



MARYLAND DEPARTMENT OF THE ENVIRONMENT

Lead Poisoning Prevention Program

Childhood Blood Lead Surveillance in Maryland

Annual Report 2016

July 2017



MARYLAND CHILDHOOD LEAD REGISTRY ANNUAL SURVEILLANCE REPORT 2016

Executive Summary

The Maryland Department of the Environment (Department or MDE), Childhood Lead Registry (CLR) performs childhood blood lead surveillance for Maryland. The CLR receives reports of all blood lead tests that are performed on Maryland children 0-18 years of age. The CLR provides blood lead test data to the Maryland Department of Health (MDH), including Medicaid and local health departments as needed for case management. Since 1995, the CLR has released a comprehensive annual report on Statewide childhood blood lead testing along with five “Supplementary Data Tables” which provide a detailed breakdown of blood lead data by age, jurisdiction, blood lead level, incident and prevalent cases, and the trend of blood lead level over the years. This report presents the childhood blood lead test results for calendar year (CY) 2016. All numbers are based on blood lead testing (venous or capillary) of children. With few exceptions all numbers are associated with children aged 0-72 months.

CY 2016 Maryland Surveillance Highlights:

- In CY 2016, the total number of children 0-18 years of age blood lead tested was 129,697. In CY 2016, the total number of blood lead test results reported to the CLR on children 0-18 years of age was 137,377.
- Of the 137,377 blood lead tests reported to the CLR in CY 2016, 125,984 blood lead tests were performed on children aged 0-72 months. This represents an 8.6% increase in the number of blood lead tests on children aged 0-72 months when compared to the average during CY 2010-2015 (116,049).
- In CY 2016, a total of 118,619 children aged 0-72 months were blood lead tested. This represents a 7.1% increase in the number of children blood lead tested at age 0-72 months when compared with the average during CY 2010-2015 (110,706).
- The increase in blood lead testing of children aged 0-72 months in CY 2016 may be attributed to two State initiatives: 1) endorsement of Point of Care testing for lead and 2) universal blood lead testing of children at one and two years of age.
- Even with the increase in blood lead testing of children aged 0-72 months, the number of children identified with blood lead levels of ≥ 10 micrograms per deciliter ($\mu\text{g}/\text{dL}$) decreased from 377 in CY 2015 to 355 in CY 2016. The number of children identified with blood lead levels of 5-9 $\mu\text{g}/\text{dL}$ also decreased from 1,789 in CY 2015 to 1,729 in CY 2016.
- In CY 2016, the Department began comprehensively tracking sources of childhood lead exposure. A significant number of children aged 0-72 months that were identified with an Elevated Blood Lead Level (“EBL”) of ≥ 10 $\mu\text{g}/\text{dL}$ may have been exposed to lead from sources other than deteriorated lead-based paint.

Initiatives and Incidence CY 2016

The MDH and the MDE worked closely to implement two regulatory initiatives to increase lead testing of children aged 0-72 months Statewide.

- **The Maryland Lead Testing Initiative**

The Maryland Lead Testing Targeting Strategy of 2015 replaced the previous Targeting Plan, adopted by the MDH in 2004. Under this new strategy, the entire State was declared as “at risk,” compared with the prior plans that recognized certain areas as “at risk.” New regulations adopted by MDH in March 2016 implemented the new Testing Targeting Strategy by requiring health care providers to lead test all children born on or after January 1, 2015 at the age of 12 and 24 months.

- **Point of Care Testing**

In its report to the General Assembly in 2014, the Task Force on Point of Care (POC) Testing for Lead Poisoning recommended that: 1) the State encourage health care providers to use POC for lead testing, and 2) the MDH Laboratories Administration promote the use of POC tests for lead by making it easier for providers to implement POC testing. In response, MDH adopted regulations allowing health care providers increased access to point-of-care testing to screen for elevated levels of lead in children. The amendment to COMAR 10.10.03.02B added whole blood lead testing to the list of tests that qualify for a Letter of Exception, so that providers would have an easier time setting up point of care (POC) testing.

The number of health care providers using POC testing for lead has significantly increased from 66 providers in CY 2015 to 94 providers in CY 2016. This has also created a significant increase in the number of hard file reports the CLR receives because POC does not have the ability to be reported electronically.

Refugee and Immigrant Outreach

Due to Maryland’s large population of refugee and immigrant families, the Department coordinated efforts with local health departments to educate families that were affected by lead in CY 2016. These efforts were significant in Prince George’s County, where there were a total of 20 confirmed cases of childhood lead poisoning in which the child recently immigrated to the U.S. and re-settled in Maryland.

Migration Into New System for CLR

The Department is in the process of migrating historical data from the current data system, Systematic Tracking of Elevated Lead Levels and Remediation (STELLAR) into the new Centers for Disease Control (CDC) data processing package, Healthy Homes and Lead Poisoning Surveillance System (HHLPS). The Department expects the migration to be completed by the end of CY 2017.

Housing Statistics and Regulated Properties

Of the estimated 2,410,256 residential properties in Maryland, 433,390 (18.0%) were built before 1950 and 918,450 (38.1%) between 1950 and 1979. (Source: US Census Bureau, 2011-2015 American Community Survey, 5-Year Estimates). Effective January 1, 2015, Maryland expanded primary prevention efforts by increasing the universe of regulated residential rental properties required to meet a lead safe standard. Once only mandated for pre-1950 residential rentals, the law expanded the universe to include those rental units built from 1950 to 1977. A significant number of these units (approximately 100,000) met the Maryland “Lead Free Standard” during CY’s 2015-2016.

Pre-1950 Housing Significance

To relate the blood lead levels of children tested for lead with the age of housing they were living in at the time of the test, address information (including actual address data, address longitude and latitude, or address census block group) was matched with the Maryland Department of Assessments and Taxation real estate file to find and assign the year the structure was built. Close to 89% of addresses were able to be matched. Of those, the majority of the children identified with an elevated blood lead level were residing in pre-1950 housing at the time of the test.

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Statistical Report

In CY 2016, a total of 118,619 children aged 0-72 months were tested for lead exposure in Maryland. Table One provides a summary of Statewide blood lead testing for CY 2016.

Table One
CY 2016 Statistical Report¹

Item	Number	Percent (%) ²
All Children (0-18 Years of Age)		
Number of tests	137,377	
Number of children	129,697	
Children Aged 0-72 Months		
Number of tests	125,984	
Number of children	118,619	100.0
Number of Children by Age		
Under One	9,363	7.9
One Year	44,618	37.6
Two Years	36,507	30.8
Three Years	10,248	8.6
Four Years	10,373	8.7
Five Years	7,510	6.3
Sex		
Female	57,527	48.5
Male	60,227	50.8
Undetermined	865	0.7
Highest Blood Lead Level (µg/dL)		
≤4	116,535	98.2
5-9	1,729	1.5
10-14	213	0.2
15-19	78	0.0
≥20	64	0.0
Mean BLL (Geometric mean)	1.514	
Blood Specimen		
Capillary	38,140	32.2
Venous	72,619	61.2
Undetermined ³	7,860	6.6

1. For detailed analysis and breakdown of numbers refer to Supplementary Data Tables 1-5.
2. Due to rounding percentages to first decimal point, the sum of break down percentage may not necessarily equal the total percentage.
3. In supplementary data tables blood tests with sample type unknown were counted as capillary.

Figure One
 Number of Children Aged 0-72 Months Tested for Lead and Number of Those Children Reported to Have Blood Lead Levels $\geq 10 \mu\text{g}/\text{dL}$: CY 2000-2016

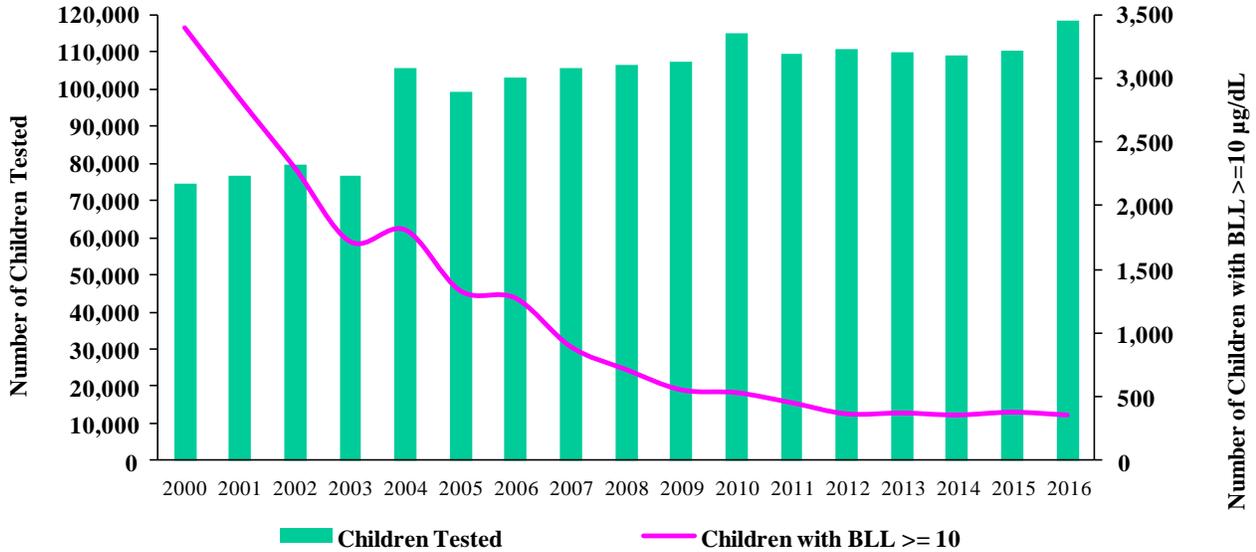


Figure Two
 Percent of Children Aged 0-72 Months Tested for Lead with the Highest Blood Lead Levels 5-9 $\mu\text{g}/\text{dL}$: CY 2000-2016

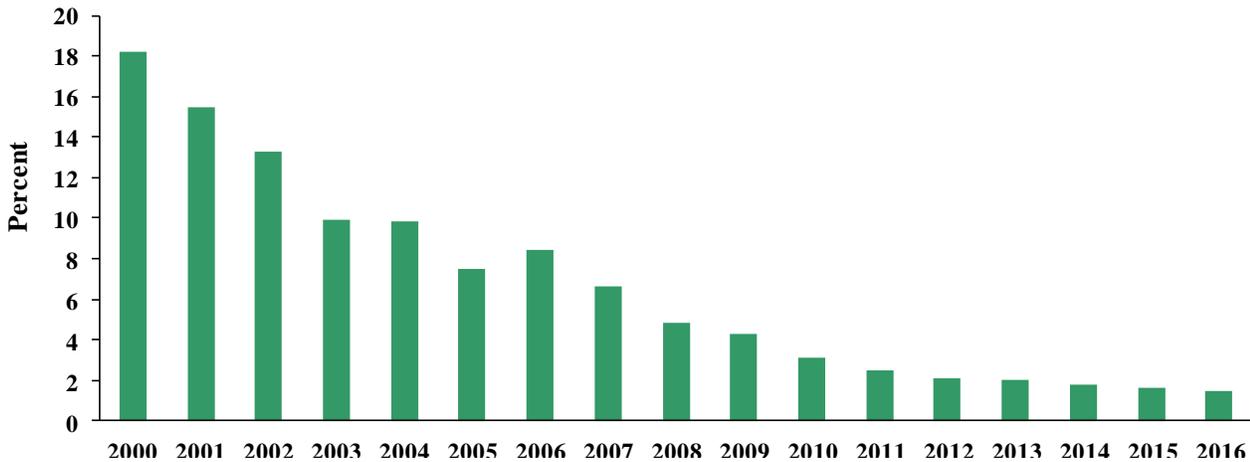


Table Two provides a breakdown of blood lead testing of children aged 0-72 months by jurisdiction in 2016. Appendix A provides a breakdown of blood lead testing and the status of children by age groups of 0-35 and 36-72 months by jurisdiction in 2016.

