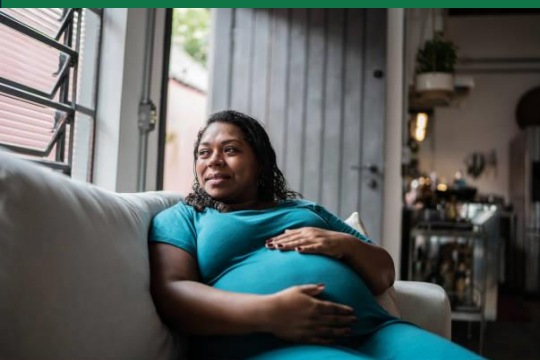




2022 Maryland Lead Registry Annual Surveillance Report

Maryland Department of the Environment



MARYLAND CHILDHOOD LEAD REGISTRY

ANNUAL SURVEILLANCE REPORT 2022

Executive Summary

The Maryland Department of the Environment (MDE) statewide Childhood Lead Registry (CLR) performs childhood blood lead surveillance for the state of Maryland. The CLR receives the reports of all blood lead tests done on Maryland children 0-18 years of age, and the CLR provides blood lead test results to the Maryland Department of Health (MDH), including Medicaid, Immunet, local health departments as needed for case management, and upon request to third parties for research and planning.

Since 1995, the CLR has released a comprehensive annual report on statewide childhood blood lead testing, including a detailed breakdown of blood lead data by age, jurisdiction, blood lead level, incident, and prevalent cases of blood lead level ≥ 10 micrograms per deciliter ($\mu\text{g}/\text{dL}$), and blood lead level between 5-9 $\mu\text{g}/\text{dL}$, and the trend of blood lead level over the years. This current report presents the blood lead test results for calendar year (CY) 2022. All numbers are based on blood lead testing (venous or capillary) on children. The CLR does not receive and does not process any reports on lead screening based on the lead risk assessment questionnaire. With a few exceptions, all numbers referenced within this report pertain to children 0-72 months of age.

CY 2022 Surveillance Highlights

- * A total of 126,903 blood lead tests from 120,630 children 0-17 years were received and processed by the CLR in 2022, of which 119,697 tests were from 113,666 children 0-72 months.
- * There was an increase in the number of children 0-72 months tested for lead in 2022 compared to 2021 (113,666 vs. 105,143). The increase can mostly be related to post COVID-19 reopening in-person health services such as blood lead testing.
- * Children one and two years had the highest blood lead testing in 2022 compared to other age groups.
- * The number of children 0-72 months of age identified with a blood lead level (BLL) ≥ 10 $\mu\text{g}/\text{dL}$ decreased from 323 in 2021 to 256 in 2022. The decrease may be attributed to increased outreach efforts in 2022 which included partnership with MDH, the local health departments, notification letters to parents and follow-up testing.
- * The number of children 0-72 months of age identified with a blood lead level 5-9 $\mu\text{g}/\text{dL}$ decreased from 1,107 in 2021 to 997 in 2022.

Statistical Report

In 2022, 113,666 children 0-72 months of age were tested for lead exposure statewide. Table One provides a summary of statewide statistics of blood lead testing in 2022. The age group “six years” is included in the Table and all totals as these children are 72 months old. The count of children 0-72 months of age tested for lead in 2022 shows an increase of 8,523 children compared to 2021 (113,666 vs. 105,143). The pandemic increased the risk of lead poisoning among disparate communities as fewer lead screening tests were performed, fewer follow-up visits for patients with elevated blood lead levels were conducted, and people spent more time at home (Dang, et al, 2021; Courtney, et al, 2020). However, the increase in children tested reflects the reopening of in-person health services.

Table One: CY22 Statistical Report¹

	All Children (0-17 Years)	Percent
Number of Tests	126,903	
Number of Children	120,630	
	Children 0-72 Months	
Number of Tests	119,697	
Number of Children	113,666	100
AGE		
Under One	8,821	7.8
One Year	41,669	36.7
Two years	38,769	34.1
Three Years	9,329	8.2
Four Years	8,428	7.4
Five Years	6,235	5.5
Six Years	415	0.4
SEX		
Female	55,451	48.8
Male	58,112	51.1
Undetermined	103	0.1
Blood Lead Level (µg/dL)		
≤4	110,839	97.5
3.5-4.9	1,574	1.4
5-9	997	0.9
10-14	162	0.1
15-19	46	0.0
≥20	48	0.0
Mean BLL (Geometric)	1.56	
Blood Specimen		
Capillary	51,432	45.1
Venous	61,472	54.2
Undetermined	762	0.7

1. Due to the rounding percentage to the first decimal point in this and other tables, the sum of breakdown percentages may not equal the total percentage.

1. Courtney, JG., Chuke, S., Duke, K. (2020). Decreases in Young Children who received blood lead level testing during COVID-19 – 34 Jurisdictions. *MMWR Morbidity Mortality Weekly Report*. 70,5,155-161.
2. Dang, D., Lively, M., Jalan, A. (2021). Lead Poisoning and Racism in the Time of COVID-19. *Wisconsin Medical Journal*. 120,59-60.

Table Two shows the number of children 0-72 months at risk by jurisdiction 2022 with a blood lead level ≥ 5 $\mu\text{g/dL}$.

Table Two: Number of Children Ages 0-72 Months at Risk by Jurisdiction

JURISDICTION	BLL ≥ 5 $\mu\text{g/dL}$
ALLEGANY	43
ANNE ARUNDEL	58
BALTIMORE	162
BALTIMORE CITY	393
CALVERT	6
CAROLINE	10
CARROLL	25
CECIL	18
CHARLES	26
DORCHESTER	11
FREDERICK	36
GARRETT	1
HARFORD	34
HOWARD	36
KENT	1
MONTGOMERY	145
PRINCE GEORGE'S	156
QUEEN ANNE'S	6
SAINT MARY'S	5
SOMERSET	8
TALBOT	6
WASHINGTON	34
WICOMICO	25
WORCESTER	8
STATEWIDE	1253

Figure One shows the visible increase in blood lead testing from 2000 to 2022. In 2022, there was a decrease in the number of children with reported blood lead level $\geq 10 \mu\text{g/dL}$ compared to 2021 (256 vs. 323 respectively).

Figure One: Number of Children 0-72 Months Tested for Lead and Number Reported to Have Blood Lead Level $\geq 10 \mu\text{g/dL}$: CY 2000 - 2022

