used for their lead and healthy homes program.

HUD 203(k) Rehabilitation Mortgage Insurance Program

On November 22nd, 2019, the U.S. Department of Housing and Urban Development Secretary Ben Carson announced that borrowers interested in rehabilitating homes located in Opportunity Zones may now take advantage of an expansion to the Limited 203(k) Rehabilitation Mortgage Insurance Program. This program allows owner occupant homebuyers and existing homeowners of single-family properties in designated

areas to finance up to \$50,000 into the total mortgage amount for the purposes of completing cosmetic repairs. Allowable repairs include lead-based paint stabilization costs.

- Minor kitchen remodeling, not including structural repairs
- Interior and exterior painting
- Repair, replacement or upgrade of appliances
- Window and door replacements
- Roof, gutter, and downspout replacement
- Connecting public water and sewage systems
- Repairing or replacing plumbing, heating, air conditioning or electrical systems
- Lead-based paint stabilization costs.

Currently, HUD has limited the benefit to 203(k) program properties in Opportunity Zones. Each state selected the areas to be designated Opportunity Zones using criteria outlined by the IRS. Therefore, the state of Maryland should consider designating locations that possess a high risk of lead exposure as Opportunity Zones.

In addition, the expansion of the 203(k) program presents an opportunity to bring properties to a Lead-Free standard. The recent HUD announcement used the language 'lead-based stabilization' to describe the costs allowable improvements as a part of this expanded 203(k) program. Lead-based paint stabilization often refers to a Lead-Safe standard, which means that lead-based paint will remain in the property but measures will ensure that it does not present an immediate hazard to children. According to the Lead-Safe Housing Rule, homes that receive greater than \$25,000 in federal rehabilitation assistance are required to meet a Lead-Free standard. Assuming that this program falls under that Rule, assistance provided under the 203(k) mortgage program will exceed the \$25,000 standard, which will trigger the requirement that all lead-based paint hazards be removed from the property.

General Obligation Bond

New Jersey plans to put forth a \$500 million general obligation bond to voters statewide in the Fall of 2020, which would support the remediation of lead hazards in drinking water, paint and soil in low-to-moderate income communities. The general obligation (GO) bond is part of a broad plan of legislation, standards and investment to support the elimination of lead poisoning in New Jersey, announced by Gov. Murphy in October, 2019.¹⁶⁷ The Governor plans to support the investment by a package of state legislation, including regulations allowing utilities to gain access to the privately-owned side of lead service lines in order to conduct full LSL replacement (passed NJ State Legislature in January, 2020), statewide universal rental property inspection (currently in Committee in the NJ State Senate and General Assembly), and a mandate to identify, disclose and remediate lead hazards in paint, dust, drinking water and soil at rental unit turnover and point of sale for residential properties (currently in Committee in the NJ State Senate and General Assembly). These regulatory levers drive engagement with the states' investment by property owners, utilities and other stakeholders, and the investment is also leveraged through federal Lead Hazard Control grants to the state and several municipalities, and state annual general fund investment of \$10 million in a preventative lead remediation grant program for low-to-moderate income homeowners.

Outreach, Education and Training

Assets

A critical component of lead poisoning prevention is ensuring parents, rental property owners, healthcare professionals, school staff, child-care and day care providers and other service providers are aware of lead exposures, the effects of lead poisoning and best practice prevention measures. Maryland has a strong core of lead poisoning prevention outreach and education programs, rental property owner compliance assistance and tenant's rights assistance training and education assets. Awareness is an important first step to the access and utilization of resources that can provide primary prevention services, improve linkages to case management, address secondary and tertiary prevention support needs, and improve key areas such as lead safe work practices, blood lead testing and other lead poisoning prevention efforts. Gaps in outreach and education strategies could mean members of our communities in the state will remain unaware of the possible sources of lead exposure and fail to seek out the resources that are available to them to address hazards in their home, rental property, school or day care/child care facility. An array of lead outreach programs and communication methodologies exist and should be examined to determine how they can best be aligned with current prevention strategies, resources and goals and target populations as well as what additional financial resources and communication tools may be necessary to reach those target populations. Potential avenues of outreach and education and training include additional social media, visual advertisement, television and radio advertisements, newspaper, schools, healthcare, community hubs and resource centers, internet resources, marketing and property owner related sources.

Advertisements

There are several advertising campaigns surrounding lead poisoning in Maryland. One of these is an MTA ad campaign launched in 2019 which is a part of the Baltimore City Health Department's (BCHD) Childhood Lead Poisoning Prevention Program that rolled out on September 25, 2019.¹⁶⁸ An example is shown below. A similar advertising campaign was developed by the Prince George's County Health Department which developed a flyer that it then sent to all daycare providers in the county for posting.

Figure 23: Lead Poisoning Poster



Figure 24 Taken near MTA station outside of Maryland Department of Health

The Maryland Department of Health has a current flyer about lead poisoning and a link to the flyer can be found on their website under the Healthy Homes for Healthy Kids Program.¹⁶⁹ The flyer mainly promotes the Program and focuses on describing the eligibility to quality for free lead inspection and remediation services for children eligible under CHIP or Medicaid. GHHI worked with MDH in 2017 to develop videos to increase lead awareness and increase blood lead testing rates. The videos, such as the *Lead Awareness PSA for Providers*, are available on You Tube and have been promoted to health care providers (<https://www.youtube.com/watch?v=aJ6QGcBB0Nc>). The videos are also available on the MDH and GHHI websites to advertise and spread key prevention messages. In the past, MDE and MDH participated with GHHI, HUD and EPA in a \$32 million national Lead Free Kids Ad Council Campaign that GHHI helped develop with Merkley+Partners that included billboards on major highways and streets, pop-up store signage and television and radio advertisements (PSAs) promoting lead poisoning awareness and resource linkage in various media outlets and jurisdictions in Maryland.