Table Two
Blood Lead Testing of Children Aged 0-72 Months by Jurisdiction in 2016¹

County	Population of Children ²	Children Tested		Blood Lead Level 5-9 µg/dL						Blood Lead Level ≥10 µg/dL					
				Old Cases ³		New Cases ⁴		Total		Old Cases ⁵		New Cases ⁶		Total	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Allegany	5,164	1,200	23.2	5	0.4	20	1.7	25	2.1	3	0.3	3	0.3	6	0.5
Anne Arundel	51,288	10,063	19.6	12	0.1	50	0.5	62	0.6	2	0.0	13	0.1	15	0.1
Baltimore	71,443	17,079	23.9	29	0.2	161	0.9	190	1.1	6	0.0	26	0.2	32	0.2
Baltimore City	60,224	16,892	28.0	282	1.7	522	3.1	804	4.8	54	0.3	113	0.7	167	1.0
Calvert	7,618	787	10.3	1	0.1	2	0.3	3	0.4	0	0.0	0	0.0	0	0.0
Caroline	3,443	740	21.5	4	0.5	9	1.2	13	1.8	1	0.1	1	0.1	2	0.3
Carroll	13,885	1,820	13.1	2	0.1	14	0.8	16	0.9	1	0.1	2	0.1	3	0.2
Cecil	9,621	1,544	16.0	3	0.2	19	1.2	22	1.4	0	0.0	3	0.2	3	0.2
Charles	14,093	2,391	17.0	1	0.0	20	0.8	21	0.9	0	0.0	2	0.1	2	0.1
Dorchester	2,977	635	21.3	2	0.3	12	1.9	14	2.2	0	0.0	2	0.3	2	0.3
Frederick	22,306	4,574	20.5	4	0.1	25	0.5	29	0.6	0	0.0	5	0.1	5	0.1
Garrett	2,372	393	16.6	0	0.0	5	1.3	5	1.3	0	0.0	1	0.3	1	0.3
Harford	22,438	3,787	16.9	3	0.1	25	0.7	28	0.7	0	0.0	2	0.1	2	0.1
Howard	26,276	3,844	14.6	1	0.0	25	0.7	26	0.7	3	0.1	8	0.2	11	0.3
Kent	1,499	220	14.7	0	0.0	1	0.5	1	0.5	0	0.0	0	0.0	0	0.0
Montgomery	94,806	22,392	23.6	15	0.1	165	0.7	180	0.8	6	0.0	25	0.1	31	0.1
Prince George's	86,351	21,424	24.8	21	0.1	147	0.7	168	0.8	6	0.0	41	0.2	47	0.2
Queen Anne's	4,119	668	16.2	1	0.1	4	0.6	5	0.7	0	0.0	2	0.3	2	0.3
Saint Mary's	11,291	1,352	12.0	1	0.1	6	0.4	7	0.5	0	0.0	1	0.1	1	0.1
Somerset	1,892	449	23.7	3	0.7	3	0.7	6	1.3	0	0.0	3	0.7	3	0.7
Talbot	2,821	634	22.5	1	0.2	1	0.2	2	0.3	0	0.0	2	0.3	2	0.3
Washington	13,495	2,822	20.9	10	0.4	32	1.1	42	1.5	1	0.0	7	0.2	8	0.3
Wicomico	9,124	2,075	22.7	8	0.4	27	1.3	35	1.7	2	0.1	6	0.3	8	0.4
Worcester	3,448	834	24.2	4	0.5	21	2.5	25	3.0	0	0.0	2	0.2	2	0.2
Statewide	541,994	118,619	21.9	413	0.3	1,316	1.1	1,729	1.5	85	0.1	270	0.2	355	0.3

- The table is based on the selection of the highest blood lead test for each child in calendar year 2016 in the order of venous, unknown, or capillary.
- Adapted from Maryland census population 2010 provided by the Maryland Data Center, Maryland Department of Planning, www.planning.maryland.gov/msdc
- Children with the blood lead level of 5-9 µg/dL in 2016 and with a history of blood lead level ≥ 5 µg/dL in the past.
- Children with the very first blood lead level of 5-9 µg/dL in 2016. These children were either not tested in the past or all their tests had blood lead levels <5 µg/dL.
- Children with a history of blood lead levels ≥10 µg/dL. These children may have carried from 2015 or had a blood lead test with blood lead levels ≥10 µg/dL in the previous years.
- Children with the very first blood lead level ≥10 µg/dL. These children may have not been tested in the past or all their blood lead tests had blood lead levels <10 µg/dL. This criterion may not necessarily match the criteria for the initiation of case management.
- Due to rounding percentages to first decimal point, the sum of breakdown percentages may not necessarily equal total percentage.

Impact of Universal Lead Testing and Point of Care Testing in CY 2016

The Maryland Lead Testing Targeting Strategy of 2015 replaced the prior Lead Targeting Plan of 2004. The new strategy was implemented with the adoption of new lead testing requirements by MDH (COMAR 10.11.04), which became effective on March 28, 2016. Under the new regulation, the entire State of Maryland is now declared “at risk” for lead exposure. The Strategy requires that all children in the State be tested at their 12 and 24 month visits, and anytime there is a suspicion of a possible lead exposure (hereinafter “universal testing”). Further, in its report to the General Assembly in 2014, the “Task Force on Point of Care (POC) Testing for Lead Poisoning” recommended that: 1) the State encourage the use of POC for lead testing, and 2) the MDH Laboratories Administration promote the use of POC tests for lead by making it easier for providers to implement POC testing. POC testing commonly refers to a testing procedure that takes place in the location where the patient is being seen. At this time the only POC instrument approved by the U.S. Food and Drug Administration for testing lead is the LeadCareII.

These initiatives had significant impacts on blood lead testing Statewide. The number of clinics that started using the POC testing instrument for blood lead testing (Figure Three) significantly increased over the years 2011-2016. This has also created a significant increase in the number of hard copy reports the CLR receives (Figure Four).

Figure Three
Number of Reporting Laboratories: 2011-2016

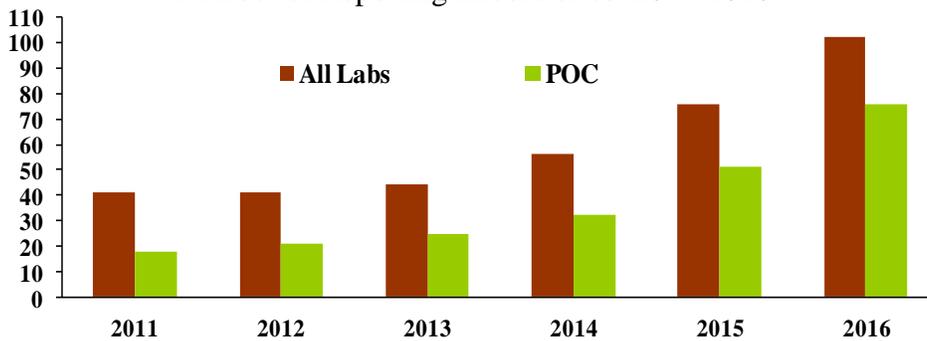
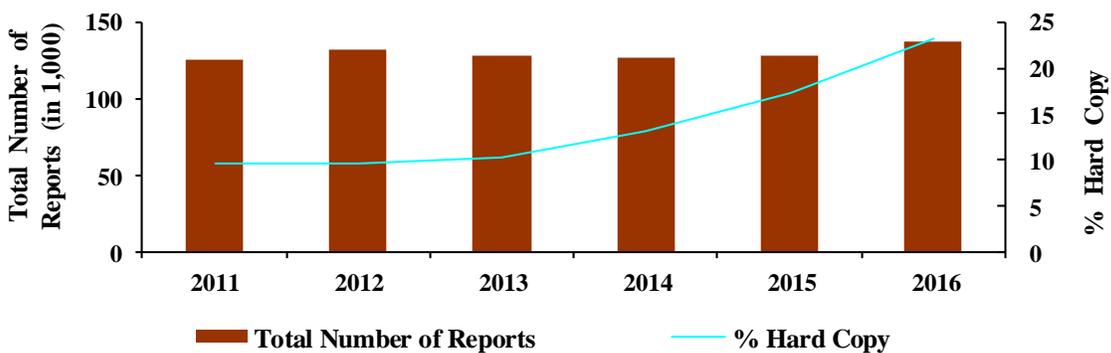


Figure Four
Number of Hard Copy Blood Lead Tests Reported to CLR: 2011-2016



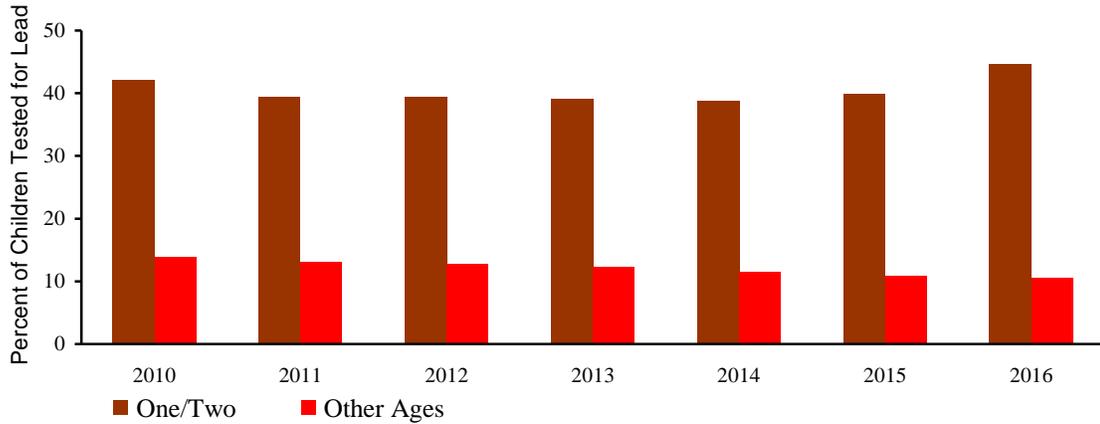
Both initiatives increased the number of blood lead tests among children aged 0-72 months Statewide, from an annual average of 116,049 (CY 2010-2015) to 125,984 in CY 2016, an 8.6% increase. As expected, the percentage increase was much more significant in children aged one and two years. The percent of children aged one and two years who were tested in CY 2016 was of increased by 12.2% relative to the percent increase of children tested over CY 2010-2015 (39.7%) (Table Three, Figure Five).