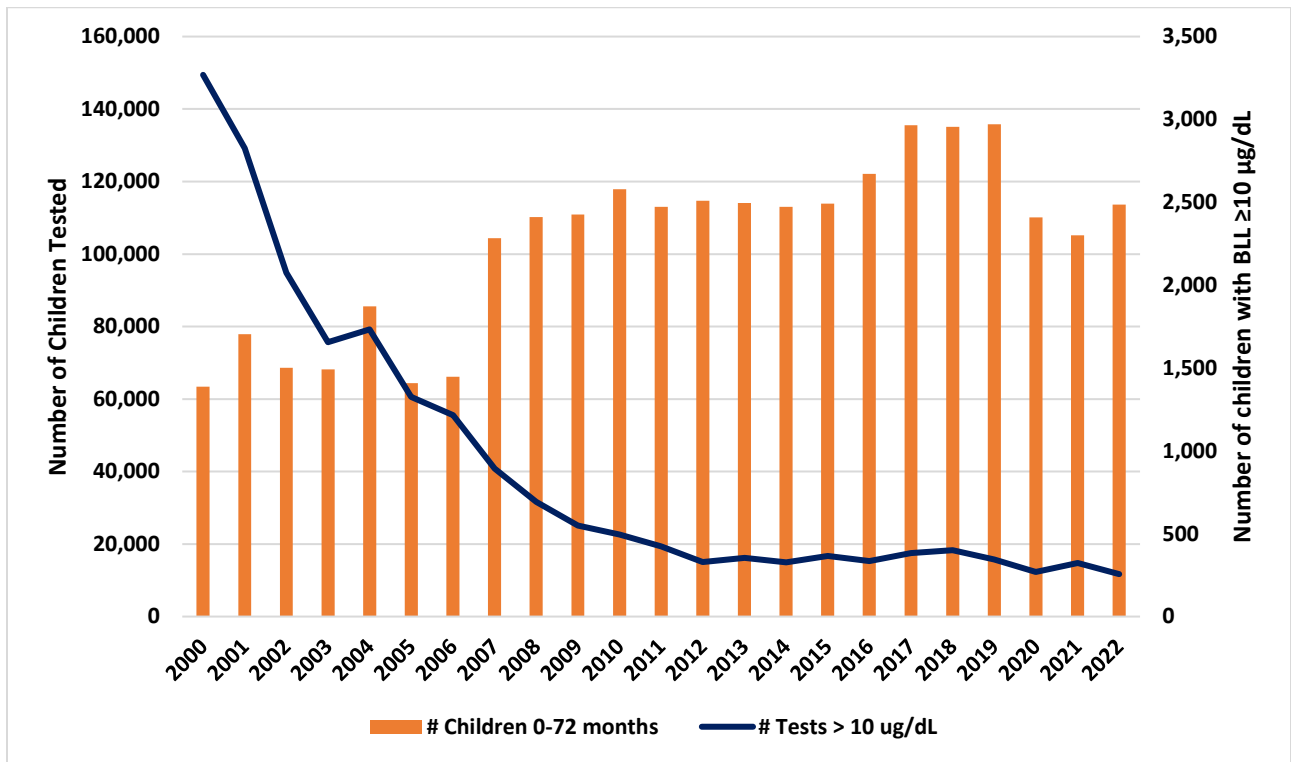


Figure Two illustrates the load of lead exposure among children has declined significantly over time. In CY 2000, approximately 18% of children 0-72 months of age tested for lead were identified with a blood lead level between 5-9 $\mu\text{g/dL}$. In CY 2022, this increased by 0.05% from the previous year 2021. Sources of exposure include, but are not limited to toys, jewelry, environmental exposure (air and soil), candies, and traditional home remedies.

Figure Two: Percent of Children 0-72 Months Tested for Lead and Identified with a Blood Lead Level of 5-9 µg/dL: CY 2000 - 2022

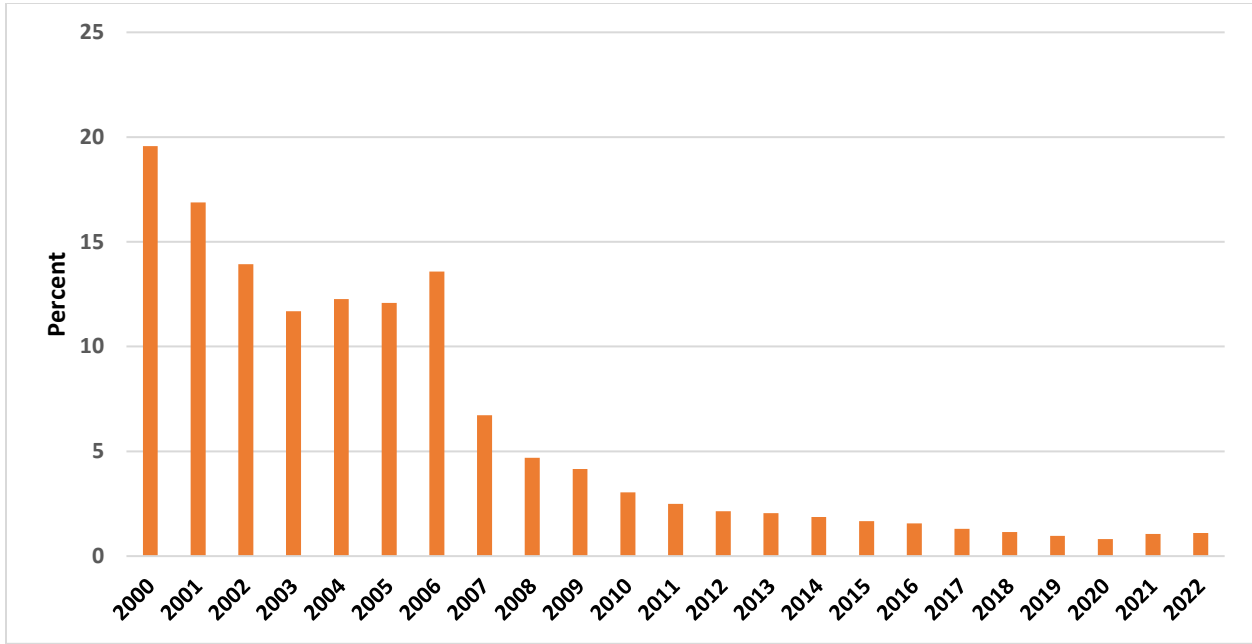


Figure Three shows the observed number of children tested from 1999 to 2022. The graph shows an increase in blood lead testing in children ages one to six years old through the years with a decline between 2020 to 2021 and an increase in 2022 post COVID.

Figure Three: Observed Number of Children Tested 1999 - 2022

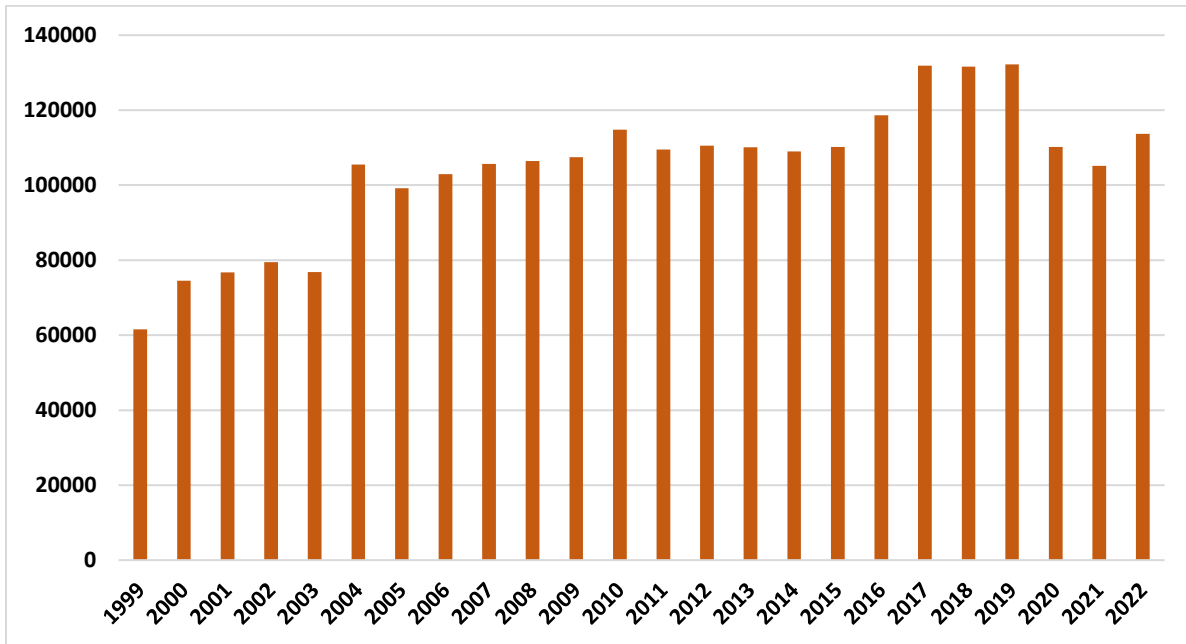


Figure Four illustrates the average number of blood lead tests per child from 2018 to 2022. The graph shows a 0.04% decline in the number of tests from 2021 to 2022. Follow up testing is recommended after receipt of a screening with an elevated capillary result. A venous draw is recommended for confirmatory blood lead level screening.