Television, Radio and Newspaper Coverage

GHHI, MDE, MDH, and the Baltimore City Health Department have regularly obtained Baltimore Sun coverage through newspaper articles on the topic of lead poisoning and various lead prevention initiatives. Events such as the lead in water crisis in Flint, Michigan and lead in children's toys have brought increased media attention over the years to the issue of lead poisoning and have resulted in more national and local news coverage on the sources and impact of lead exposure. Maryland lead related legislation, Maryland Lead Poisoning Prevention Week and the annual MDE Childhood Lead Registry release have historically generated local Maryland television and newspaper coverage. The recent release by MDE of the 2018 Maryland Childhood Blood Lead Surveillance Report received coverage from the Baltimore Sun and both CBS WJZTV (Baltimore) and ABC WMAR (Baltimore).^{170 171 172} Saturday and Sunday morning television news shows have historically provided a consistent opportunity to successfully utilize free media to promote lead awareness, blood lead testing, lead safe work practices and lead grant program enrollment. Other Baltimore Sun articles in 2019 reported on lead in water in schools, predatory lead poisoning claimant settlement practices and promoted Lead Week lead poisoning awareness as examples of coverage.¹⁷³ Radio/podcast sources of news have been utilized by DHCD and GHHI and GHHI appeared on an episode WYPR's program "Future City and on WOLB radio shows on lead poisoning awareness.¹⁷⁴

Schools

Schools provide a location to disseminate information and raise awareness that readily accesses parents and target populations of elementary children who are entering school at kindergarten age. Resources and outreach at school and childcare facilities have demonstrated the ability to quickly reach parents and encourage them to take proper prevention actions for any families residing in pre-1978 constructed properties. During Lead Poisoning Prevention week as well as during the year, state agencies, local health departments and GHHI partners team up with local schools and Head Starts to conduct concentrated trainings, outreach materials distribution and engagement with parents picking up their kids from schools, Head Starts and child care centers about how to be aware of lead hazards and how to access resources to remediate lead if there are hazards in their homes. Lead informational packets and material are available in Spanish and English. MDE worked with the Maryland State Department of Education (MSDE) to develop lead poisoning prevention curriculum for middle school and high school teachers.¹⁷⁵

Current Maryland Law states that "all children entering a public pre-kindergarten program, kindergarten or first grade are required to have a Maryland Department of Health Blood Lead Testing Certificate completed",

which serves as a form of awareness for parents residing in older owner occupied and rental properties.¹⁷⁶ There are some concerns regarding unlicensed child care and day care facilities, and whether the enforcement of this law is adequate. MDE did recently conduct some outreach and education with child care workers about Maryland's lead laws.¹⁷⁷ The Maryland State Department of Education Division of Child Care provides a digital pamphlet about lead poisoning and has undertaken a number of enforcement initiatives related to child care and day care facilities.¹⁷⁸ The pamphlet provides basic information about lead poisoning and available resources, although some of the information in the pamphlet needs to be updated.

The Maryland Department of the Environment offers educational material for the lead poisoning prevention program that educators can order.¹⁷⁹ Materials include brochures, promotional items, and information regarding housing laws. These materials can be found on their website's additional resource page but is obscure and difficult to spot.¹⁸⁰ GHHI provides an extensive set of lead prevention materials, tenant's rights and rental property owner compliance information in various media that are available in hard copy or via GHHI's website.

In terms of recent lead in water in schools awareness, Maryland Law HB 270 (2017) requires "all occupied public and nonpublic schools ... that receive drinking water from a public utility to test for the presence of lead in all drinking water outlets."¹⁸¹ The legislation mandates that if elevated lead levels are found in a school's water, the school must notify the parents or guardians of every child who attends the school and must also post a notice of elevated levels on their school website.¹⁵⁶ HB1253 in 2019 also heightened lead in water in schools notification requirements.

Healthcare Providers

MDH and GHHI have conducted periodic Grand Rounds training across the state to provide training to pediatricians and health care providers on recent changes in the lead related laws and testing requirements as well as linkages to prevention resources for their patients. Mt. Washington Pediatrics Hospital in Baltimore has a designated lead treatment program and participates in community outreach to raise awareness around lead poisoning.¹⁸² MDE and MDH conduct annual regional trainings for the local health department lead nurses, health care providers and housing department staff on updates on lead policies, laws and resources. MDE has resources for healthcare providers on their website in including regular updates on blood lead testing and medical case management requirements and guidelines.¹⁸³ Current Maryland Law requires all children to be tested for lead poisoning at 12 and 24 months, which serves a dual purpose of testing and education. State guidelines also recommend that providers offer screening and lead hazard education at all well-child visit through the age of five.¹⁸⁴ Almost all local county-based department of health in Maryland have lead poisoning prevention information and guidance on their website and several counties have outreach and education programs in place to work with health care providers, families and other stakeholders.¹⁸⁵ Physician associations like the Chesapeake Physician for Social Responsibility (PSR) group conduct their own outreach and education regarding lead poisoning within the healthcare community.¹⁸⁶ They are an advocacy group that offers information on lead poisoning as well as encouraging fellow doctors to support prevention policy and program initiatives. Local health associations, training forums and advocacy groups like these can be an important component to encourage fellow healthcare professionals to be more aware of the problem and take proper actions such as increasing blood lead testing rates.

Community Hubs

Community hubs, like churches, community centers, afterschool daycare, and nonprofit organizations, also provides the setting for increasing awareness through direct contact with parents and property owners in the most at risk communities across the state. In Baltimore City, government departments can partner with non-profits to connect with organizations like community groups, neighborhood associations, churches, WIC clinics and similar local community-based organizations. The Maryland Department of the Environment contract some outreach efforts to GHHI who conducts outreach events, trainings and outreach material distribution throughout the state at the community level and with various key stakeholder groups.¹⁸⁷ GHHI directly reaches over 9,000 persons annually in Maryland through hundreds of lead poisoning prevention outreach and education events, trainings, and forums as well as thousands of additional persons through prevention materials distribution in higher risk communities.