Table Three
Blood Lead Testing of Children One and Two Years Old by Jurisdiction in 2016¹

County	One Year Old			Two Years Old			One & Two Years (Total) ²		
	Population	Children Tested		Population	Children Tested		Population	Children Tested	
		Number	Percent		Number	Percent		Number	Percent
Allegany	832	570	68.5	868	498	57.4	1,700	1,068	62.8
Anne Arundel	8,714	4,433	50.9	8,605	3,391	39.4	17,319	7,824	45.2
Baltimore	12,225	6,763	55.3	11,873	5,765	48.6	24,098	12,528	52.0
Baltimore City	10,723	6,113	57.0	10,283	5,059	49.2	21,006	11,172	53.2
Calvert	1,197	414	34.6	1,222	223	18.2	2,419	637	26.3
Caroline	563	300	53.3	567	283	49.9	1,130	583	51.6
Carroll	2,163	807	37.3	2,239	617	27.6	4,402	1,424	32.3
Cecil	1,648	701	42.5	1,600	364	22.8	3,248	1,065	32.8
Charles	2,274	856	37.6	2,453	907	37.0	4,727	1,763	37.3
Dorchester	506	255	50.4	512	241	47.1	1,018	496	48.7
Frederick	3,550	2,130	60.0	3,753	1,374	36.6	7,303	3,504	48.0
Garrett	354	162	45.8	399	145	36.3	753	307	40.8
Harford	3,686	1,560	42.3	3,700	1,116	30.2	7,386	2,676	36.2
Howard	4,173	1,793	43.0	4,405	1,023	23.2	8,578	2,816	32.8
Kent	255	101	39.6	236	68	28.8	491	169	34.4
Montgomery	15,925	7,271	45.7	15,952	6,495	40.7	31,877	13,766	43.2
Prince George's	14,808	6,669	45.0	14,493	5,871	40.5	29,301	12,540	42.8
Queen Anne's	658	327	49.7	659	248	37.6	1,317	575	43.7
Saint Mary's	1,854	647	34.9	1,850	401	21.7	3,704	1,048	28.3
Somerset	323	196	60.7	340	176	51.8	663	372	56.1
Talbot	499	287	57.5	494	264	53.4	993	551	55.5
Washington	2,194	1,056	48.1	2,286	876	38.3	4,480	1,932	43.1
Wicomico	1,577	844	53.5	1,526	781	51.2	3,103	1,625	52.4
Worcester	586	363	61.9	575	321	55.8	1,161	684	58.9
Statewide	91,287	44,618	48.9	90,890	36,507	40.2	182,177	81,125	44.5

1. For selection criteria and population data refer to Table 1.
2. For breakdown of blood lead testing for other age groups and blood lead levels refer to “Supplementary Data Tables: Supplement #3.

Figure Five
Percent of Children Tested for Lead, Ages One and Two vs. Other Ages: CY 2010-2016



At the jurisdiction (county) level, blood lead testing of children ages one and two increased in 14 jurisdictions; the increases ranged from 4.8% in Baltimore County to 73.8% in Howard County. The increase in blood lead testing is discussed in more detail in Appendix C.

Childhood Lead Exposure and Housing

Childhood lead exposure dropped in 2016. Figure Six illustrates that in 1996, of children aged 0-72 months who were tested for lead, approximately 53% had a blood lead level of $\leq 4 \mu\text{g/dL}$. This graph demonstrates the success of the Department in reducing the extent and severity of lead exposure among children as more and more children have less burden of lead in their bodies. On the other hand, the graph demonstrates the difficulty the Department has in achieving its ultimate goal of eliminating lead exposure, because children are still being exposed at lower levels.

Figure Six
Blood Lead Distribution of Children
Aged 0-72 Months Tested for Lead in 1996, 2006, and 2016

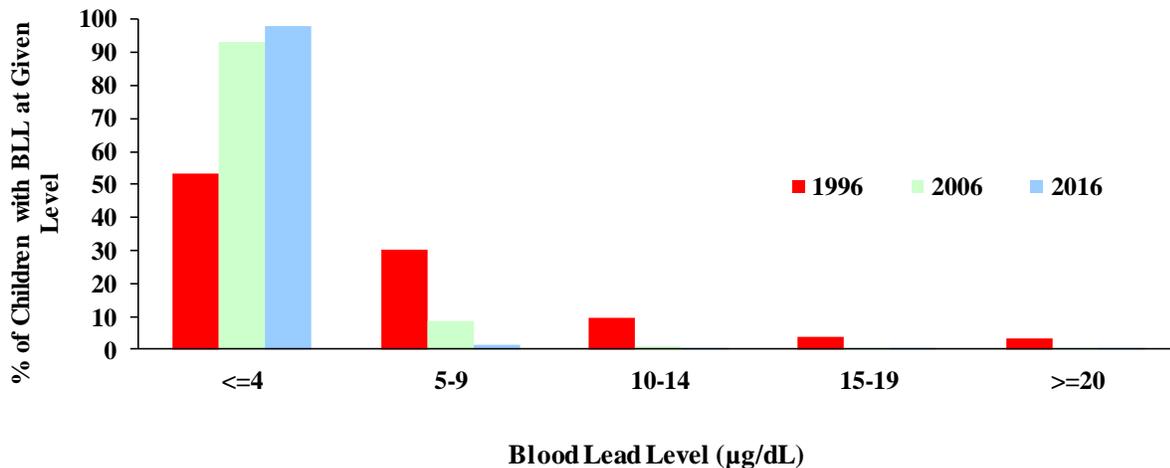
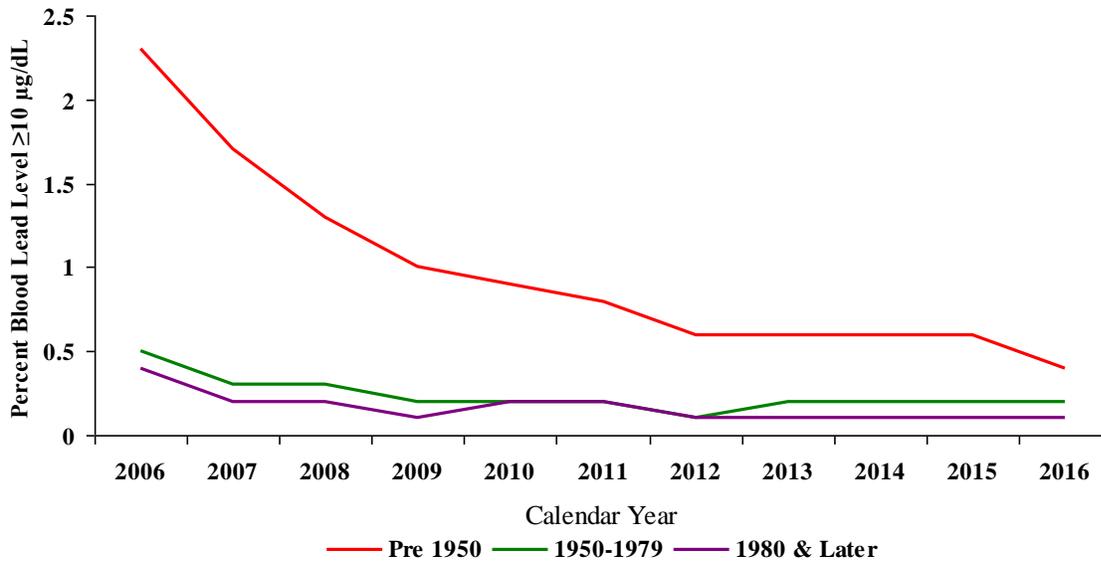


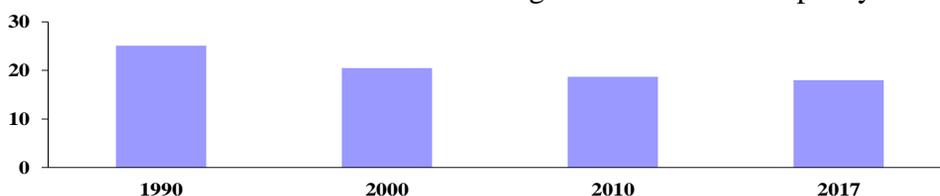
Figure Seven
 Percent of Lead Tested Children Aged 0-72 Months Who Were Identified with BLL ≥ 10 $\mu\text{g}/\text{dL}$ and Built Date of Child's Residence, CY 2006-2016



Properties built prior to 1950 are still a statistically relevant component of childhood lead exposure for blood lead levels of ≥ 10 $\mu\text{g}/\text{dL}$ (Figure Seven above). The significant drop in blood lead exposure of children aged 0-72 months began in 1996 when the Department began enforcing the lead risk reduction provisions of the Reduction of Lead Risk in Housing Law (Law). Beginning in 1996, the Law required owners of pre-1950 residential rental units to meet certain lead risk reduction standards to prevent childhood exposure to lead. Effective January 1, 2015, the Law expanded to include all residential rental properties built prior to 1978.