Figure Four: Average Number of Blood Lead Tests per Child: CY 2018 - 2022

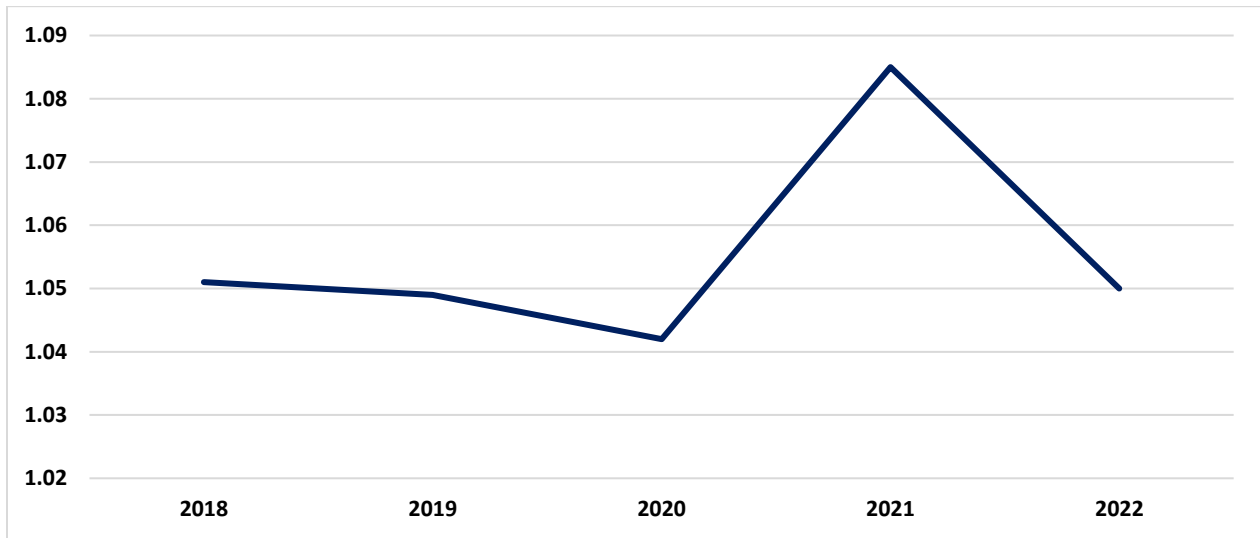


Table Three shows the reduction in blood lead testing 2022 vs. 2021 by age group. Overall, there were increases in the number of children testing in 2022 with reductions in age groups five and six years old.

Table Three: Reduction in Blood Lead Testing 2022 vs 2021 by Age Group

Age	2021			2022			Changes in 2022	
	Population of Children	Children Tested		Population of Children	Children Tested		Number	Percent
		Number	Percent		Number	Percent		
Under One	68,236	7,218	10.6	68,782	8,821	12.8	1,603	18.1
One Year	70,222	38,077	54.2	67,332	41,669	61.9	3,592	8.2
Two Years	71,425	35,124	49.2	70,272	38,769	55.2	3,645	9.4
Three Years	72,798	8,925	12.3	70,858	9,329	13.2	404	6.4
Four Years	73,549	8,317	11.3	72,224	8,428	11.7	111	1.6
Five Years	75,170	7,038	9.4	73,063	6,235	8.5	803	14.9
Six Years	75,557	444	0.6	74,661	415	0.6	29	0.0
Total	506,957	105,143	20.7	497,192	113,663	22.9		

Table four shows the reduction in blood lead testing 2022 compared to 2021 by jurisdiction. The impact of COVID-19 on blood lead testing in 2021 continued to decline from 2020. MDE continuously works alongside the local health department lead nursing staff during the medical case management process to communicate the importance of follow-up testing to parents and guardians of persons at risk. MDE in partnership with the MDH, and local health departments, continue outreach efforts to increase blood lead level screening.

Table Four: Reduction in Blood Lead Testing 2022 vs. 2021

County	2021			2022			Change in 2022	
	Population of Children	Number	Percent	Population of Children	Number	Percent	Number	Percent
Allegany	3,128	911	29.1	3,343	1,029	30.8	118	13.0
Anne Arundel	34,789	9,395	27.0	37,112	11,455	30.9	2060	21.9
Baltimore	48,603	15,871	32.7	50,421	15,844	31.4	27	0.2
Baltimore City	34,265	11,189	32.7	35,582	10,968	30.8	221	2.0
Calvert	4,973	1,180	23.7	5,270	1,206	22.9	26	2.2
Caroline	2,033	616	30.3	2,175	547	25.1	69	11.2
Carroll	9,343	2,270	24.3	9,964	2,933	29.4	663	29.2
Cecil	5,845	1,420	24.3	6,157	1,451	23.6	31	2.2
Charles	9,786	2,149	22.0	10,349	2,800	27.1	651	30.3
Dorchester	1,737	529	30.5	1,951	461	23.6	68	12.9
Frederick	16,198	3,782	23.3	17,631	5,112	29.0	1330	35.2
Garrett	1,334	287	21.5	1,423	319	22.4	32	11.1
Harford	14,307	3,853	26.9	15,000	4,543	30.3	690	17.9
Howard	18,296	4,531	24.8	19,294	4,535	23.5	4	0.1
Kent	792	179	22.6	794	179	22.5	0	0.0
Montgomery	60,861	19,591	32.2	63,240	22,833	36.1	3242	16.5
Prince George's	59,252	19,225	32.4	60,230	18,850	31.3	375	2.0
Queen Anne's	2,647	675	25.5	2,780	837	30.1	162	24.0
Saint Mary's	6,847	1,926	28.1	7,281	2,069	28.4	143	7.4
Somerset	1,087	327	30.1	1,137	386	33.9	59	18.0
Talbot	1,709	476	27.9	1,929	395	20.5	81	17.0
Washington	8,444	2,389	28.3	9,083	2,275	25.0	114	4.8
Wicomico	6,311	1,782	28.2	6,646	1,867	28.1	85	4.8
Worcester	2,001	590	29.5	2,222	772	34.7	182	30.8
Statewide	354,588	105,143	29.7	371,014	113,666	30.6	8523	8.1

Table Five shows blood lead testing of children one and two years old by jurisdiction calendar year 2019 to 2022. Maryland is a universal blood lead testing state - all children are tested for lead at ages 1 and 2 years old. The table shows the percent change in testing in one and two years olds by jurisdictions.