MDE also has a full-time lead poisoning prevention coordinator. This coordinator is responsible for planning, developing, and implementing MDE's strategic outreach and education activities related to the prevention and reduction of lead poisoning in the state in coordination with MDH and DHCD. In addition, this coordinator represents MDE at outreach events and on interagency groups related to lead poisoning prevention. Further, the coordinator educates and conducts compliance assistance for rental property owners and accredited lead paint service providers. Finally, the coordinator also manages the CDC lead poisoning prevention grant, assists in the preparation of the annual lead surveillance report, and conducts outreach with local jurisdictions that have rental registration requirements.

Multiple health departments across the state participate in health fairs and other community events where they distribute lead poisoning prevention information. The Baltimore City Health Department conducts additional community outreach through their Healthy Home Gathering program, which is a small group interactive intervention program. Community health educators go to community settings and educate the community members about lead. Each meeting is approximately 20 people, and every year roughly 300-500 people attend. The City also occasionally hosts block parties and other health promotion outreach events. The Baltimore City Health Department receives 2,000 requests per year to do events for all programs (not just lead poisoning) and the department employs an outreach coordinator. The Baltimore City Department of Health also conducts point of care testing through their mobile immunization clinic that visits local community hubs and conducts education and services at the community level by utilizing non-traditional settings like community centers, homeless shelters, etc.¹⁸⁸

MDE, MDH and GHHI coordinate a series of intensive lead prevention outreach activities, press events, social media and other initiatives during Maryland Lead Poisoning Prevention Week along with local health departments: Baltimore City, Baltimore County, Prince George's, and Montgomery. This includes media coverage and several partnerships with local churches, schools, universities, property owner and homeowner associations and other organizations to actively promote awareness around lead poisoning prevention at the community level.¹⁸⁹ GHHI has also worked with Wicomico, Dorchester, Talbot, Alleghany, Frederick, and Washington Counties to conduct outreach events and property owner trainings. Maryland also participates with National Lead Poisoning Prevention Week, which was October 20th to 26th in 2019.¹⁹⁰ This is led primarily by the US Department of Housing and Urban Development, Environmental Protection Agency and the Centers for Disease Control which offer a wealth of toolkits and resources for local agencies to use to encourage education, environmental testing, and blood testing for children via their agency websites and lead webpages.¹⁹¹

Rental Property Owners

Property owner related sources of information refers to the information and resources available to rental property owners in Maryland who own rental properties constructed prior to 1978. Current Maryland Law has several statutes requiring rental property owners to proactively address lead poisoning concerns and educate their tenants about lead hazards.¹⁹² Specifically, properties built prior to 1978 are required to be registered and risk reduction inspection certification obtained before the property can be legally rented to tenants. Compliance with this statute is being monitored by MDE and local licensing offices but additional outreach and training is required on an ongoing basis to reach all rental property owners in the market and to educate new owners who acquire rental properties or who convert owner occupied properties to rental dwelling units. The Maryland Department of Health and local health departments also have programs that actively conducts home visits, medical case management and interaction with rental property owners for properties for children with elevated blood lead levels have been identified but those resources are limited.¹⁹³

The Maryland Department of the Environment stated in interviews that outreach efforts are either 1) conducted by a full-time MDE employee, who serves as the lead poisoning prevention outreach coordinator, 2) contracted out to experienced organizations like GHHI or 3) conducted by the Baltimore City Health Department, which is funded by a CDC grant.¹⁹⁴ MDE has also stated that much of their outreach is focused on compliance.¹⁹⁵ To encourage compliance, MDE holds forums to educate property owners, realtors, inspectors, and contractors about how to adhere to Maryland's lead related laws and COMAR regulations. They also hold training provider meetings each quarter to discuss trends they are observing in the field.¹⁹⁶ GHHI conducts over 50 rental property owner trainings per year on the Maryland Reduction of Lead Risk in Housing Law, Title X Disclosure, EPA Renovation, Repair and Painting Rule, local housing codes, lead safe work practices and resources for certified inspectors, certified contractors and lead hazard reduction grants and loans.

Lead Contractors and Inspectors

Ensuring that lead certified contractors, housing rehabilitation and weatherization contractors, and maintenance personnel are aware of state and federal lead law requirements and utilize lead safe work practices is critical to protecting occupants from lead exposure and assisting rental property owners in remaining in compliance with various laws. GHHI conducts 50 contractor trainings per year on the Maryland Reduction of Lead Risk in Housing Law, Title X Disclosure, EPA Renovation, Repair and Painting Rule, worker protections, lead safe work practices and resources for lead hazard reduction grants and loans. As described above, MDE also holds regional lead contractors and inspector meetings to advise contractors on the latest developments in lead laws, review compliance requirements and procedures and to provide a forum for contractors and inspectors to get guidance on how to comply with various provisions in the law.

Tenant's Rights Education

Tenant's rights education is an important component of outreach and awareness to assist tenants in making better lead safe housing choices at the time of rental and to have timely lead hazard reduction repairs conducted if hazards exist during their tenancy. Improving communication between tenants and property owners about lead hazards is an important primary prevention tool and requires consistent education of tenants and rental property owners on rights and responsibilities. The modified risk reduction standard, which requires the property owner to ensure there is no chipping, peeling, or flaking paint, is currently triggered automatically upon receipt of Notice of Defect (NOD) or Notice of Elevated Blood Lead Level (EBL)

within 30 days of receipt of NOD or Notice of EBL. Property owners and tenants must be aware that the lead hazard reduction work should be performed by a lead certified contractor and workers and that the tenant should be temporarily relocated if the work will take longer than 24 hours to complete.

If the rental property owner fails to respond, tenants can use the courts to pursue rent escrow if necessary until the lead hazards are addressed and the property is brought into compliance. GHHI provides tenant's rights trainings in group settings as well as conducting individual home visits for families with children under age 6 who reside in affected rental properties to assist in the repair of lead hazards present in their home. GHHI also provides District Court Rent Court representation of tenants in pursuing private rent escrow relief, relocation assistance actions or other actions for tenants who reside in affected properties that lack proper lead risk reduction inspection certification or where the property owner has failed to timely respond to a Notice of Defect or Notice of EBL. Tenants also know not be aware that simply withholding rent if a landlord refuses to remediate a lead hazard may place them in legal jeopardy and that tenants instead should pay their rent into a court ordered rent escrow account until their property is brought into compliance.