It is understood that the risk of childhood lead exposure may not necessarily be the same for all geographic areas. The State targeting plan of 2004 was mainly based on the distribution of pre-1950 housing and assumed that wherever there is a high concentration of older (pre-1950) housing, there would be a higher risk of childhood lead exposure. With the implementation of the Law and the compliance by owners of rental properties, the housing conditions of pre-1950 rental properties improved. The assumption that only children living in pre-1950 rental properties are at risk of having a blood lead level ≥ 10 $\mu\text{g}/\text{dL}$ is no longer valid. Figure Eight illustrates the percentage of pre-1950 housing available for occupancy during specific time periods.

Figure Eight*
Percent Pre-1950 Housing Available for Occupancy



*Data from 1990 and 2000 is from Census data. Data for 2010 and 2017 are from American Community Survey "estimate" data.

Medical and Environmental Case Management

The MDH Case Management Guidelines (“Guidelines”) require medical case management when a child aged 0-72 months is identified with a first time venous or two capillary blood lead tests of $\geq 10 \mu\text{g/dL}$ (“Confirmed Case”). Case management consists of comprehensive medical and environmental case management, which are coordinated between the health care provider, local health department, and the Department. 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 of a child. All home visits are arranged with the family based on the availability of the parent/guardian and in accordance with recommendations identified in the Case Management Guidelines.

When a child is diagnosed as a Confirmed Case and is identified to reside in or frequent a pre-1978 residential rental property, the local health department is required by Law to send a Notice of Elevated Blood Lead Level (Notice of EBL) to the rental property owner. Under the Law, an owner that receives a Notice of EBL must meet the modified risk reduction standard or provide for the temporary relocation of the tenants to a lead free or lead risk reduced unit within 30 days of receipt of the Notice of EBL.

During Calendar Year 2016, there were 238 Confirmed Cases that required medical and environmental case management in Maryland. This was a decrease of 23 Confirmed Cases when compared to CY 2015 (261). Of the total, there were 131 Confirmed Cases in Maryland counties (excluding Baltimore City). This was an increase of 10 cases compared to the 121 Confirmed Cases in Maryland counties in CY 2015. See Table Four for medical and environmental case outcomes for Maryland Counties.

Table Four
Maryland Counties CY 2016: Confirmed Cases
Medical and Environmental Case Outcomes

Medical Home Visits			
Completed Home Visit	Telephonic Case Management	Refused Home Visit	Unable to Locate Family
95	27	8	1
Environmental Inspections			
Completed Inspection	Refused Inspection	Unable to Locate	
116	14	1	

There were a total of 107 Confirmed Cases during CY2016 in Baltimore City. This was a decrease of 33 cases compared to 140 Confirmed Cases in CY 2015. Baltimore City performs all environmental investigations in response to Confirmed Cases. See Table Five for medical and environmental case outcomes for Baltimore City.

Table Five
Baltimore City CY 2016: Confirmed Cases
Medical and Environmental Case Outcomes

Medical Home Visits				
Completed Home Visit	Refused Home Visit	Unable to Contact Parent	Wrong Address	Moved
102	0	2	2	1
Environmental Inspections				
Completed Inspection	Refused Inspection	Wrong Address	Two Children at 1 Property	
88	1	13	5	

In CY 2016, of the 131 Confirmed Cases in the Maryland counties (excluding Baltimore City), 63% of the children were identified as residing in a rental property and 37% of the children were identified as residing in an owner occupied property. In CY 2016, in Baltimore City, 75% of the children were identified as residing in a rental property and 25% of the children were identified as residing in an owner occupied property. Table Six provides a breakdown of Confirmed Cases and housing type identified by jurisdiction.

Table Six
Property Status of Confirmed Cases
Calendar Year 2016: By Jurisdiction

County	Total Cases	Owner-Occupied						Rental Property					
		Pre-50		1950-1977		Post-1977		Pre-1950		1950-1977		Post-1977	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Allegany	3	1	33.3	0	0	0	0	2	66.7	0	0	0	0
Anne Arundel	11	1	9.1	1	9.1	0	0	0	0	7	63.6	2	18.2
Baltimore	21	4	19.0	6	28.6	3	14.3	2	9.5	5	23.8	1	4.8
Baltimore City	107	27	25.2	0	0.0	0	0.0	75	70.1	5	4.7	0	0.0
Calvert	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Caroline	2	0	0.0	0	0.0	0	0.0	1	50.0	0	0.0	1	50.0
Carroll	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Cecil	2	0	0.0	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0
Charles	2	0	0.0	0	0.0	0	0.0	0	0.0	1	50.0	1	50.0
Dorchester	2	0	0.0	0	0.0	0	0.0	2	100.0	0	0.0	0	0.0
Frederick	3	1	33.3	0	0.0	1	33.3	1	33.3	0	0.0	0	0.0
Garrett	1	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
Harford	1	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0
Howard	6	0	0.0	0	0.0	2	33.3	1	16.7	1	16.7	2	33.3
Kent	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Montgomery	21	1	4.7	6	28.6	3	14.3	0	0.0	8	38.1	3	14.3
Prince George's	35	1	2.8	3	8.6	3	8.6	2	5.7	24	68.6	2	5.7
Queen Anne's	1	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0
Saint Mary's	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Somerset	3	2	66.7	0	0.0	0	0.0	0	0.0	0	0.0	1	33.3
Talbot	2	0	0.0	0	0.0	0	0.0	2	100.0	0	0.0	0	0.0
Washington	7	3	42.8	0	0.0	0	0.0	3	42.8	0	0.0	1	14.3
Wicomico	6	2	33.3	0	0.0	0	0.0	3	50.0	0	0.0	1	16.7
Worcester	2	0	0.0	0	0.0	1	50.0	1	50.0	0	0.0	0	0.0
Counties' Total	131	16	12.2	16	12.2	16	12.2	22	16.8	46	35.1	15	11.5
Statewide Total	238	43	18.1	16	6.7	16	6.7	97	40.8	51	21.4	15	6.3

Sources of Lead Identified During Environmental Investigations

An environmental investigation performed in response to a Confirmed Case is designed to identify all potential lead sources in the child’s environment. While exposure to lead paint hazards continues to affect children in all communities across Maryland, exposure from other sources has been observed. Prince George’s County, for example, had 35 of the 131 Confirmed Cases in Maryland Counties (excluding Baltimore City). Of the 35 cases; 20 of the cases were children of refugee families who had relocated to the United States and recently resettled in Maryland. There were also a significant number of cases Statewide where cosmetics, such as kohl, and spices purchased outside the U.S. were identified as potential lead hazards during environmental investigations. It should be noted that hazards from lead based paint are the most widespread and dangerous high-dose source of lead exposure in children living in pre-1950 housing in Maryland. A breakdown of lead sources, by housing type, that were identified during environmental investigations performed by the Department and Prince George’s County can be found in Figures 9 and 10. Please note that a variety of sources may contribute to a child’s lead exposure. Due to this fact, more than one source of exposure may be reported for each investigation.

Figure Nine
Lead Sources Identified in Rental Housing
Maryland Counties CY 2016 (Excluding Baltimore City)

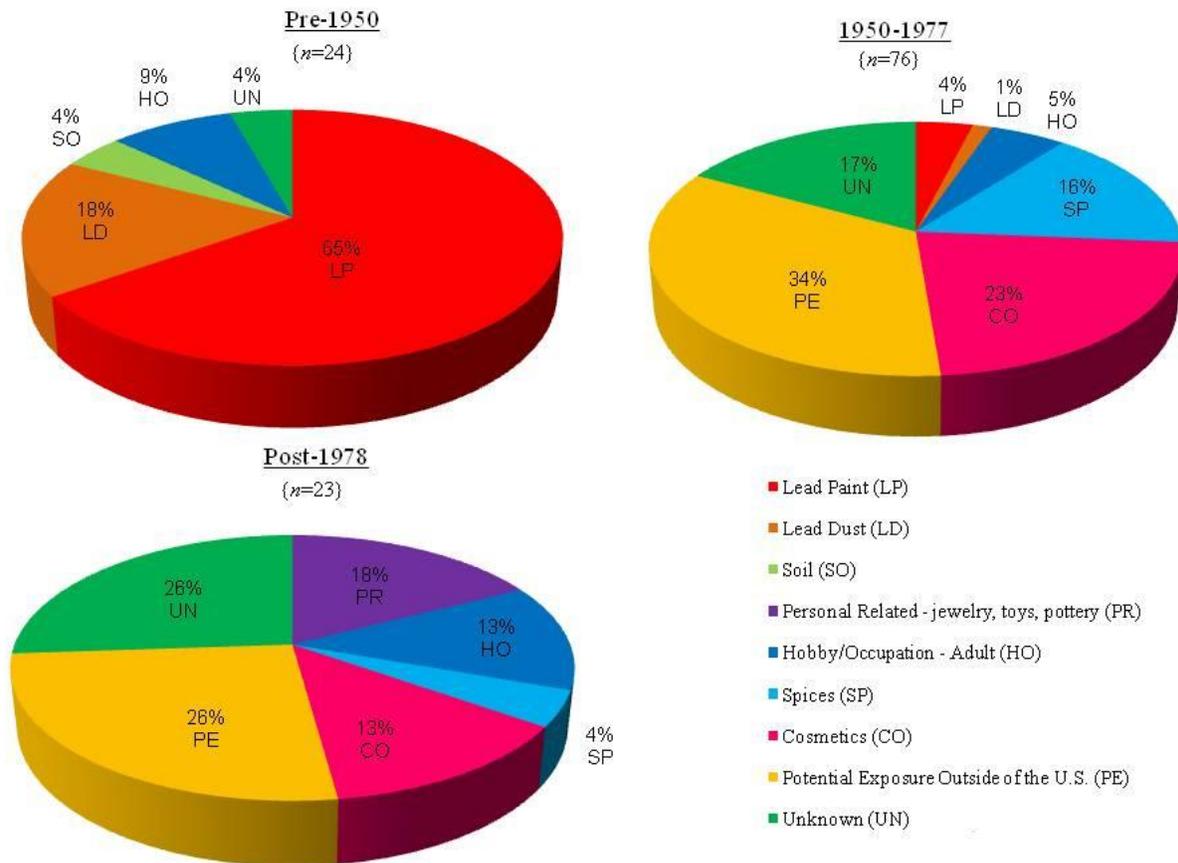
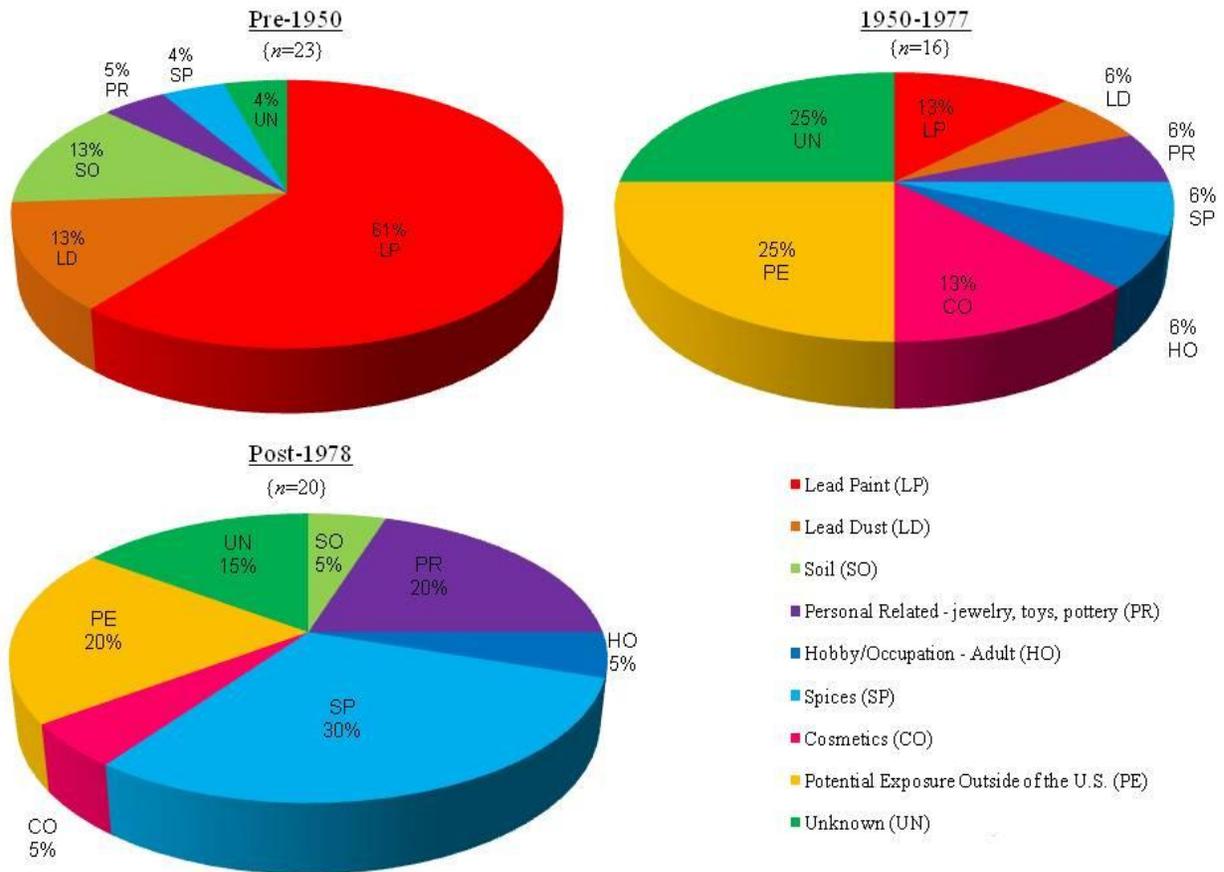