Table Five: Blood Lead Testing of Children One and Two Years Old by Jurisdiction 2019-2022

Jurisdiction	2019	2020	2021	2022	2019	2020	2021	2022
	One Year Old				Two Years Old			
Allegany	63.9	54.9	13.8	13.6	54.6	48.2	12.1	13.1
Anne Arundel	57.4	57.7	10.8	12.8	53.9	48.8	9.9	11.3
Baltimore	55.7	50.6	12.6	12.2	53.5	45.3	11.7	11.4
Baltimore City	50.8	45.3	12.4	11.8	45.6	36.0	10.4	9.9
Calvert	43.0	38.2	9.1	9.7	33.6	25.7	6.4	6.8
Caroline	59.7	55.0	12.9	10.7	52.2	45.8	12.2	9.8
Carroll	59.2	52.1	9.9	13.7	46.6	47.4	9.9	11.2
Cecil	39.0	35.2	9.9	10.6	25.4	22.4	6.4	7.7
Charles	56.0	51.1	8.8	11.1	38.9	31.3	6.3	8.6
Dorchester	51.4	44.4	12.6	8.8	45.8	35.8	10.5	8.8
Frederick	63.6	60.0	9.6	13.0	49.7	48.3	8.5	10.4
Garrett	55.8	33.2	8.3	9.8	36.2	30.4	7.6	7.0
Harford	46.0	40.7	9.2	10.8	46.4	42.9	9.6	10.8
Howard	53.9	44.4	8.9	8.1	45.8	39.2	8.1	8.2
Kent	33.0	30.0	10.4	9.3	22.6	21.3	7.6	7.6
Montgomery	47.9	43.2	10.0	10.9	50.2	45.0	10.9	12.3
Prince George's	46.3	42.4	10.0	9.8	43.2	37.8	9.4	9.3
Queen Anne's	60.8	56.4	11.0	14.3	49.4	56.6	10.5	11.5
Saint Mary's	48.7	44.3	11.7	11.5	29.9	28.4	7.9	9.1
Somerset	51.4	37.2	14.0	13.2	42.5	37.1	10.5	13.0
Talbot	57.5	52.9	12.9	6.8	58.6	49.4	10.8	8.9
Washington	48.1	46.1	11.5	9.9	38.4	35.2	9.3	8.2
Wicomico	53.5	47.3	12.2	12.0	52.6	39.2	10.8	11.0
Worcester	60.4	45.7	13.8	16.2	54.4	54.3	12.3	13.9
Statewide	51.6	46.9	10.7	11.2	47.2	41.4	9.9	10.4

Figure Five displays the percentage of children tested for lead ages one and two compared to ages six to eighteen years old. The increase in testing from 2021 to 2022 is significant.

Figure Five: Percent of Children Tested for Lead, Ages One and Two vs Between Child and Adult Ages Six to Eighteen: 2019 - 2022

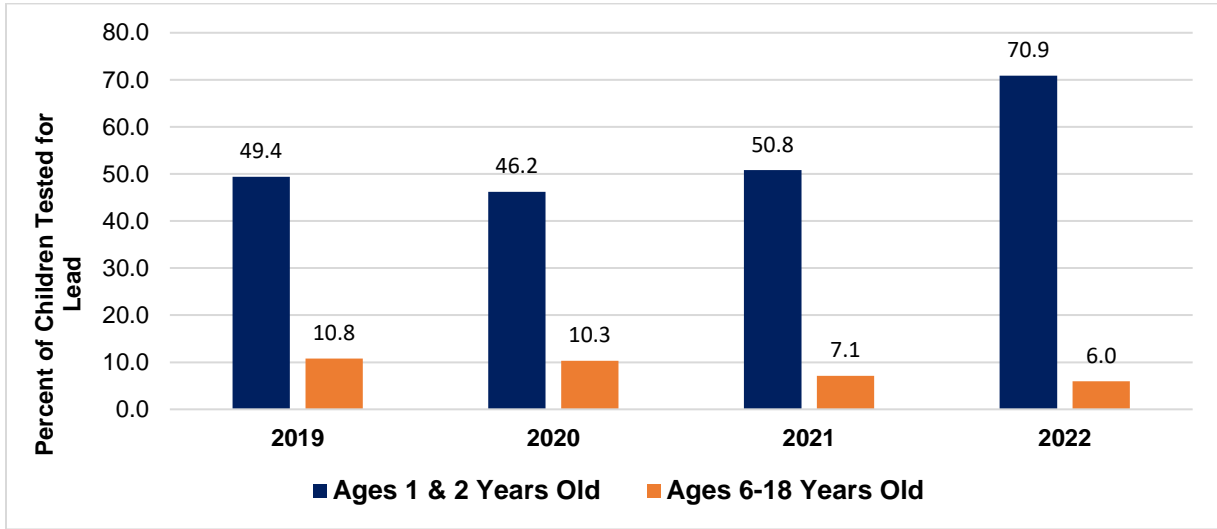


Figure Six displays the state of childhood lead poisoning.

Figure Six: Number and Percent of Children 0-72 Months Tested for Lead with Blood Lead Level 5-9 or ≥ 10 $\mu\text{g}/\text{dL}$ 2019 - 2022

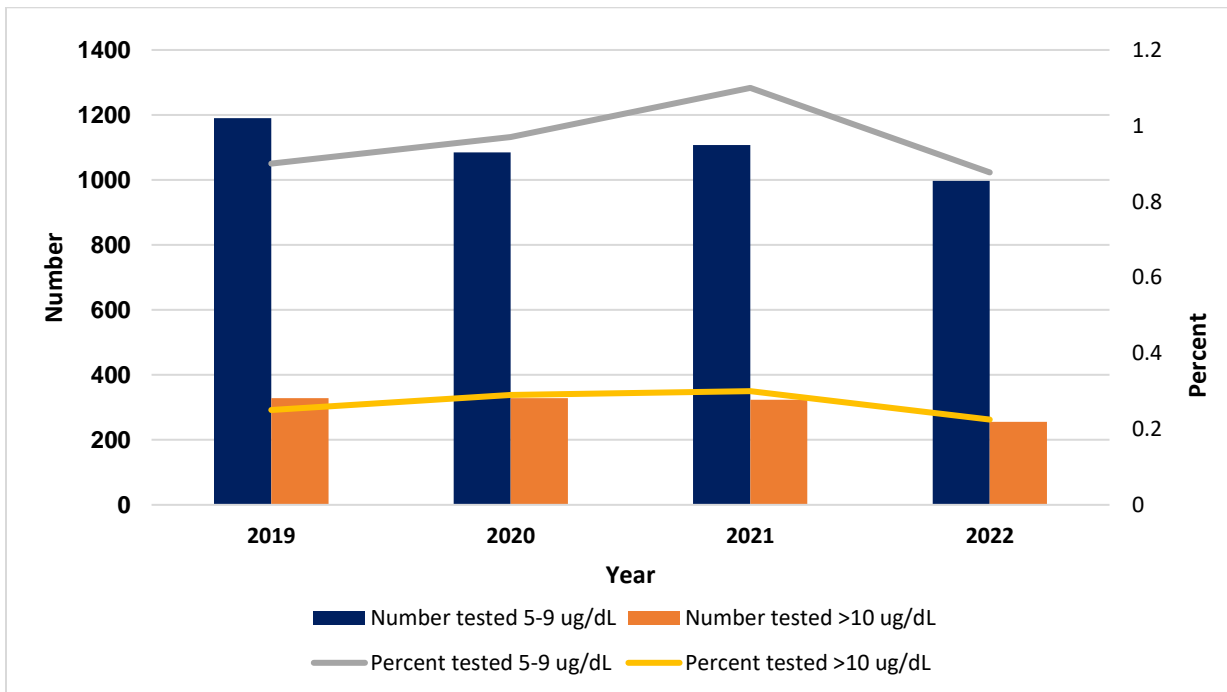


Figure Seven displays the distribution of blood lead levels 5-9 $\mu\text{g}/\text{dL}$ by zip code Statewide for 2021 compared to 2022. The blood lead levels are distributed in percentiles, the lowest - 25th to highest 100th. The percentile represents aggregated counts of the BLL 5-9 $\mu\text{g}/\text{dL}$ that are ranked into percentiles stratified by zip code within each jurisdiction. The percentiles do not represent the incidence or prevalence of blood lead levels. The jurisdictions are overlaid on the map to visualize boundary lines. In 2021, zip codes in the following jurisdictions: Allegany, Baltimore, Baltimore City, Carroll, Montgomery, Prince George's, and Washington were in the 100th percentile. In 2022, zip codes in the following jurisdictions Washington and Prince George's were in the 100th percentile with the highest distribution of blood lead levels greater than or equal to 5-9 $\mu\text{g}/\text{dL}$.

