# CHILDHOOD BLOOD LEAD SURVEILLANCE IN MARYLAND

## 2019 ANNUAL REPORT

October 2020

Calendar Year 2019 Data

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**MARYLAND CHILDHOOD LEAD REGISTRY**
**ANNUAL SURVEILLANCE REPORT CY19**

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## Executive Summary

The Maryland Department of the Environment (MDE), Childhood Lead Registry (CLR) performs childhood blood lead surveillance for Maryland. The CLR receives the reports of all blood lead tests conducted on Maryland children 0-18 years of age and provides results to the Maryland Department of Health, 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 and levels. This current report presents the childhood blood lead test results for calendar year (CY) 2019. 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 few exceptions all numbers refer to children 0-72 months of age.

## CY19 Surveillance Highlights

* In CY19, the total number of children 0-18 years of age who were blood lead tested was 143,493. The total number of blood lead test results of children 0-18 years reported to the CLR was 150,222. A person may have multiple tests in the same year.

* In CY19, the total number of children 0-72 months of age who were blood lead tested was 132,224. This is an increase of 598 children (0.45%) compared to CY18. The total number of blood lead test results of children 0-72 months of age reported to the CLR was 138,657. This is an increase of 308 results (0.22%) compared to CY18.

* The number of children 0-72 months of age identified with a blood lead level ≥10 µg/dL decreased from 390 in CY18 to 328 in CY19, a 15.9% decrease.

* The number of children 0-72 months of age identified with a blood lead level of 5-9 µg/dL decreased from 1,435 in CY18 to 1,198 in CY19, a 16.5% decrease.

## Overview

While the prevalence of blood lead levels of ≥10 µg/dL in children in Maryland has declined dramatically over the years (18.0% in 1995, 1.3% in 2005, and 0.2% in CY19), there are still children with historically elevated blood lead levels and a number of children exposed to lead every year. Lead poisoning occurs when lead enters the bloodstream and builds up to toxic levels. Many different factors such as the source of exposure, length of exposure, and underlying susceptibility (e.g., child's age, nutritional status, and genetics) affect how the body handles foreign substances. No safe blood lead level in children has been identified. Children are at the greatest risk from birth to age six while their neurological systems are developing. Exposure to lead can cause long-term neurological damage that may be associated with learning and behavioral problems and with decreased intelligence.

**Sources of Childhood Lead Exposure**

Lead-based paint hazards continue to be the major source of exposure for children in Maryland. Of an estimated 2,437,740 residential properties in Maryland, more than half (54.5%) were built in or before 1979 (Source: US Census Bureau, 2013-2018 American Community Survey, 5-Year Estimates). Properties built prior to 1978 may have lead-based paint. Although a significant number of residential rental units have been made lead free, there remain untreated units that may cause lead exposure in young residents.

When absorbed into the body, it can result in damage to the brain and nervous system, learning and behavior problems, slow growth and development, and hearing and speech problems. Lead poisoning is entirely preventable. The key is preventing children from being exposed to hazardous lead containing substances. Lead can be found inside and outside the home. The most common source of exposure is from dust caused by defective lead-based paint, which was used in many homes built before 1978. Children can be exposed by ingesting or inhaling lead dust created by deteriorated lead paint that has cracked and chipped, eating paint chips, or chewing on surfaces coated with lead-based paint, such as windowsills.

There are simple steps that can be taken to protect children from lead-based paint hazards in the home, such as regularly cleaning the home, washing hands and toys often, and wiping shoes before entering the home. Lead can also be found in drinking water. The most common sources of lead in drinking water are pipes, faucets, and fixtures. Other examples of possible sources of lead include some metal toys or toys painted with lead-based paint, furniture painted with lead-based paint, some metal-containing jewelry, some imported items (i.e., health remedies, foods and candies, cosmetics, powders or cosmetics used in religious ceremonies), and lead-glazed pottery or porcelain.

## Statistical Report

In CY19, 132,224 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 CY19.

### Table One

**CY 2019 Statistical Report**

| **Item** | Number | Percent (%)[1] |
|---|---|---|
| **All Children** | | |
| Number of tests | 150,222 | |
| Number of children | 143,493 | |
| **Children 0-72 Months** | | |
| Number of tests | 138,657 | |
| Number of children | 132,224 | 100.0 |
| **Age** | | |
| Under One | 10,862 | 8.2 |
| One Year | 48,099 | 36.4 |
| Two Years | 43,958 | 33.3 |
| Three Years | 10,867 | 8.2 |
| Four Years | 10,889 | 8.2 |
| Five Years | 7,549 | 5.7 |
| **Sex** | | |
| Female | 63,404 | 48.0 |
| Male | 66,674 | 50.4 |
| Undetermined | 2,146 | 1.6 |
| **Highest Blood Lead Level (µg/dL)** | | |
| δ4 | 130,698 | 98.8 |
| 5-9 | 1,198 | 0.9 |
| 10-14 | 199 | 0.2 |
| 15-19 | 70 | 0.05 |
| ≥20 | 59 | 0.04 |
| Mean BLL (Geometric mean) | 1.65 | |
| **Blood Specimen** | | |
| Capillary | 56,345 | 42.6 |
| Venous | 75,686 | 57.2 |
| Undetermined | 193 | 0.2 |

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

The number of children 0-72 months of age tested for lead in CY19 (132,224) increased by 598 children compared to CY18 (131,626).