Figure Ten
 Lead Sources Identified in Owner Occupied Housing
 Maryland Counties CY 2016 (Excluding Baltimore City)



According to the 2011 American Health Home Survey (AHHS) by HUD, properties built prior to 1960 are 69% likely to have lead based paint. According to the 2010 Census, over 71% of housing in Baltimore City was built prior to 1960. Given these housing characteristics it is understandable why children are more likely to be exposed to lead based paint hazards in Baltimore City. Figures 11 and 12 show the sources that were identified during environmental investigations in Baltimore City in CY 2016.

Figure Eleven
 Lead Sources Identified in Rental Housing
 Baltimore City CY 2016

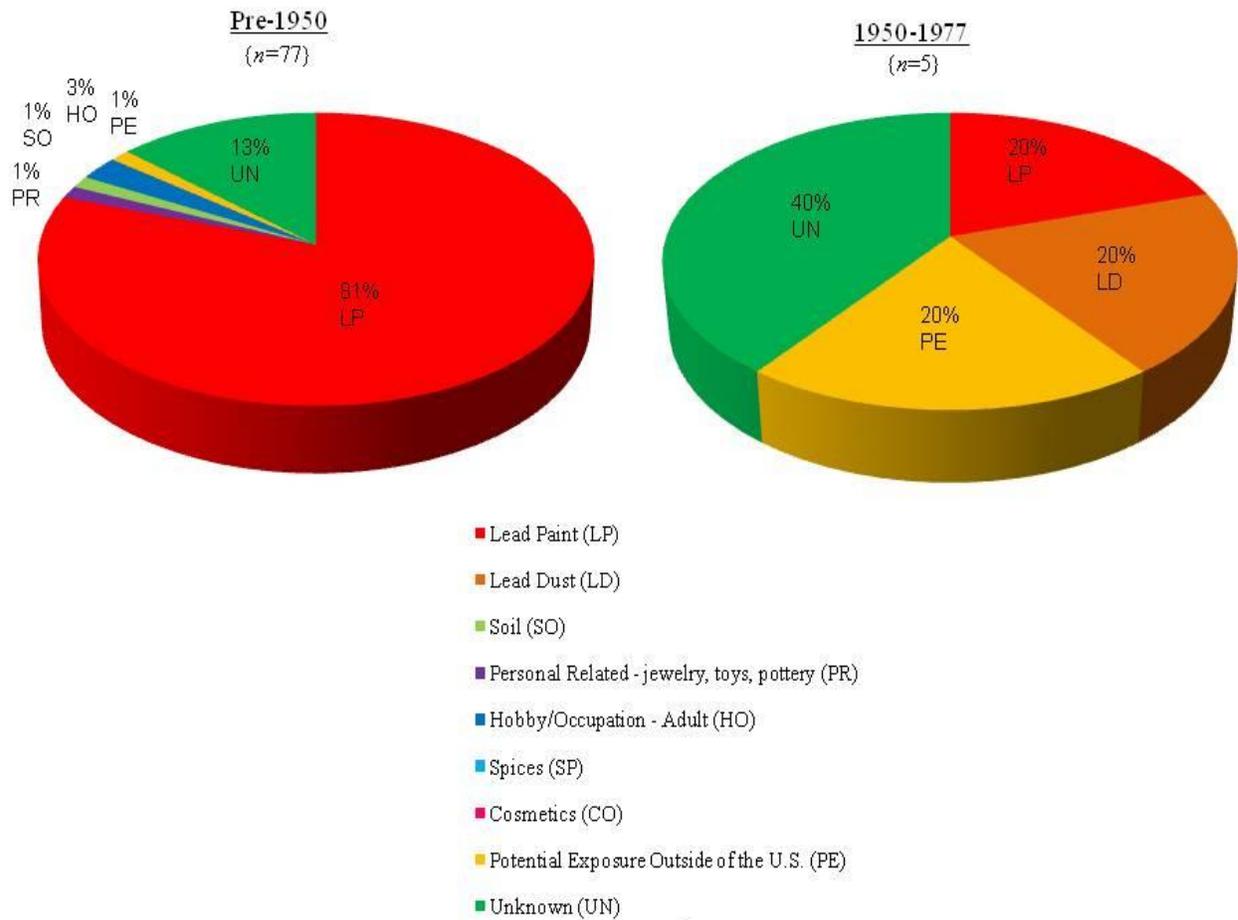
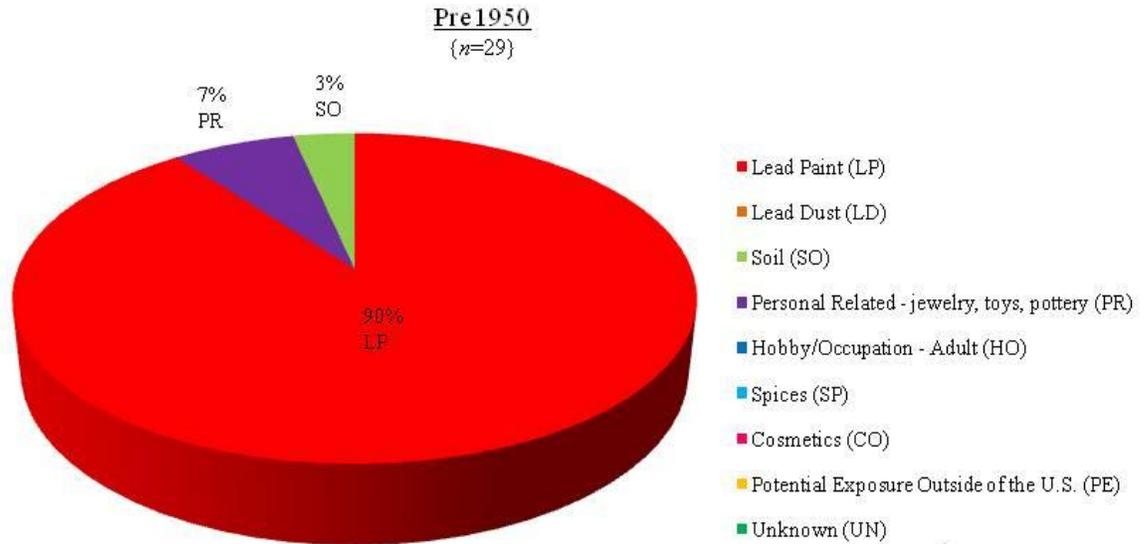


Figure Twelve
 Lead Sources Identified in Owner Occupied Housing *
 Baltimore City CY
 2016



*Includes one owner occupied property with built date unknown.

Data Quality

The CLR is maintained in the “Systematic Tracking of Elevated Lead Levels and Remediation” (STELLAR) surveillance system, obtained from the Centers for Disease Control’s (CDC), Lead Poisoning Prevention Program. CLR staff work to improve data quality with respect to completeness, timeliness, and accuracy. Staff keep track of laboratory reports daily to make sure laboratories are reporting all blood lead tests no later than biweekly. The Law requires blood lead results $\geq 20 \mu\text{g/dL}$ to be reported to the Department within 24 hours after a result is known. However, upon CLR request, laboratories have agreed to report the result of all blood lead tests $\geq 10 \mu\text{g/dL}$ within 24 hours. With the CDC’s blood lead “Reference Level” now at $5 \mu\text{g/dL}$, some laboratories even report blood lead tests at 5-9 $\mu\text{g/dL}$ within 24 hours.