Figure Seven: 2021 vs. 2022 Blood Lead Level 5-9 $\mu\text{g}/\text{dL}$ Statewide by Zip Code

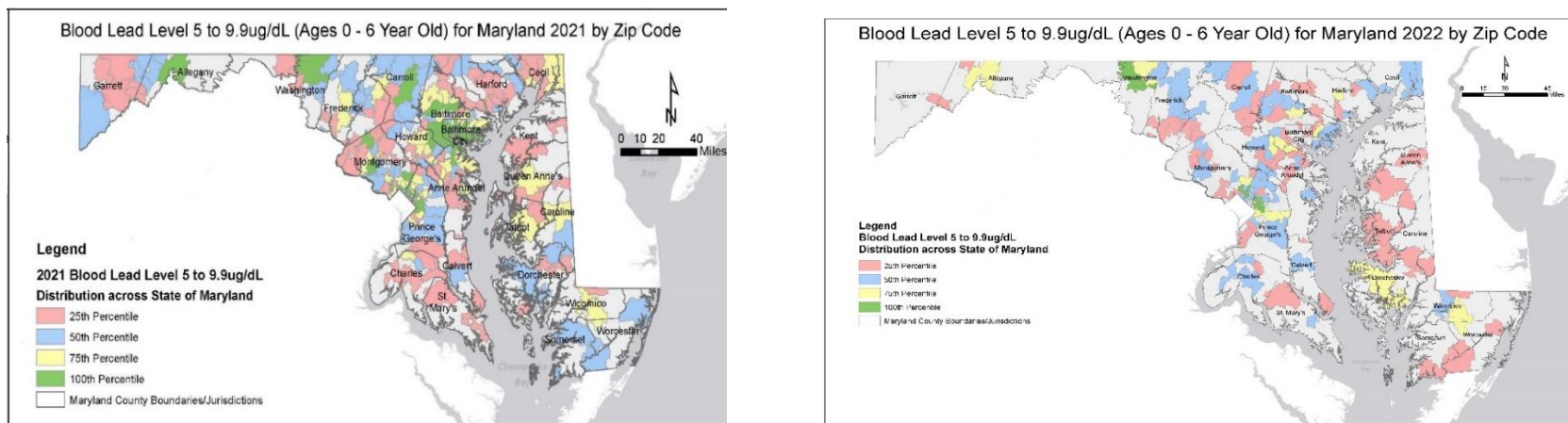


Figure Eight displays the distribution of blood lead levels $\geq 10 \mu\text{g}/\text{dL}$ by zip code Statewide for 2021 compared to 2022. The blood lead levels are distributed in percentiles, the lowest - 25th to highest 100th. The percentile represents aggregated counts of the BLL $\geq 10 \mu\text{g}/\text{dL}$ that are ranked into percentiles stratified by zip code within each jurisdiction. The percentiles do not represent the incidence or prevalence of blood lead levels. The jurisdictions are overlaid on the map to visualize boundary lines. In 2021, zip codes in the

following jurisdiction of Baltimore City were in the 100th percentile. In 2022, zip codes in Prince George’s jurisdiction were in the 100th percentile.

Figure Eight: 2021 vs. 2022 Blood Lead Level ≥ 10 $\mu\text{g}/\text{dL}$ Statewide by Zip Code

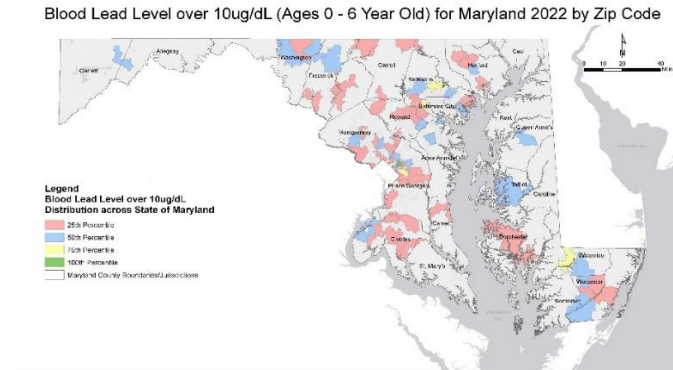
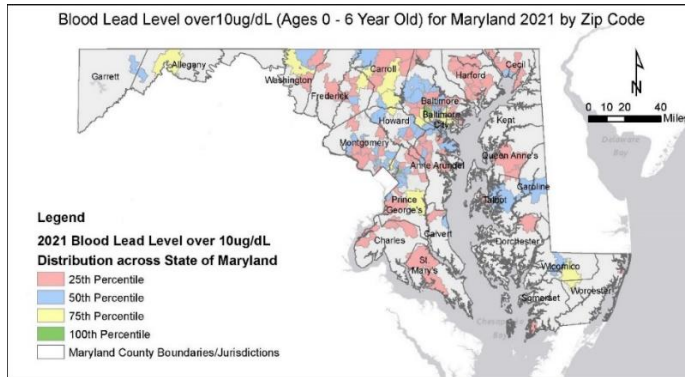


Table Six shows blood lead testing of children 0-72 months by jurisdiction. The incidence and prevalence of lead cases in children 0-72 months by jurisdiction and blood lead levels is displayed.

Table Six: Blood Lead Testing of Children 0-72 Months by Jurisdiction

2022 Blood Lead Testing of Children 0-72 months by jurisdiction															
County	Population of Children	Number	Percent	Blood Lead Level ≥ 5 $\mu\text{g/dL}$				Blood Lead Level 5-9 $\mu\text{g/dL}$				Blood Lead Level ≥ 10 $\mu\text{g/dL}$			
				Incidence		Prevalence		Incidence		Prevalence		Incidence		Prevalence	
				Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Allegany	3,343	1,029	30.8	43	1.3	14	0.4	37	1.1	10	0.3	6	0.2	4	0.1
Anne Arundel	37,112	11,455	30.9	58	0.2	21	0.1	52	0.1	17	0.0	6	0.0	4	0.0
Baltimore	50,421	15,844	31.4	162	0.3	43	0.1	130	0.3	33	0.1	32	0.1	10	0.0
Baltimore City	35,582	10,968	30.8	393	1.1	137	0.4	303	0.9	95	0.3	90	0.3	42	0.1
Calvert	5,270	1,206	22.9	6	0.1	1	0.0	5	0.1	1	0.0	1	0.0	0	0.0
Caroline	2,175	547	25.1	10	0.5	3	0.1	9	0.4	3	0.1	1	0.0	0	0.0
Carroll	9,964	2,933	29.4	25	0.3	7	0.1	22	0.2	6	0.1	3	0.0	1	0.0
Cecil	6,157	1,451	23.6	18	0.3	5	0.1	15	0.2	4	0.1	3	0.0	1	0.0
Charles	10,349	2,800	27.1	26	0.3	11	0.1	17	0.2	9	0.1	9	0.1	2	0.0
Dorchester	1,951	461	23.6	11	0.6	2	0.1	10	0.5	2	0.1	1	0.1	0	0.0
Frederick	17,631	5,112	29.0	36	0.2	10	0.1	26	0.1	6	0.0	10	0.1	4	0.0
Garrett	1,423	319	22.4	1	0.1	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0
Harford	15,000	4,543	30.3	34	0.2	10	0.1	25	0.2	6	0.0	9	0.1	4	0.0
Howard	19,294	4,535	23.5	36	0.2	7	0.0	26	0.1	6	0.0	10	0.1	1	0.0
Kent	794	179	22.5	1	0.1	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0
Montgomery	63,240	22,833	36.1	145	0.2	38	0.1	117	0.2	27	0.0	28	0.0	11	0.0
Prince George's	60,230	18,850	31.3	156	0.3	59	0.1	134	0.2	46	0.1	22	0.0	13	0.0
Queen Anne's	2,780	837	30.1	6	0.2	5	0.2	3	0.1	4	0.1	3	0.1	1	0.0
Saint Mary's	7,281	2,069	28.4	5	0.1	1	0.0	4	0.1	1	0.0	1	0.0	0	0.0
Somerset	1,137	386	33.9	8	0.7	1	0.1	7	0.6	0	0.0	1	0.1	1	0.1
Talbot	1,929	395	20.5	6	0.3	3	0.2	5	0.3	2	0.1	1	0.1	1	0.1
Washington	9,083	2,275	25.0	34	0.4	15	0.2	26	0.3	10	0.1	8	0.1	5	0.1
Wicomico	6,646	1,867	28.1	25	0.4	11	0.2	18	0.3	4	0.1	7	0.1	7	0.1
Worcester	2,222	772	34.7	8	0.4	2	0.1	4	0.2	1	0.0	4	0.2	1	0.0
Statewide	371,014	113,666	30.6	1,253	0.3	406	0.1	997	0.3	293	0.1	256	0.1	113	0.0