CHIP and Specific Programs for Medicaid Populations

Maryland Department of Health operates the Healthy Homes for Healthy Kids and Childhood Lead Poisoning Prevention and Environmental Case Management program that involves both active outreach and the linkage of children on CHIP or Medicaid to services for lead inspection and lead remediation interventions.¹⁹⁷ If a family qualifies (a child with blood lead test greater than or equal to 5µg/dL, eligible for Medicaid/CHIP, spends more than 10 hours per week at the location, and the property is an eligible property [this program is not open to LLC-owned properties or properties with more than 4 units]), they can sign up to have lead paint and dust tested and lead hazards removed for free through the Program that is coordinated by MDH and operated by MDDCHD for the inspection and lead hazard reduction interventions.

Gaps

Healthcare Providers

The health care setting can be one of the most impactful areas of outreach and education regarding lead poisoning prevention in Maryland. The setting offers several opportunities to raise awareness for primary prevention purposes as well as identify children who have elevated blood lead levels where secondary prevention mechanisms and protocols can be implemented. However, according to Baltimore City Health Department Commissioner Dr. Letitia Dzirasa, only half of children in Baltimore ages 12 and 24 months are tested for lead.¹⁴² Statewide, only 23.9% of children under age 6 are tested so greater outreach and training as well as resource assessment is needed to increase those rates and address barriers to testing. This may also require targeted outreach and training to specific payers since the Medicaid testing rates are often higher than other payers. While not specific to Maryland, this concern is corroborated by national data for at-risk populations such as Medicaid patients as only “41 percent of Medicaid-enrolled one- and two-year-old had been tested as required.”¹⁹⁸ This gap between Maryland's universal testing mandate and actual testing percentage needs to be further investigated, as the lack of testing may indicate less awareness of the issue and mandated testing requirements including in non-Medicaid populations and moderate and upper income communities as well where pre-1978 housing exists but where perceptions of risk are less by health care providers and parents. According to Dr. Cliff Mitchell Director of the Environmental Health

Bureau, communication between physicians and local health departments about lead poisoning and point of care blood lead testing could be improved to continue to help address testing barriers.¹⁹⁹

Lead Remediation Resources

Maryland Department of Housing and Community Development (DHCD) revealed through an interview that they currently do not have any explicit outreach or education program in place.²⁰⁰ The activities related to outreach have been for a marketing campaign such as that done in 2016 for WholeHome or through the promotion of the new Healthy Homes for Health Kids Program.²⁰¹ According to the interview, Maryland residents mostly discover the lead hazard reduction grant and loan resources through local health departments, the agency's website and word of mouth referrals by clients or partnering agencies. Increased coordination by all state, local and community agencies websites and referral networks could better assist in outreach to increase enrollment in DHCD lead hazard reduction and housing rehabilitation programs available for homeowners and rental property owners.

Continued outreach and education is also needed surrounding increasing knowledge of: tenant's rights of their ability to request the repair of lead hazards by issuing Notices of Defect, requirements for rental property owners to fix chipping or peeling paint using safe practices and certified contractors, and how property owners access grant and loan resources if necessary to complete required risk reduction measures.

Lead Safe Housing Choices

An enhanced Lead Safe Housing Registry at MDE or DHCD or rental registration website at MDE could assist tenants in making lead safer choices when renting properties constructed prior to 1978. An improved web-based registry through MDE with real-time lead inspection certification information could help tenants and parents search for certified housing prior to rental and also reinforce tenants requesting a copy of a current lead inspection certificate for affected properties prior to starting their tenancy. According to MDE, a new database is in development and will allow public access to certificate data.

The state could also incentivize lead safe and lead-free housing in the private owner occupied and rental markets by establishing a greater market value for realtors, investors and sellers to promote established lead standards that properties have obtained prior to sale. This could be achieved by using existing lead standards or developing a marketing and branding that better increases recognized value for purchasers for housing that is pre-1978 constructed but certified as lead safe or lead free.

Websites and Internet Access

Information on the internet regarding lead poisoning prevention resources through state, federal and non-profit agencies, while thorough and informative, can be more assessible. Google search results differ widely with different terms. Different Departments display different information about each of their respective programs which can be confusing and could be coordinated better to make sure all key information resources and links readily connect across the state agencies and local health departments. Local health departments are inconsistent in what lead related information is presented on their sites. Such fragmented information may be especially difficult to navigate for individuals who do not have the technical background to target specific agencies for specific resources.

The cultural competency of the information provided online could also be improved. Some sites like the Maryland Department of Education and the Maryland Department of Health have a "translate" button that

utilizes Google Translate to convert into other languages. Local authorities' websites are bit more inconsistent, though generally translation options are available. One thing to note is the translate button is often hard to notice because the icon is generally tucked away at the corners of the screen. It is also important to note that people from different cultural backgrounds may have different needs in terms of lead hazards and lead remediation. More information should be readily available that addresses issues like other sources of lead, items brought from other countries that may contain lead and blood lead testing for recent immigrant children to the state. Ongoing efforts by GHHI and others to have community resource hubs and organizations link better to internet lead prevention resources should also be expanded across a variety of stakeholders that may come in contact with parents of children under age 6 who reside in pre-1978 housing.