In CY 2016, 76.7% of all blood lead tests were reported to the CLR through a computer generated electronic data file. This is a drop of more than five percentage points in this type of

reporting when compared with CY 2015 (82.5%). The drop is because of an increase in the number of clinics and establishments using POC Instruments. Currently, the POC Instruments only have the ability to create hard copy reports that can only be reported to the CLR by facsimile. The average reporting time, from the time a sample is drawn to the time the result enters the CLR database, is approximately 6 calendar days. The average time for elevated blood lead results ($\geq 10 \mu\text{g/dL}$) is approximately 30 hours. Table Seven provides a summary of the completeness of data reported with blood lead level results. Completeness of data does not necessarily mean accuracy of the data.

Table Seven
Completeness of Data for 2016

Item	Percent Complete
Child's name	100.0
Date of Birth	100.0
Sex/Gender	99.3
Race	54.9
Guardian's name	67.3
Sample type	93.3
Test date	100.0
Blood lead level	100.0
Address (geocoded)	89.2
Telephone number	92.8

Blood Lead Laboratory Reporting Requirement

The amended law and regulations* of 2001 and 2002 require that:

1-The following child's demographic data should be included in each blood lead test reported:

- Date of Birth
- Sex
- Race
- Address
- Test date
- Sample type
- Blood lead level

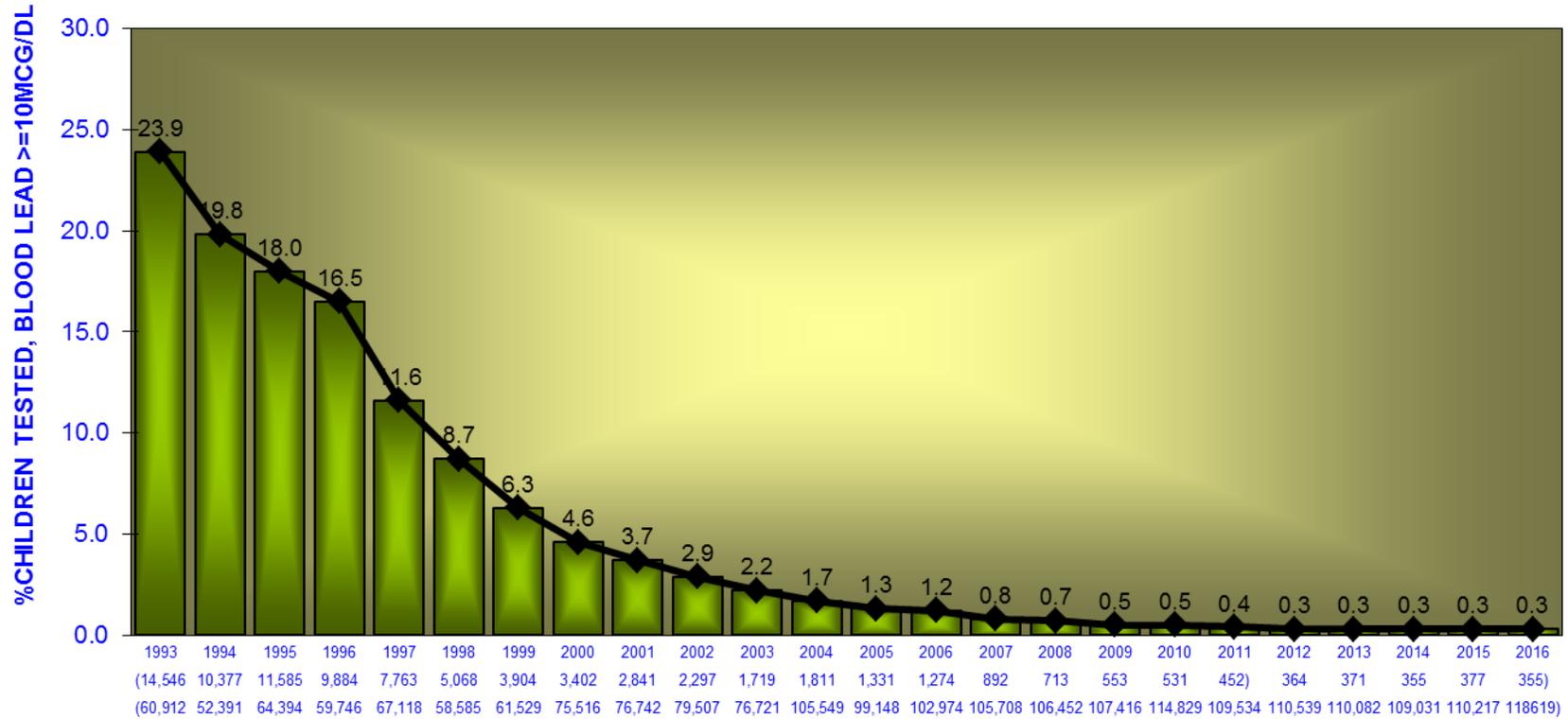
2-Blood lead results $\geq 20 \mu\text{g/dL}$ to be reported (fax) within 24 hours after result is known. All other results must be reported no later than two weeks.

3-Reporting format should comply with the format designed and provided by the Registry.

4-Data should be provided electronically.

* EA §6-303, Blood lead test reporting (COMAR 26.02.01).

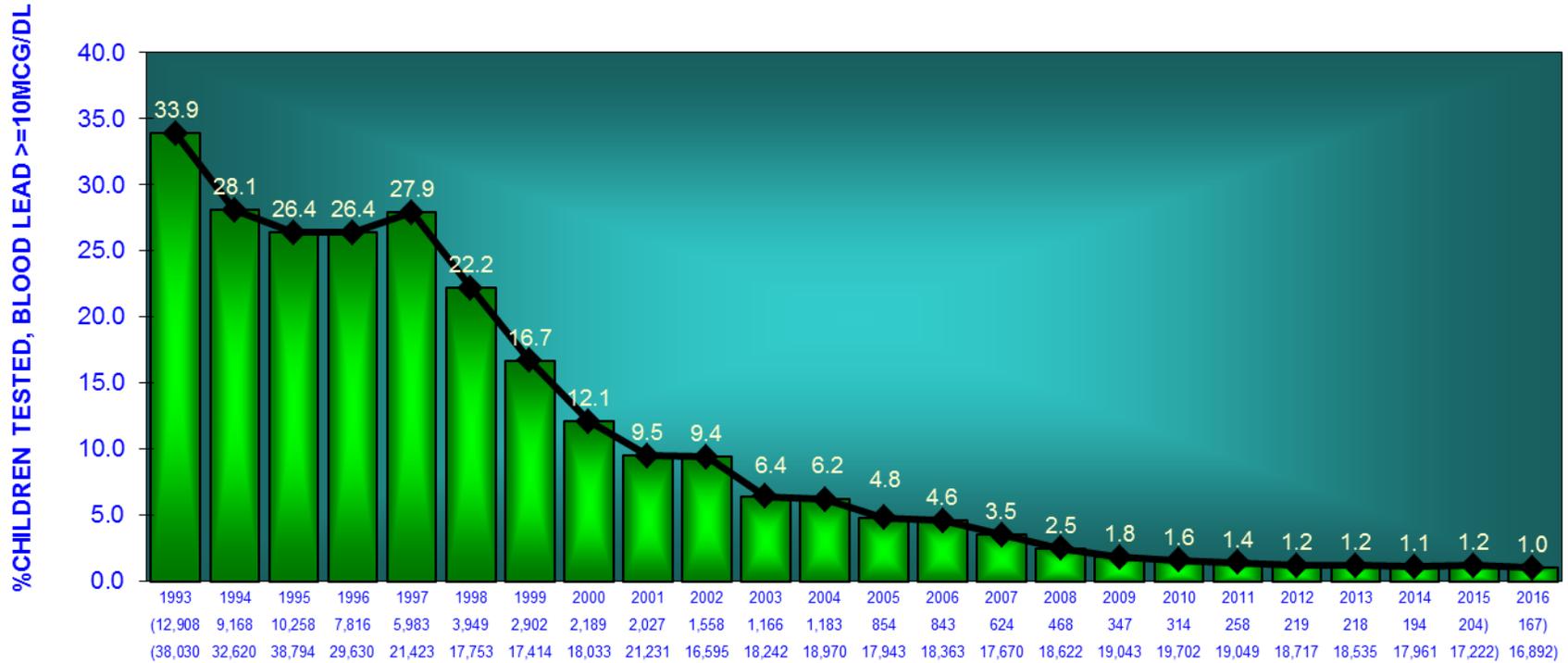
MARYLAND DEPARTMENT OF THE ENVIRONMENT
 CHILDHOOD BLOOD LEAD SURVEILLANCE
 STATEWIDE 1993-2016



CALENDAR YEAR
 (Number of Children with BLL ≥ 10 mcg/dl)
 (Number of Children Tested)



**MARYLAND DEPARTMENT OF THE ENVIRONMENT
CHILDHOOD BLOOD LEAD SURVEILLANCE
BALTIMORE CITY 1993-2016**



CALENDAR YEAR
(Number of Children with BLL ≥ 10mcg/dl)
(Number of Children Tested)



Appendix A
Blood Lead Testing of Children Aged 0-72 Months by Major Age Group and Jurisdiction in 2016¹