Data Quality

In 2022, CLR received the reports of blood lead tests from 95 entities/clinics performing in-office blood screening (point of care). Five establishments send reports electronically with the rest in hard copy. In 2022, there was a reduction in clinics providing in-office blood screening (point of care) therefore referring patients to facilities performing blood draws.

CLR makes all efforts to make sure the reports of blood lead tests are complete and, to the extent that is possible, correct. Table Seven displays a summary of the completeness of data in blood lead reports for CY 2022. Completeness of data does not necessarily mean accuracy of the data.

Laboratories/Clinic Compliance in CY 2022

Item	Percent Complete
Child's Name	100
Date of Birth	100
Sex/Gender	99.9
Race	99.9
Ethnicity	51.3
Guardian's Name	67.21
Sample Type	99.32
Test Date	100
Blood lead level	100
Address (geocoded)	99.7
Telephone number	96.2

Blood Lead Laboratory Reporting Requirement as of July 1, 2020

The amended law and regulations* of 2020 require that the following information be included in the lab report:

1. Child information:

Name (last name, first name, middle initial)
 Date of birth
 Gender
 Race
 Ethnicity
 Address: complete street address with apartment number (if applicable), city/town, state, zip code, county
 Country of birth
 Pregnancy status at the time test (if applicable)
 Parent/Guardian name (last name, first name)
 Parent/Guardian Address (if different from the child address)
 Telephone number

2: Test information

Date specimen was drawn
 Type of specimen
 Blood lead level (in microgram per deciliter "µg/dL" with up to two decimal points) with the applicable comparator.
 The date the test was done (analyzed)
 Method of measurement
 The method of measurement detection limit
 The date the result was reported/sent to the state

3: Provider/Submitter information:

Name (last name, first name)
 National provider identifier (NPI) (if applicable)
 Office address
 Office telephone number
 Office fax number
 Contact person (if applicable)

4: Laboratory information:

Name of the establishment
 Clinical laboratory improvement amendment (CLIA) number
 Address
 Telephone number
 Fax number

Contact person (name, telephone number)

** Any blood lead test with a blood lead level ≥ 3.5 µg/dL should be reported to the state within 24 hours after the test is finalized. All other results can be reported up to two (2) weeks after the test is finalized.

Medical and Environmental Case Management in Maryland

Lead case management is initiated when a child aged 0-72 months is identified with a blood lead level of $\geq 5\mu\text{g}/\text{dL}$. Lead case management consists of comprehensive medical and environmental interventions, coordinated between the health care provider, the local health department, and MDE. Services include outreach and education to the family of the identified child, a comprehensive environmental investigation to identify all potential sources of lead exposure, recommendations for lead hazard remediation, and compliance and enforcement as needed on pre-1978 residential rental units. Identifying all potential sources of lead in the child's environment and preventing further exposure are the most important factors in case management. All home visits are arranged with the family based on the availability of the parent or guardian and in accordance with recommendations identified in the Maryland's Lead Case Management Guidelines (Guidelines). It is important to note that the Baltimore City Health Department (BCHD) provides these services to families in Baltimore City. The BCHD reports all case management outcomes to MDE.

During CY22, there were 394 total new cases of children with blood lead levels of $\geq 5\mu\text{g}/\text{dL}$ in Maryland counties. This is a decrease of 139 new cases when compared to CY21 at 533. In CY22, medical case management was completed on 341 of the 394 new lead cases. This was an 86.5% completion rate. This was significantly higher when compared to the completion rate for CY21, at 68.7%. Table Seven illustrates the medical case management outcomes for the 394 new cases of children identified with blood lead levels of $\geq 5\mu\text{g}/\text{dL}$ in Maryland counties, excluding Baltimore City. Medical case management guidelines in Maryland consider telephonic and in person home visits as acceptable forms of medical case management for lead exposures.

Table Seven: Medical Case Management Outcomes $\geq 5\mu\text{g}/\text{dL}$ CY 22 Maryland Counties (Excluding Baltimore City)

Total Referrals	Completed Medical Outreach and Education (In-home or telephonic)	Unable to contact family/family moved	Refused
394	341	44	9

An Environmental Investigation is a comprehensive assessment that requires direct contact with families and their property. Effective July 1, 2021, Code of Maryland Regulations- Environmental Investigations (COMAR 26.16.08) were enacted to achieve consistency during Environmental Investigations statewide. Further, MDE and BCHD staff continued to administer the environmental questionnaire to collect information on the possible home hazards within the home to discuss potential strategies to decrease exposure within the residence until an inspection occurred.

During CY22, there were a total 407 referrals to perform Environmental Investigations on new cases of children with blood lead levels of $\geq 5\mu\text{g}/\text{dL}$ in Maryland counties. This is a decrease of 157 cases when compared to CY21 at 564. Of the 407 referrals for Environmental Investigations,

there were a total of 178 (43.7%) completed comparable to 44% completed in CY21. It should be noted that the number of environmental investigations may be greater than the number of children identified as new cases, in part because Environmental Investigations may be performed at secondary addresses where the identified child may spend time. There remains a significant no-entry rate for Environmental Investigations, when compared with prior years. This may in part be attributed to the ongoing concerns of the COVID-19 pandemic. Specifically, in CY22 families continued to be unwilling to allow government officials into their homes to perform Environmental Investigations. In CY22, 108 (26.5%) of all Environmental Investigations were refused, which is slightly higher than when compared with 22% in CY21. Table Eight illustrates Environmental Outcomes for new cases in the counties for CY22.