Social Media

While GHHI utilizes social media regularly and some health departments use the platform, social media provides a promising mechanism to reach target populations such as rental property owners, homeowners and health care providers with key prevention messaging and compliance information that is worth further development. The Baltimore City Health Department has started utilizing targeted social media advertisements for residents of zip codes known to have a higher prevalence of lead poisoning. The Department is expecting to receive an analysis of how many people this targeted social media campaign has reached. Other government departments have utilized social media but have struggled to reach large audiences, so an opportunity exists to improve how social media postings are promoted and supported by Maryland's prevention partner network to broader networks. As an example, Allegany County Health Department's Facebook post regarding National Lead Poisoning Prevention Week in 2018 received a total of one like and two shares.²⁰² Maryland's Department of the Environment's tweet about National Lead Poisoning Prevention Week in 2017 received a total of one like and four retweets.²⁰³ Education videos about lead poisoning prevention that the Maryland Department of health released on YouTube had nine hundred views when released but can be promoted.²⁰⁴ GHHI has supplemented this area with their online activities (Constant Contact, Twitter, Facebook, LinkedIn, Instagram, YouTube) like webinar trainings to recruit and reach smaller groups of stakeholders below the larger rental property owner and homeowner associations through new mediums, but in general opportunities for social media lead content could be expanded and more widely promoted to reach less served outreach and direct services areas throughout the state.²⁰⁵

Opportunities and Recommendations

A number of outreach and education opportunities for expanding services and the reach of various outreach methodologies have been identified above and a few additional recommendations are described below in greater detail.

Dissemination of Information

Currently, internet information about lead poisoning remediation and prevention for the State of Maryland is fragmented, de-centralized, and sometimes difficult to access without pre-existing knowledge of lead topic areas. There is a critical need to integrate all the available resources together to form cohesive sites that can easily guide any user from identifying their needs to what resources are available through state and local resources. This coordination of sites around a central program or theme should appear as the top result when people search for relevant terms in Google and other search engines. Designing a centralized, culturally competent, and user-friendly interface could provide a powerful tool for greater impact from

outreach and education and catalyzing for example increased testing rates and enrollment in DHCD lead and housing rehabilitation grant and loan programs, Healthy Homes for Healthy Kids Program and local HUD Office of Lead Hazard Control and Healthy Homes lead grant programs.

Outreach and education across the state would also benefit from the collection of data regarding the location of lead service lines or possible lead service lines. This too should be collected and aggregated into a centralized, easily accessible database. Proposed revisions to the EPA's Lead and Copper Rule include a mandate that water systems collect data about the location of lead service lines and make that information publicly available, meaning it is likely that collection of this data will be legally mandated in the near future.²⁰⁶ By collecting this data into a state database, Maryland will not only meet the new proposed EPA standards, but will exceed them by making lead service line locations easier to access for Maryland residents.

Additionally, further research could also be conducted to determine which outreach and education methods and media platforms are most effective at reaching specific sub-target populations (expectant mothers, housing rehabilitation contractors, health care providers in rural areas, etc.) both in terms of the number of individuals they reach and where they result in people to taking action on the information received.

Lead Testing and Screening Promotion

Maryland continues to show lower than desired rates of blood lead testing despite a universal testing mandate that all children be screened at well-child visits and tested at 12 and 24 months. Outreach and education interventions represent a possible way to help increase the state's testing rate especially with the existing universal testing requirement. Rates of testing at several clinics in New Hampshire were successfully increased with targeted outreach and education. New Hampshire's Healthy Homes and Lead Poisoning Prevention Program (HHLPPP) implemented a one-hour lunch and learn that health care providers could attend and earn continuing medical education credits. The session covered lead hazards, developmental consequences of lead poisoning, the economic burden of lead poisoning, surveillance data, testing guidelines, and testing methodologies (including point of care testing). They included medical education materials and parent education reminders about lead screening. The HHLPPP purchased ten Magellan Diagnostics POC lead testing machines and kits, which they distributed to clinics that hosted the lunch-and-learn program along with go-live training provided by the HHLPPP.²⁰⁷ Outreach could be conducted to providers in Maryland to identify barriers to POC testing in order to determine if an intervention similar to the one conducted in New Hampshire would be appropriate. There is also a tremendous opportunity to continue the work with the education, child care and day care sectors to increase blood lead testing rates via the universal testing mandate and adherence to the requirement that all children be screened prior to entry into school, child care or day care facilities in Maryland.

Cross Sector Partnerships

Another opportunity to expand outreach and education on lead poisoning prevention includes partnerships and cross training with other home visiting programs, the education and childcare sector, and healthcare providers. There are several programs in Maryland that have a home visiting component. These programs include weatherization and energy efficiency programs, asthma programs, aging-in-place programs and other social services programs. Maryland's weatherization and energy efficiency programs are administered by MDDHCD, the Maryland Energy Administration, local housing and community action agencies and the utility companies. These programs, when aggregated, reach a diverse population that is low income and commonly older housing that may contain housing defects. MDDHCD, MDE and MDH can partner with these

entities to train both energy auditors and contractors to better identify lead hazards and provide referrals to the appropriate agencies for follow-up and enrollment in lead hazard reduction grant and loan programs. Similarly, Maryland's programs to support asthmatic individuals as well as older adults seeking to age-in-place are administered by a combination of state agencies, local departments, hospital systems, managed care organizations, and non-profit organizations. As such, there is tremendous opportunity for MDE to coordinate with asthma and aging-in-place home visitors to also potential identify lead hazards and provide lead poisoning prevention education in homes with young, including homes with multi-generational occupants.

Equity and Economic Mobility through Workforce Development and Contractor Capacity Expansion

Workforce Development and Job Training

Prevention of lead poisoning also represents an opportunity to promote equity and economic mobility. By implementing strategic approaches to how we educate residents and potential members of our workforce, we can ensure that society's monetary gain from reducing lead poisoning can be reinvested back into the vulnerable communities that for decades have been disproportionately impacted by lead poisoning. Lead Worker, Lead Supervisor and Inspector Trainings, provided in both English and Spanish, can be targeted at communities that historically face unemployment, under employment, or low wage jobs that can provide critical job training but also expand lead certified contractor and inspector capacity in the market. One training provider in Maryland provides bilingual trainings in Spanish and GHHI is working to develop a Spanish-language training to enable members of the Latino community to earn jobs in healthy housing and lead remediation.