Age Group	Population of Children ²	Children Tested		Blood Lead Level 5-9 µg/dL						Blood Lead Level =10 µg/dL					
				Old Cases ³		New Cases ⁴		Total		Old Cases ⁵		New Cases ⁶		Total	
				Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Allegany County															
0-35 Months	2,586	1,081	41.8	4	0.4	15	1.4	19	1.8	2	0.2	1	0.1	3	0.3
36-72 Months	2,578	119	4.6	1	0.8	5	4.2	6	5.0	1	0.8	2	1.7	3	2.5
Total	5,164	1,200	23.2	5	0.4	20	1.7	25	2.1	3	0.3	3	0.3	6	0.5
Anne Arundel County															
0-35 Months	26,047	8,258	31.7	8	0.1	40	0.5	48	0.6	1	0.0	12	0.1	13	0.2
36-72 Months	25,241	1,805	7.2	4	0.2	10	0.6	14	0.8	1	0.1	1	0.1	2	0.1
Total	51,288	10,063	19.6	12	0.1	50	0.5	62	0.6	2	0.0	13	0.1	15	0.1
Baltimore County															
0-35 Months	36,221	13,823	38.2	17	0.1	135	1.0	152	1.1	3	0.0	20	0.1	23	0.2
36-72 Months	35,222	3,256	9.2	12	0.4	26	0.8	38	1.2	3	0.1	6	0.2	9	0.3
Total	71,443	17,079	23.9	29	0.2	161	0.9	190	1.1	6	0.0	26	0.2	32	0.2
Baltimore City															
0-35 Months	32,085	12,310	38.4	115	0.9	394	3.2	509	4.1	30	0.2	84	0.7	114	0.9
36-72 Months	28,139	4,582	16.3	167	3.6	128	2.8	295	6.4	24	0.5	29	0.6	53	1.2
Total	60,224	16,892	28.0	282	1.7	522	3.1	804	4.8	54	0.3	113	0.7	167	1.0
Calvert County															
0-35 Months	3,606	697	19.3	1	0.1	2	0.3	3	0.4	0	0.0	0	0.0	0	0.0
36-72 Months	4,012	90	2.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	7,618	787	10.3	1	0.1	2	0.3	3	0.4	0	0.0	0	0.0	0	0.0
Caroline County															
0-35 Months	1,687	600	35.6	3	0.5	6	1.0	9	1.5	0	0.0	0	0.0	0	0.0
36-72 Months	1,756	140	8.0	1	0.7	3	2.1	4	2.9	1	0.7	1	0.7	2	1.4
Total	3,443	740	21.5	4	0.5	9	1.2	13	1.8	1	0.1	1	0.1	2	0.3

Appendix A
Blood Lead Testing of Children Aged 0-72 Months by Major Age Group and Jurisdiction in 2016

Age Group	Population of Children ²	Children Tested		Blood Lead Level 5-9 µg/dL						Blood Lead Level =10 µg/dL					
				Old Cases ³		New Cases ⁴		Total		Old Cases		New Cases		Total	
				Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Carroll County															
0-35 Months	6,430	1,580	24.6	2	0.1	13	0.8	15	0.9	1	0.1	1	0.1	2	0.1
36-72 Months	7,455	240	3.2	0	0.0	1	0.4	1	0.4	0	0.0	1	0.4	1	0.4
Total	13,885	1,820	13.1	2	0.1	14	0.8	16	0.9	1	0.1	2	0.1	3	0.2
Cecil County															
0-35 Months	4,824	1,150	23.8	2	0.2	15	1.3	17	1.5	0	0.0	3	0.3	3	0.3
36-72 Months	4,797	394	8.2	1	0.3	4	1.0	5	1.3	0	0.0	0	0.0	0	0.0
Total	9,621	1,544	16.0	3	0.2	19	1.2	22	1.4	0	0.0	3	0.2	3	0.2
Charles County															
0-35 Months	7,042	1,970	28.0	1	0.1	17	0.9	18	0.9	0	0.0	1	0.1	1	0.1
36-72 Months	7,051	421	6.0	0	0.0	3	0.7	3	0.7	0	0.0	1	0.2	1	0.2
Total	14,093	2,391	17.0	1	0.0	20	0.8	21	0.9	0	0.0	2	0.1	2	0.1
Dorchester County															
0-35 Months	1,544	502	32.5	0	0.0	6	1.2	6	1.2	0	0.0	2	0.4	2	0.4
36-72 Months	1,433	133	9.3	2	1.5	6	4.5	8	6.0	0	0.0	0	0.0	0	0.0
Total	2,977	635	21.3	2	0.3	12	1.9	14	2.2	0	0.0	2	0.3	2	0.3
Frederick County															
0-35 Months	10,825	3,619	33.4	2	0.1	20	0.6	22	0.6	0	0.0	4	0.1	4	0.1
36-72 Months	11,481	955	8.3	2	0.2	5	0.5	7	0.7	0	0.0	1	0.1	1	0.1
Total	22,306	4,574	20.5	4	0.1	25	0.5	29	0.6	0	0.0	5	0.1	5	0.1
Garrett County															
0-35 Months	1,133	313	27.6	0	0.0	3	1.0	3	1.0	0	0.0	1	0.3	1	0.3
36-72 Months	1,239	80	6.5	0	0.0	2	2.5	2	2.5	0	0.0	0	0.0	0	0.0
Total	2,372	393	16.6	0	0.0	5	1.3	5	1.3	0	0.0	1	0.3	1	0.3

Appendix A
Blood Lead Testing of Children Aged 0-72 Months by Major Age Group and Jurisdiction in 2016

Age Group	Population of Children ²	Children Tested		Blood Lead Level 5-9 µg/dL						Blood Lead Level =10 µg/dL					
				Old Cases ³		New Cases ⁴		Total		Old Cases		New Cases		Total	
				Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Harford County															
0-35 Months	10,969	2,955	26.9	0	0.0	19	0.6	19	0.6	0	0.0	2	0.1	2	0.1
36-72 Months	11,469	832	7.3	3	0.4	6	0.7	9	1.1	0	0.0	0	0.0	0	0.0
Total	22,438	3,787	16.9	3	0.1	25	0.7	28	0.7	0	0.0	2	0.1	2	0.1
Howard County															
0-35 Months	12,719	3,042	23.9	0	0.0	20	0.7	20	0.7	2	0.1	8	0.3	10	0.3
36-72 Months	13,557	802	5.9	1	0.1	5	0.6	6	0.7	1	0.1	0	0.0	1	0.1
Total	26,276	3,844	14.6	1	0.0	25	0.7	26	0.7	3	0.1	8	0.2	11	0.3
Kent County															
0-35 Months	746	174	23.3	0	0.0	1	0.6	1	0.6	0	0.0	0	0.0	0	0.0
36-72 Months	753	46	6.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total	1,499	220	14.7	0	0.0	1	0.5	1	0.5	0	0.0	0	0.0	0	0.0
Montgomery County															
0-35 Months	47,712	16,905	35.4	9	0.1	122	0.7	131	0.8	3	0.0	17	0.1	20	0.1
36-72 Months	47,094	5,487	11.7	6	0.1	43	0.8	49	0.9	3	0.1	8	0.1	11	0.2
Total	94,806	22,392	23.6	15	0.1	165	0.7	180	0.8	6	0.0	25	0.1	31	0.1
Prince George's County															
0-35 Months	44,563	14,501	32.5	10	0.1	96	0.7	106	0.7	3	0.0	27	0.2	30	0.2
36-72 Months	41,788	6,923	16.6	11	0.2	51	0.7	62	0.9	3	0.0	14	0.2	17	0.2
Total	86,351	21,424	24.8	21	0.1	147	0.7	168	0.8	6	0.0	41	0.2	47	0.2
Queen Anne's County															
0-35 Months	1,988	589	29.6	0	0.0	4	0.7	4	0.7	0	0.0	1	0.2	1	0.2
36-72 Months	2,131	79	3.7	1	1.3	0	0.0	1	1.3	0	0.0	1	1.3	1	1.3
Total	4,119	668	16.2	1	0.1	4	0.6	5	0.7	0	0.0	2	0.3	2	0.3

Appendix A
Blood Lead Testing of Children Aged 0-72 Months by Major Age Group and Jurisdiction in 2016

Age Group	Population of Children ²	Children Tested		Blood Lead Level 5-9 µg/dL						Blood Lead Level =10 µg/dL					
				Old Cases ³		New Cases ⁴		Total		Old Cases		New Cases		Total	
				Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Saint Mary's County															
0-35 Months	5,570	1,147	20.6	0	0.0	5	0.4	5	0.4	0	0.0	1	0.1	1	0.1
36-72 Months	5,721	205	3.6	1	0.5	1	0.5	2	1.0	0	0.0	0	0.0	0	0.0
Total	11,291	1,352	12.0	1	0.1	6	0.4	7	0.5	0	0.0	1	0.1	1	0.1
Somerset County															
0-35 Months	988	382	38.7	1	0.3	2	0.5	3	0.8	0	0.0	2	0.5	2	0.5
36-72 Months	904	67	7.4	2	3.0	1	1.5	3	4.5	0	0.0	1	1.5	1	1.5
Total	1,892	449	23.7	3	0.7	3	0.7	6	1.3	0	0.0	3	0.7	3	0.7
Talbot County															
0-35 Months	1,418	553	39.0	0	0.0	1	0.2	1	0.2	0	0.0	1	0.2	1	0.2
36-72 Months	1,403	81	5.8	1	1.2	0	0.0	1	1.2	0	0.0	1	1.2	1	1.2
Total	2,821	634	22.5	1	0.2	1	0.2	2	0.3	0	0.0	2	0.3	2	0.3
Washington County															
0-35 Months	6,677	1,986	29.7	2	0.1	25	1.3	27	1.4	1	0.1	7	0.4	8	0.4
36-72 Months	6,818	836	12.3	8	1.0	7	0.8	15	1.8	0	0.0	0	0.0	0	0.0
Total	13,495	2,822	20.9	10	0.4	32	1.1	42	1.5	1	0.0	7	0.2	8	0.3
Wicomico County															
0-35 Months	4,662	1,647	35.3	8	0.5	23	1.4	31	1.9	2	0.1	4	0.2	6	0.4
36-72 Months	4,462	428	9.6	0	0.0	4	0.9	4	0.9	0	0.0	2	0.5	2	0.5
Total	9,124	2,075	22.7	8	0.4	27	1.3	35	1.7	2	0.1	6	0.3	8	0.4
Worcester County															
0-35 Months	1,739	704	40.5	4	0.6	20	2.8	24	3.4	0	0.0	2	0.3	2	0.3
36-72 Months	1,709	130	7.6	0	0.0	1	0.8	1	0.8	0	0.0	0	0.0	0	0.0
Total	3,448	834	24.2	4	0.5	21	2.5	25	3.0	0	0.0	2	0.2	2	0.2

Appendix A
Blood Lead Testing of Children Aged 0-72 Months by Major Age Group and Jurisdiction in 2016

Age Group	Population of Children ²	Children Tested		Blood Lead Level 5-9 µg/dL						Blood Lead Level =10 µg/dL					
				Old Cases ³		New Cases ⁴		Total		Old Cases		New Cases		Total	
				Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Statewide															
0-35 Months	273,781	90,488	33.1	189	0.2	1,004	1.1	1,193	1.3	48	0.1	201	0.2	249	0.3
36-72 Months	268,213	28,131	10.5	224	0.8	312	1.1	536	1.9	37	0.1	69	0.2	106	0.4
Total	541,994	118,619	21.9	413	0.3	1,316	1.1	1,729	1.5	85	0.1	270	0.2	355	0.3

8. The table is based on the selection of the highest blood lead test for each child in calendar year 2016 in the order of venous, unknown, or capillary.
 9. Adapted from Maryland census population 2010 provided by the Maryland Data Center, Maryland Department of Planning, www.planning.maryland.gov/msdc
 10. Children with the blood lead level of 5-9 µg/dL in 2016 and with a history of blood lead level ≥ 5 µg/dL in the past.
 11. Children with the very first blood lead level of 5-9 µg/dL in 2016 These children were either not tested in the past or all their tests had blood lead level <5 µg/dL.
 12. Children with a history of blood lead level ≥10 µg/dL. These children may have carried from 2015 or had a blood lead test with blood lead level ≥10 µg/dL in the previous years.
 13. Children with the very first blood lead level ≥10 µg/dL in 2016. These children may have not been tested in the past or all their blood lead tests had blood lead level <10 µg/dL.
- This criterion may not necessarily match the criteria for the initiation of case management.