Table Eight: Environmental Investigation Outcomes $\geq 5\mu\text{g/dL}$ CY22 Maryland Counties (Excluding Baltimore City)

Total Referrals	Completed	Unable to make contact	Refused	Moved/Incorrect address
407	178	93	108	28

Medical and Environmental Case Management Baltimore City

The Baltimore City Health Department performs all case management for children aged 0-72 months identified with blood lead levels of $\geq 5\mu\text{g/dL}$ in Baltimore City. During CY22, there were 227 new cases of children aged 0-72 months identified with blood lead levels of $\geq 5\mu\text{g/dL}$ in Baltimore City. This is a decrease of 51 new cases when compared to CY21 at 278. Table Nine illustrates the medical case management outcomes for new cases in Baltimore City for CY22 for blood lead levels $\geq 5\mu\text{g/dL}$. Medical case management was completed on 140 (61.6%) of the 227 new cases of children identified with a blood lead level of $\geq 5\mu\text{g/dL}$.

Table Nine: Medical Case Management Outcomes $\geq 5\mu\text{g/dL}$ CY22 Baltimore City

Total Referrals	Completed Medical Outreach and Education (In-home or telephonic)	Unable to contact family/family moved/Not Baltimore City Address	Refused
227	140	87	0

During CY22, Environmental Investigations were completed on 76 (33.2%) of the 227 referrals. This was statistically consistent with the percentage of Environmental Investigations completed in CY21 at 35.2%. Table Ten illustrates the Environmental Investigation outcomes for Baltimore City in CY22.

Table Ten: Environmental Investigation Outcomes $\geq 5\mu\text{g/dL}$ CY22 Baltimore City

Total Referrals	Completed	Unable to locate family/family moved	Refused
227	76	150	77

Property Type: Environmental Investigations Statewide CY22

Table Eleven lists the property type for each completed Environmental Investigation by jurisdiction. In CY22, 78 (43.9%) of the Environmental Investigations completed in Maryland counties, excluding Baltimore City, were identified as owner-occupied properties. In CY22, 100 (56.1%) of the Environmental Investigations completed in Maryland counties, excluding Baltimore City, were identified as rental properties. Of the 100 rental properties inspected, 52 (52%) were pre-1978 rental properties. The remaining 48 (48%) were post-1978.

In CY22, 11 (14.5%) of the Environmental Investigations completed in Baltimore City, were identified as owner-occupied properties. In CY22, 65 (85/5%) of the Environmental Investigations completed in Baltimore City, were identified as rental properties. Of the 65 rental properties inspected, 63 (97%) were pre-1978 rental properties.

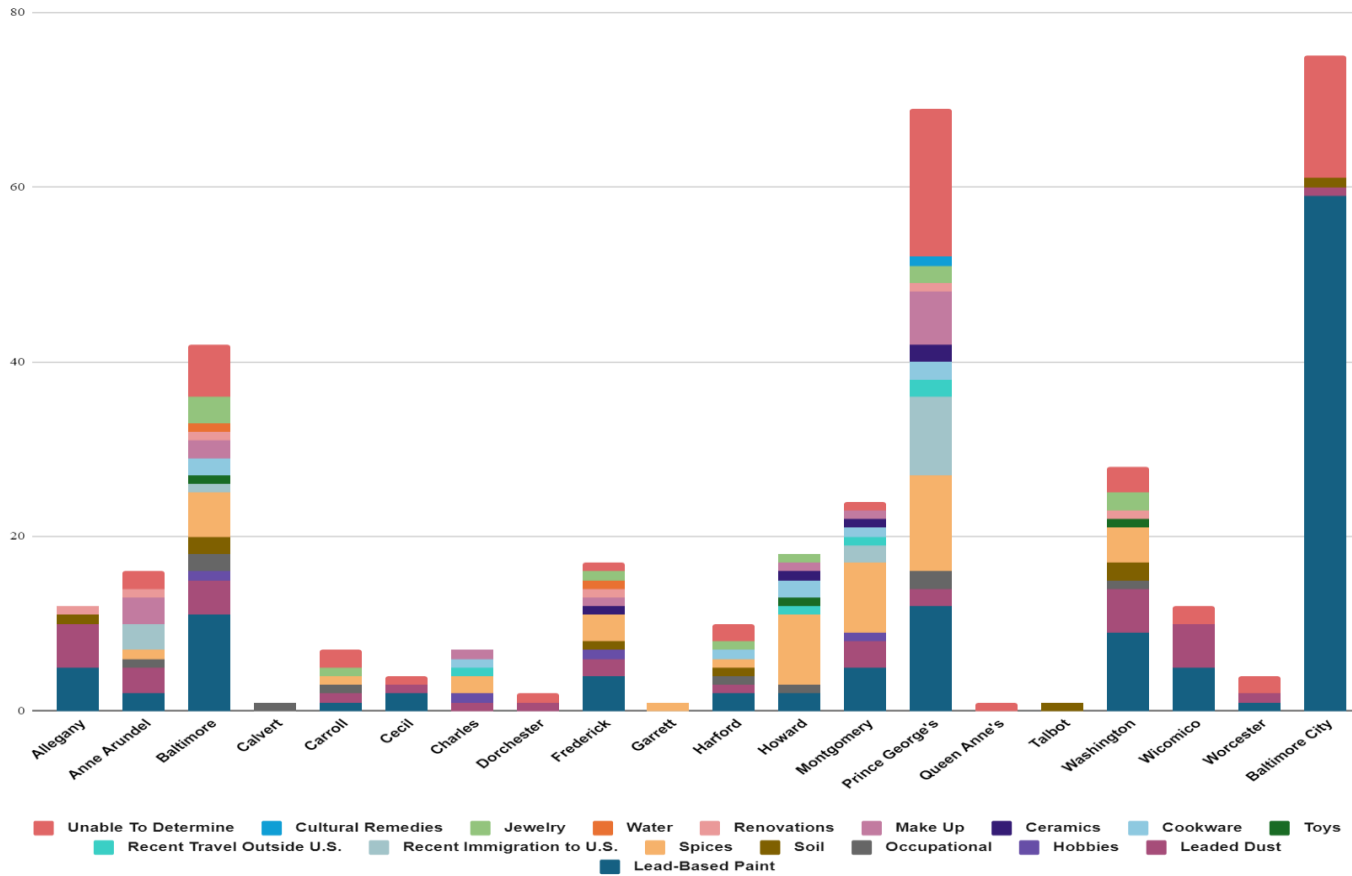
Table Eleven: Environmental Investigation Property Type by County CY22 Blood Lead Levels $\geq 5\mu\text{g/dL}$

County	Total Environmental Investigations	Owner-Occupied						Rental Property					
		Pre-1950		1950-1977		Post-1977		Pre-1950		1950-1977		Post-1977	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Allegany	6	5	83%	0	0	0	0	1	17%	0	0	0	0
Anne Arundel	8	2	25%	0	0	0	0	0	0	5	62.50%	1	12.50%
Baltimore	25	6	24%	7	28%	2	8%	4	16%	1	4%	5	20%
Calvert	1	0	0	0	0	0	0	0	0	0	0	1	100%
Carroll	3	0	0	1	33.30%	0	0	1	33.30%	0	0	1	33.30%
Cecil	3	2	67%	0	0	1	33%	0	0	0	0	0	0
Charles	3	0	0	2	67%	1	33.00%	0	0	0	0	0	0
Dorchester	2	0	0	0	0	1	50%	1	50.00%	0	0	0	0
Frederick	9	4	44.40%	1	11.10%	4	44.40%	0	0	0	0	0	0
Garrett	1	0	0	0	0	0	0	0	0	1	100%	0	0
Harford	4	0	0	1	25%	0	0	2	50%	1	25%	0	0
Howard	11	1	9.10%	0	0	5	45.40%	0	0	1	9.10%	4	36.40%
Montgomery	19	1	5.30%	3	15.80%	4	21.00%	1	5.30%	9	47.30%	1	5.30%
Prince George's	57	3	5.3%	4	7.00%	3	5.30%	1	1.70%	44	77.20%	2	3.50%
Queen Anne's	1	0	0	0	0	1	100%	0	0	0	0	0	0
Talbot	1	0	0	0	0	0	0	0	0	1	100%	0	0
Washington	13	4	30.70%	0	0	3	23.10%	6	46.20%	0	0	0	0
Wicomico	8	2	25%	2	25%	0	0	3	37.50%	1	12.50%	0	0
Worcester	3	1	33.30%	0	0	1	33.30%	0	0	1	33.30%	0	0
County Total	178	31	17.4%	21	11.9%	26	14.6%	20	11.2%	65	36.5%	15	8.4%
Baltimore City Total	76	11	14.5%	0	0	0	0	57	75%	6	7.9%	2	2.6%

Sources of Lead

An Environmental Investigation may identify multiple lead sources in a child’s environment. There may also be instances when the accredited lead risk assessor is unable to determine a source of lead exposure. Figure Seven illustrates the distribution of lead hazards that were identified during Environmental Investigations, by county for CY22.