A marketing and training initiative could be undertaken to increase the knowledge of residents of low-income communities in Maryland of the job opportunities in the lead industry and to promote the workforce training courses. Training programs that encourage minorities and residents of Baltimore's lowest income neighborhoods could offer economic opportunity and pathways for residents to become environmental inspectors or lead remediation workers and encourage economic mobility for residents in Baltimore City, Baltimore County and other neighborhoods statewide that have traditionally been plagued by unemployment or underemployment. Several non-profit service providers such as Living Classrooms and GHHI have in-house crews that perform hazard reduction work that train and hire residents from at-risk communities. An example of this is currently underway in Tennessee where the Urban League is piloting programs in several cities to teach minority employees and contractors how to weatherize homes.²⁰⁸

Increased Impacted Community Engagement in Prevention Solutions and Designing Outreach Messaging

Lead poisoning prevention efforts in Maryland should look to further engage impacted communities. Families, who have been impacted by lead poisoning, can provide critical insights that can help maximize lead poisoning prevention efforts if increased outreach and marketing is consistently implemented. Opportunities to engage families in lead poisoning prevention strategies include:

- Program design/design thinking – There can sometimes be barriers or flaws in the program design that prevents families from accessing or fully utilizing program services. In some cases, client feedback can help shed light on some of these barriers and flaws that program staff might not be aware of. Strategies for local health departments and agencies to get client feedback include:
 - Surveys
 - Focus groups

- Post-service interviews
- Communications and outreach – Clients/families can help the health department know where/how to target communications/outreach/awareness campaigns, especially for hard-to-reach areas and populations. Local health departments and agencies can ask clients about:
 - The best places to reach their communities with public health communications
 - The best strategies or types of media to use to communicate with their communities
 - The barriers to utilizing health department resources and services for parents of young children in their communities
 - What messaging drives preventive changes in behavior for various stakeholders and what messaging results in parents or rental property owners taking action to access available resources
- Community ambassadors/liaisons – Additional parents can be engaged to be advocates and help spread prevention information to their communities. Parents can be useful in helping connect other families in at risk neighborhoods to health department resources and housing programs. Efforts should be undertaken to explore opportunities to partner with parents who have received services from health departments or housing agencies and who can be resource liaisons to help provide resources to other families in their communities. Here are some specific ways that parents can help:
 - Community outreach
 - Provide feedback on communications materials
 - Improving linkage families to available resources
 - Help direct other families to available programs and assist with navigation of program enrollment
 - Speak during health department trainings for nurse case managers or lead risk assessors, which can help provide context and motivation
 - Support for policy – While the state agencies or health department can't always participate directly, parents can work with local community organizations that specialize in lead poisoning prevention advocacy to support the need for increased resources or policy changes. Local community organizations, in partnership with parent advocates, can provide their experiences from the field and other input that informs the process on the challenges faced by various stakeholders in the lead poisoning prevention arena

Impactful Actions for Maryland to Consider

There are a number of current developments and trends in the lead poisoning prevention arena across the country and in Maryland that the Lead Poisoning Prevention Commission, the state agencies and local jurisdictions should consider expanding or implementing in addressing the findings from the Asset and Gap Analysis. GHHI has included a number of these funding and policy best practices in the Opportunities section of the report.

Publicly Acknowledge Current Hard Work and Successes

Maryland has become a national leader in lead poisoning prevention not only as a result of the state's protective laws, but also as a result of the hard work in enforcing and implementing laws and policies on the part of MDE, MDH, DHCD, health care providers, and local health departments. People working within these departments and organizations are empowering Maryland families to live in healthy, lead-safe housing. That work should be publicly acknowledged.

Update Action Plan to Achieve Zero Blood Lead Levels in the State Above 1 µg/dL

Maryland should consider developing an action plan that includes a date by which all blood lead levels in Maryland will be at or below 1 µg/dL. Developing an action plan will provide direction and help the many cross-sector organizations in the state unify around one goal and put in place measurable steps to reach that goal.

Adopt an Equity Framing for Lead Poisoning Prevention

Lead poisoning is a harmful condition with permanent effects that impact primarily low-income communities and communities of color. When making the case for lead poisoning prevention, the State should consider framing their message with an equity lens, reminding policy makers and service providers that lead poisoning prevention impacts access to opportunity for some of our state's most vulnerable households, and is fundamental to the pursuit of our shared value of equal opportunity for all children in our state. Additionally, lead poisoning prevention should be presented as a smart investment that is beneficial to the economic bottom line for children, families, property owners, and government.

Invest in a uniform data platform

There is a need amongst service providers in Maryland for a data platform with case management capabilities that can be utilized by MDE, MDH, local health departments, medical providers, and childcare facilities. As MDE works to update their data tracking system, this progress should be built upon with further investment in uniform data systems that meet the needs of all service providers.

Implement Strategies to Increase Blood Lead Testing Rates

Maryland has a universal testing mandate, but still struggles to test all eligible children. Better implementation of Maryland's universal testing rules can be achieved through partnerships with FQHC's, WIC clinics, and Head Starts where POC testing can be piloted. Increased rates of testing at well child visits can also be encouraged with provider report cards as well as wider reporting of MCO testing rates and increased communication between MCOs about best practices. Maryland should consider implementing targeted testing of pregnant women.

Increase State Funding to Meet the Added Need for Services Triggered by the Updated Action Level

In 2012, the Center for Disease Control and Prevention (CDC) reviewed the relevant research and determined that there was no safe level of lead in a child's body at which harm does not occur and lowered the blood lead reference level from 10 µg/dl to 5 µg/dl for children. In 2018, Maryland join a number of other states in lowering its blood lead action level to 5 µg/dl to correspond to the CDC blood lead reference level for case management and environmental investigation for children under age 6 with elevated blood lead levels. States In accordance with the lowering of the action level, some states, including Maine and New Jersey, have increased state budget funding significantly to provide for additional nurses, community health workers and risk assessors necessary to meet the increased need for case management and environmental inspection and enforcement services in response to lower lead action levels. As Maryland's action level goes to 5 µg/dL, increased attention should be given to the funding needs of MDE, MDH, DHCD, and local health departments to ensure they have the full support needed to meet the increased need for services.