Note: Due to rounding percentages to first decimal, the sum of breakdown percentages may not necessarily equal total percentage.

Appendix B
Blood Lead Testing of Children Aged 0-72 Months, and Prevalence and Incidence of Blood Lead Level ≥ 10 $\mu\text{g/dL}$: 2009-2016

Calendar Year		Population	Blood Lead Tests		Prevalence		Incidence	
			Number	Percent	Number	Percent	Number	Percent
2009								
	Baltimore City	56,431	19,043	33.7	347	1.8	214	1.1
	Counties	422,488	88,368	20.9	206	0.2	165	0.1
	County Unknown		5					
	Statewide	468,390	107,416	22.4	553	0.5	379	0.4
2010								
	Baltimore City	57,937	19,702	34.0	314	1.6	229	1.2
	Counties	433,661	94,650	21.8	217	0.2	170	0.2
	County Unknown		477		0		0	0.0
	Statewide	491,598	114,829	23.4	531	0.5	399	0.3
2011								
	Baltimore City	55,681	19,049	34.2	258	1.4	182	1.0
	Counties	445,021	90,481	20.3	194	0.2	160	0.2
	County Unknown		4		0		0	
	Statewide	500,702	109,534	21.9	452	0.4	342	0.4
2012								
	Baltimore City	56,701	18,717	33.0	219	1.2	148	0.8
	Counties	453,184	91,747	20.2	143	0.2	104	0.1
	County Unknown		75		2		3	
	Statewide	509,885	110,539	21.7	364	0.3	255	0.2
2013								
	Baltimore City	57,693	18,535	32.1	218	1.2	170	0.9
	Counties	461,171	91,539	19.8	152	0.2	134	0.1
	County Unknown		8		0		1	
	Statewide	518,864	110,082	21.2	371	0.3	304	0.3
2014								
	Baltimore City	58,622	17,961	30.6	194	1.1	129	0.7
	Counties	468,682	91,070	19.4	161	0.2	133	0.1
	County Unknown							
	Statewide	527,304	109,031	20.7	355	0.3	262	0.2
2015								
	Baltimore City	59,474	17,222	29.0	204	1.1	144	0.8
	Counties	475,620	92,995	19.6	173	0.2	136	0.1
	County Unknown							
	Statewide	535,094	110,217	20.6	377	0.3	280	0.2
2016								
	Baltimore City	60,224	16,892	28.0	167	1.0	113	0.7
	Counties	481,770	101,727	21.1	188	0.2	157	0.2
	County Unknown							
	Statewide	541,994	118,619	21.9	355	0.3	270	0.2

Appendix C
MARYLAND DEPARTMENT OF HEALTH
Maryland Blood Lead Testing Initiative: Interim Progress Report
Evaluation of March 28, 2016 Revision of COMAR 10.11.04

The State of Maryland has embarked on several initiatives to increase lead testing and ultimately reduce and eliminate childhood lead poisoning. These initiatives include:

- On April 13, 2015, the Department of Health adopted regulations allowing health care providers increased access to point-of-care testing to screen for elevated levels of lead in children. The amendment to COMAR 10.10.03.02B added whole blood lead testing to the list of tests that qualify for a Letter of Exception, so that providers would have an easier time setting up point of care (POC) testing.
- In October, 2015, the Department of Health released a new “Maryland Testing Targeting Strategy” that established all areas of the State as being “at risk” of lead poisoning. This revised the previous (2000 and 2004) targeting strategies.
- On March 28, 2016, the Department of Health issued final revised regulations (COMAR 10.11.04) requiring providers to test all children born on or after January 1, 2015 at ages 12 and 24 months for lead exposure. Children born before that date were still to be tested under the previous regulation, which requires testing of all children enrolled in Medicaid, all children living in areas identified in the 2004 Testing Targeting Strategy, and children suspected of lead exposure.

In addition to the revised regulations, the Department of Health, together with the Department of the Environment, has conducted extensive outreach to providers and parents through mailings, online bulletins, and outreach through health care organizations. The Department has also created a [website](#) and two videos, one for parents and one for providers, on the new testing requirements, and a set of clinical management guidelines that were extensively promulgated to providers across the State.

Interim Results

These initiatives have contributed to a significant increase in the number of children tested for lead statewide. As noted in the Maryland Department of the Environment annual report, the number of blood lead tests among children 0-72 months of age increased in CY 2016 statewide, from an annual average of 116,049 (2010-2015) to 125,984. This is an 8.6% increase in the number of blood lead tests statewide. However, a bigger increase was seen in children tested at ages 12 and 24 months (12.2%). More significantly, this represents an increase in the percentage of children tested for lead in many jurisdictions, as shown in Figure C-1 and Table C-1. The largest increases observed were for Howard, Frederick, and Carroll counties, all of which saw increases in their testing rates of more than 50%. In addition, Harford, Queen Anne’s and Calvert counties experienced increases of 25 – 50% in their testing rates.

Change in 2016 Maryland Blood Lead Testing Rates of One and Two Year Old Children by County, Compared with Average Rates of Blood Lead Testing from 2010 - 2015.

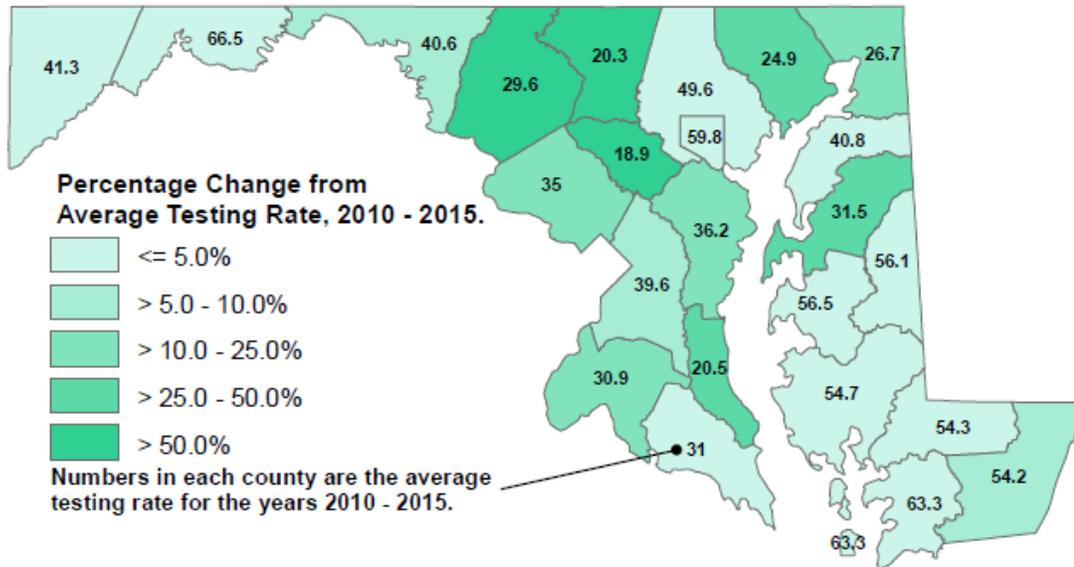


Figure C-1. Percentage Change in Children Tested at 12 and 24 months by County in Calendar Year 2016, compared with the Average Percentage of Children Tested between 2010 – 2015 (Source: Maryland Childhood Lead Registry)

As Figure C-1 shows, in general the most significant increases in testing took place in areas with lower average rates during the period 2010 – 2015. However, while increases were seen in many jurisdictions, there were some jurisdictions that experienced small declines in testing rates (Table C-1). The reason for these declines is unclear, and could be related to normal fluctuation, or other factors. As will be discussed in the section on next steps, below, these ten jurisdictions represent opportunities for additional outreach to health care providers in conjunction with local health departments and non-governmental organizations.

Table C-1
Change in the Percent of Children Tested at Age 1 and 2 Years by Jurisdiction in 2016,
Compared with Average Testing Rate Between 2010 – 2015 (Source: Maryland Childhood
Lead Registry)

County	Blood Lead Testing: Ages 12 and 24 Months		
	2010-2015	2016	Percent
	Percent	Percent	Change
Allegany	66.56	62.82	-5.6
Anne Arundel	36.19	45.18	24.8
Baltimore	49.59	51.99	4.8
Baltimore City	59.75	53.18	-11.0
Calvert	20.52	26.33	28.3
Caroline	56.10	51.59	-8.0
Carroll	20.31	32.35	59.3
Cecil	26.71	32.79	22.7
Charles	30.89	37.30	20.8
Dorchester	54.66	48.72	-10.9
Frederick	29.64	47.98	61.9
Garrett	41.20	40.77	-1.1
Harford	24.88	36.23	45.6
Howard	18.89	32.83	73.8
Kent	40.79	34.42	-15.6
Montgomery	34.98	43.18	23.5
Prince George's	39.63	42.80	8.0
Queen Anne's	31.46	43.66	38.8
Saint Mary's	30.98	28.29	-8.7
Somerset	63.36	56.11	-11.4
Talbot	56.46	55.49	-1.7
Washington	40.61	43.13	6.2
Wicomico	54.27	52.37	-3.5
Worcester	54.27	58.91	8.6
Statewide	39.69	44.53	12.2

Next Steps

Based on these results, the Department of Health and the Department of the Environment are conducting a more detailed analysis of the blood lead testing data, to determine where the priorities for additional outreach need to be focused. In addition to the testing rate data described above, the agencies are looking at additional factors including the spatial distribution of blood lead levels and number of children affected by lead exposure by age. Based on this analysis, the Departments will develop additional outreach strategies for the subsequent years of the initiative. The Department of Health will also explore opportunities to partner with payors, professional societies, and non-governmental organizations in the enhanced outreach efforts.