Figure Seven: Distribution of Lead Sources by County CY22



Lead Hazards Identified by Housing Type

Figure Eight illustrates the lead total hazards in owner occupied housing, by built date range, identified during Environmental Investigations in CY22 in Maryland Counties, excluding Baltimore City.

Figure Eight: Lead Hazards - Owner Occupied Housing Maryland Counties CY22

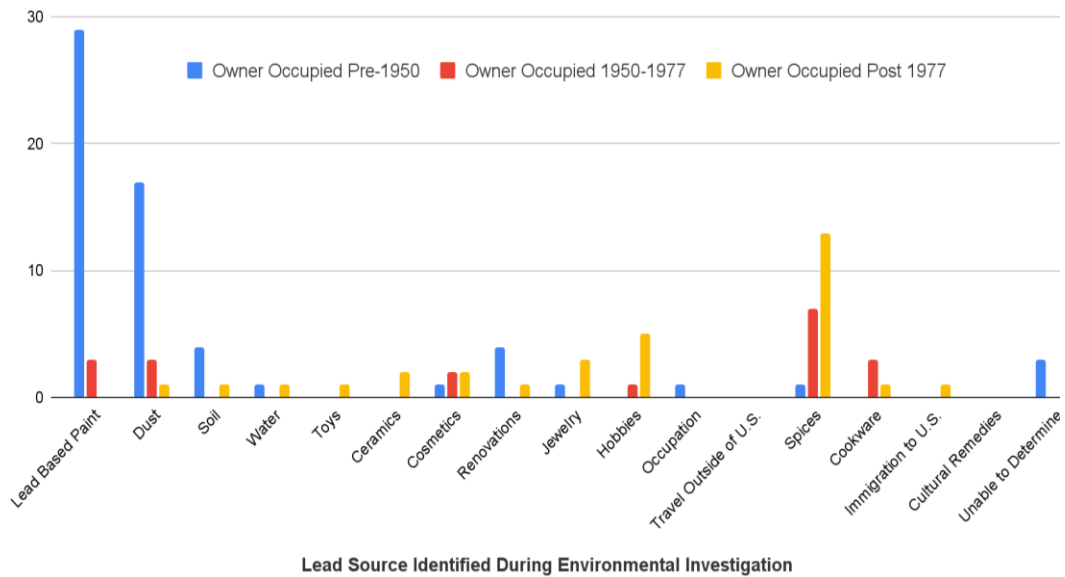
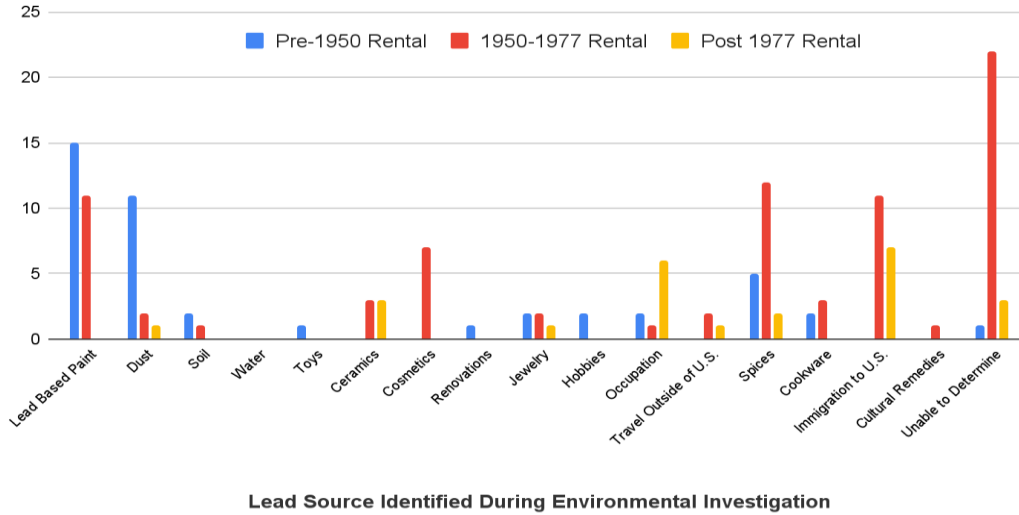


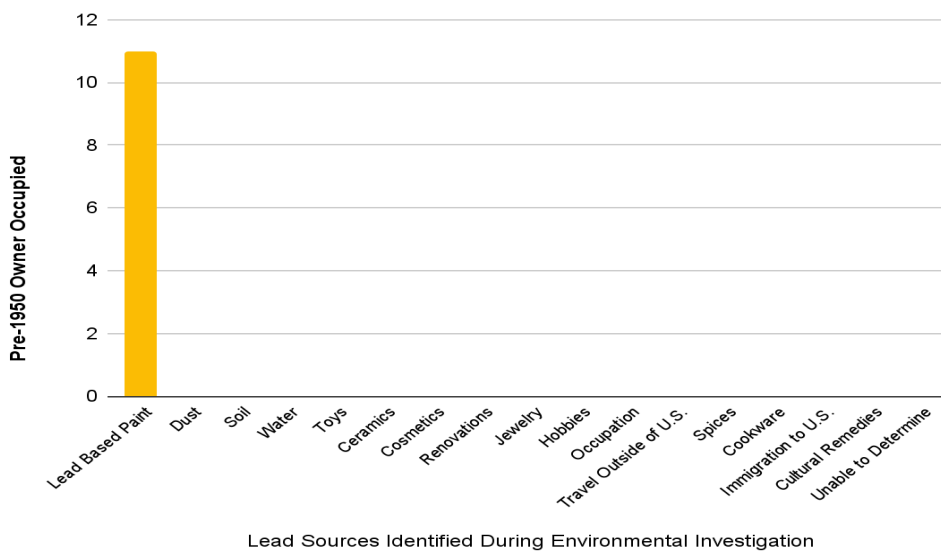
Figure Nine illustrates the lead total hazards in rental occupied housing, by built date range, identified during Environmental Investigations in CY22 in Maryland Counties, excluding Baltimore City.

Figure Nine: Lead Hazards- Rental Occupied Housing Maryland Counties CY2022



Figures Ten and Eleven illustrate the lead total hazards in owner occupied housing and rental housing, by built date range, identified during Environmental Investigations in CY22 in Baltimore City.

Figure Ten: Lead Hazards - Owner Occupied* Housing Baltimore City CY22



*-All Lead Hazards Identified were in Pre-1950 Owner Occupied Housing

Figure Eleven: Lead Hazards- Rental Occupied Housing Baltimore City CY22