Expand Medicaid and CHIP Funding for Lead Remediation and Case Management

A number of states in the past several years, including Maryland, have gained approval from the Center for Medicare and Medicaid Services (CMS) to leverage federal funds available through the Medicaid or Medicaid Children's Health Insurance Program (CHIP). States must submit a State Plan Amendment to CMS to utilize those funds to pay for lead inspections and lead hazard remediation for children under age 6 on Medicaid or CHIP. Various mechanisms have been used under CMS's Health Services Initiative (HSI) including State Plan Amendments, Value-Based Payment Arrangements (VBP), and Delivery System Reform Incentive Payment Program (DSRIP), as well as Rule 1115 Waivers. States approving Medicaid or CHIP funds for lead or healthy homes services include Indiana, Maryland, Michigan, Missouri, New York, Ohio, Oregon, Pennsylvania, Rhode Island and Utah. Maryland's \$4.17 million for the Healthy Homes for Healthy Kids Program in FY 2018 is a strong example for other states in demonstrating how to use CHIP health care investments to fund a broader set of healthy housing services that result in improved health outcomes.

Implement Opportunity Zones Lead Standards and Tax Credits

During Maryland's 2020 legislative session, the House and Senate passed the Opportunity Zone Enhancement Program for Lead Based Paint Affected Properties bill (HB566/SB713). This bill requires verification that lead safe standards are met prior to receipt of tax credits incentives provided by the Opportunity Zone program. Opportunity Zones were created in 2017 through the Tax Cuts and Jobs Act. They are designated economically distressed zones where investment and economic revitalization is encouraged with federal tax incentives for investors. Investors can access tax incentives by creating opportunity funds that invest in real estate or business operations in these designated zones. Programs such as these can be used to fund lead abatement by encouraging investors to rehabilitate substandard housing in these low-income areas, and specifically including standards around lead-safe repair and lead remediation for developers into requirements for Opportunity Zone development participation. Traditional income tax credits for lead abatement and lead hazard control activities has also been utilized in several states and can provide financial assistance and incentives for homeowners and rental property owners to conduct lead hazard remediation.

Maryland's Opportunity Zone Enhancement Program for Lead Based Paint Affected Properties bill was based off of the late Congressman Elijah Cummings' Opportunity Zone Lead Remediation Impact Act of 2019. Congressman Cummings' bill, which did not pass, created lead standards for investments in pre-1978

properties like Maryland's 2020 bill. However, Congressman Cummings' bill also mandated that two percent of any investment in an Opportunity Zone should be placed in lead remediation fund to be used to address lead hazards in that area. Maryland should consider adding this requirement to generate additional funds and resources for Maryland's Lead Poisoning Prevention Efforts.

Develop a State Lead General Obligation Bonds

States and municipalities regularly borrow to fulfill needed infrastructure improvements based upon the reasoning that these are long term investments that improve social wellbeing. Social infrastructure such as the elimination of lead hazards is therefore not much different conceptually and could be financed similarly. The advantage of bond financing such as general obligation bonds is that the state can generate substantially more funding than traditional state lead grant and loan programs that will allow the state to conduct lead hazard interventions at substantially increased levels necessary to meet the market's demand and to eradicate lead poisoning. The State of New Jersey has announced a \$500 million state lead bond to finance lead-based paint hazard abatement and lead service line replacement. Other states are considering similar lead bonds to finance lead hazard remediation at scale. Maryland should consider pursuing a Lead General Obligation Bond to increase available resources for lead poisoning prevention.

State Lead Success Bond and Outcomes Based Financing

Several states and jurisdictions are exploring lead poisoning prevention funds that could be financed through a Success Bond or similar financial mechanism, whereby increases in revenue streams or decreased costs in others triggered by successful outcomes would pay for the upfront cost of intervention and create sustainable revenue streams. This approach eliminates the need for continuous up-front budget appropriations by the State. Bond proceeds could be held in escrow and only paid out based on agreed-upon outcomes milestones. In the lead arena, a Success Bond could be used to fund lead hazard remediation through demonstrated reductions in school absenteeism and drop-outs rates and cost savings from reduced special education and criminal justice costs attributable to reductions in lead poisoning rates.

Partner with Hospitals and Other Anchor Institutions to Invest in Lead Poisoning Prevention

The State of Maryland should consider working with anchor institutions like hospitals, banks and universities to make investments in Lead Poisoning Prevention. All tax-exempt hospitals are required by law to improve community health through a combination of programs, initiatives, and investments. This collection of activities is supported by a hospital's community benefit funds. The Affordable Care Act does not stipulate how a hospital should distribute community benefit dollars across programs or investments, so there is some flexibility in how they are allocated.

The billions of dollars in Maryland's non-profit health system community benefit investments are currently directed primarily to defraying unpaid costs of patient care. The state's community benefit dollars are typically used to defray costs associated with subsidized medical care, Medicaid payment shortfall, financial assistance and bad medical debt. Investing hospital community benefits dollars in upstream social determinants of health, including housing conditions, can improve health outcomes, lower health systems' downstream costs and reduce unpaid care needs. A number of hospitals and anchor institutions across the country have made consideration financial commitments or are expected to announce significant investments in lead hazard remediation and healthy housing interventions in 2020 in the communities and regions where they are located.

Develop a Coordinated and Comprehensive Plan with the Utilities to Replace Lead Service Sines

While many cases of lead poisoning result from lead paint, lead in water still poses a threat from many Maryland residential properties with lead service lines. This plan should include passing legislation allowing utilities to replace the privately-owned portion of a lead service line without the property owner's permission. Replacement of the entire service line is important. Partial replacement fails to fully mitigate the hazard and can even increase the resident's exposure to lead in their drinking water. A state plan should include coordination with utilities to create a state-wide database recording the location of lead service lines or possible lead service lines. The database should be mapped and made publicly available in a way that allows residents to easily check if their home has a lead service line and to help service providers locate neighborhoods with large concentrations of LSLs and provide targeted outreach and interventions. Proposed revisions to the EPA's Lead and Copper Rule contain a mandate for utilities to create publicly available inventories showing the locations of lead service lines, meaning it is likely utilities will have to create these inventories regardless, however shaping these likely future regulations into a coordinated state-wide effort will provide a centralized location for the information and will ensure it is more accessible to the public.

[Several water utilities and municipal water authorities](#) are offering programs to inventory and fully replace lead service lines in residential properties through leveraged investment of rate payer and fee dollars. Whereas traditionally the property owner may be responsible for the cost of lead service line replacement from the curb line to their home, some utilities are also offering to cover the cost of full lead service line (LSL) replacement, either in response to a specific water quality issue, or in an effort to remove lead service lines from their inventory across their service area. One example of this effort is American Water, a national publicly-traded water and waste water management utility, has committed to completing an inventory of the lead service lines across their footprint, and replacing these lines at low or no cost for low-income property owners, preferably utilizing a more cost-effective 'batch' approach to LSL replacement (replacing all of the affected service lines on a given block at the same time). Other local and regional utilities, such as Memphis Light, Gas and Water (MLGW) in Memphis, Tennessee have created lead service line replacement programs and have committed to replacing all lead service lines in their service area over a period of several years.

Address Lead in Water in Schools and Childcare Centers

Lead hazards in water in schools and childcare centers have become an area of increased scrutiny and calls for reform across the country as greater sources of lead in school fixtures and water systems are identified. Several states and local jurisdictions have developed improved lead in water testing and notification requirements, have lowered the action level requiring lead remediation below 20 ppb, and have created new or expanded funding sources to remediate leaded fixtures, install filtration systems and/or resort to turning off fixtures and utilizing bottled water. Maryland legislators have succeeded in generating additional funds to address lead hazards in drinking water outlets in schools and childcare centers but continue to work towards lowering the action level for lead in water from drinking water outlets.

Public Service Commission Funds and Weatherization Programs

Maryland's Lead Poisoning Prevention Plan should include a partnership with the Public Service Commission (PSC) to allow for the broader use of available funds to address health and safety hazards including lead-safe window and door replacements. PSC's across the country have been increasingly open to considering the research on the non-energy benefits of energy efficiency interventions including improved health outcomes. PSCs have allowed increases in health and safety allowances where PSC program oversight

exists and have also approved utility merger funds to be used for higher level health and safety costs including lead hazard remediation. The DOE Weatherization Assistance Program (WAP), Low Income Home Energy Assistance Program (LIHEAP) and utility energy efficiency programs have increasingly been leveraged and integrated with other health and housing services programs to address lead and other home-based environmental health hazards.

In 2013, the Maryland Public Service Commission awarded \$19.0 million for use by the Maryland Department of Housing and Community Development in seven counties and \$19.8 million to the Baltimore City Department of Housing and Community Development for use on Consumer Investment Funds (CIF) for program interventions in low income homes that included energy efficiency, lead hazard reduction, health and safety and housing rehabilitation. This program has since expired. During the 2020 Maryland Legislative session, legislators considered a bill (HB982/SB740) that, among other things, would have allocated additional funds for low-income energy efficiency programs to address health and safety hazards prior to performing energy upgrades. Aligning lead hazard remediation with the Maryland's energy efficiency programs offers a coordinated, cross-sector approach to lead poisoning prevention

Adopt Statewide Model Lead Safe Demolition Standards

As aging housing stocks and deferred maintenance result in deteriorated housing particularly in low- and moderate-income communities, America's older communities face the need for urban renewal and the use of demolition to remove older, blighted properties. While neighborhood stabilization and preservation are important, certain blocks may be deteriorated to the point where they are not salvageable and may contain substantial lead hazards and other defects whereby demolition is the most viable option to return safe and stable housing to the community. Lead safe demolition practices and codes, developed first in Baltimore City, are now being introduced in more jurisdictions including the State of Oregon which recently released model lead safe demolition standards that local jurisdictions are adopting. The State should advance legislation to adopt similar standards statewide that include best practices for demolition of pre-1978 constructed properties that include resident notification, wetting and debris removal requirements that correspond to safe demolition work schedules.

Strengthen Title X Lead Disclosure Rule

Under HUD Title X Lead Disclosure Rule, any individual selling or leasing a home built before 1978 must disclose the presence and location of any lead hazards to the buyer only if they are aware that lead hazards exist at the property. This gives many property sellers the option of just claiming ignorance. The State of Maryland should strengthen Title X by mandating that pre-1978 properties receive a lead risk assessment at point of sale and implement stringent lead disclosure standards in order to encourage better lead safe practices in owner-occupied properties.

Improved Housing Standards for Federally Assisted Housing and Increased Permanent and Temporary Housing Resources

The federal Lead Safe Housing Rule was amended in 2018 for pre-1978 constructed properties that receive federal assistance. The amended Rule revised the blood lead action level to conform to the CDC blood lead reference level in federally assisted housing which currently stands at 5 µg/dL for inspection and remediation of federally assisted properties where a child under age 6 is identified with an EBL. The amended Rule also requires an enhanced lead risk assessment response protocol when an EBL child is identified including preventive testing of other units where children under 6 reside in the complex where the EBL child resides.

Baltimore City DHCD's Housing Choice Voucher lead preference program and CDBG Relocation Assistance Programs represent best practices that other jurisdictions are also looking to adopt. The Baltimore City DHCD Housing Choice Voucher Program (HCVP, in conjunction with GHHI and the Baltimore City Health Department, established a 250-voucher lead preference program that is administered by GHHI and provides vouchers for lead affected families to relocate lead safe housing. Baltimore City DHCD's CDBG Program also provides \$10,000 annually to GHHI to provide relocation assistance to families who are residing in hazardous, non-compliant properties where the owner is unresponsive to relocate permanently to lead certified housing. The State of Maryland should consider expanding this program statewide.

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