## Figure One

**Number of Children 0-72 Months Tested for Lead and Number Reported to Have Blood Lead Level 10 g/dL: CY00-19**

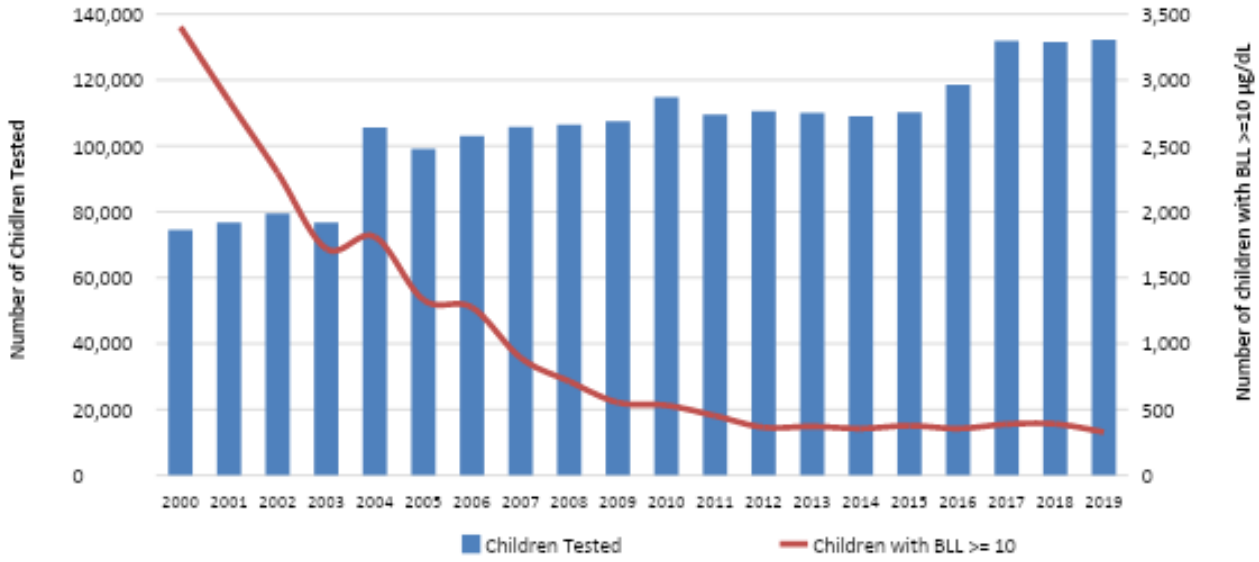
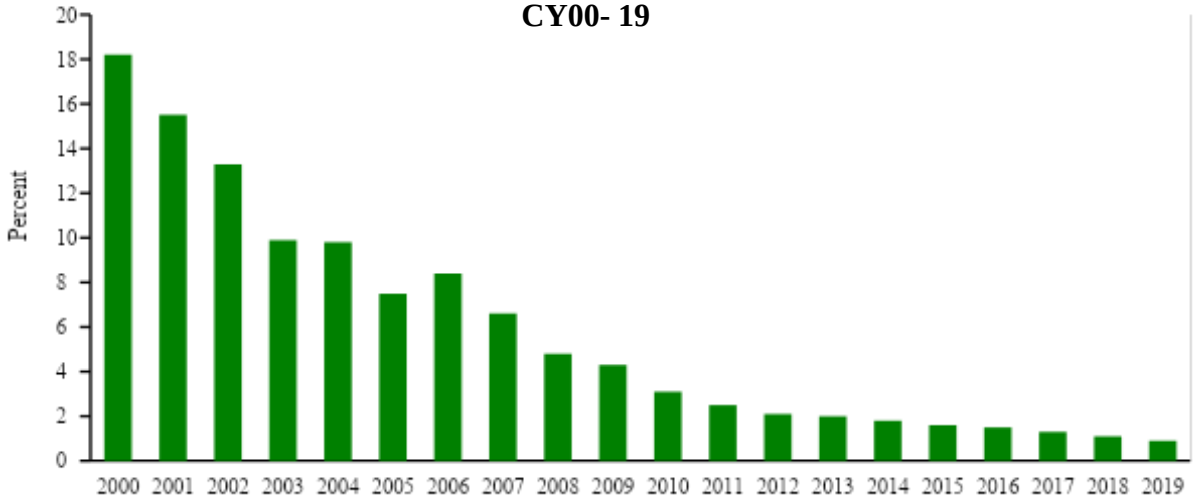



Figure One compares data from CY00-19 and illustrates how blood lead levels of ≥10 µg/dL appear to be flattening relative to data from earlier years. Figure Two illustrates that the load of lead exposure among children has declined significantly over time. In CY00, approximately 18% of children 0-72 months of age tested for lead were identified with a blood lead level between 5-9 µg/dL. In CY19, this declined to just under 1%.

## Figure Two

**Percent of Children 0-72 Months of Age Lead Tested and Identified with a Blood Lead Level of 5-9 µg/dL CY00- 19**



**The Impact of Universal Lead Testing and Point of Care Testing**

The number of clinics/establishments that used Point of Care (POC) for blood lead testing in CY19 (116) remained consistent with CY18 (119). Approximately 40% of blood lead results reported to the CLR in CY19 were hard copy (e.g., fax, mail). Of that amount, 67.5% were from clinics or establishments using POC testing. The remaining 32.5% were from draw sites for commercial laboratories.

The impact of the "Universal Lead Testing" initiative continued in CY19. Table Two shows a significant increase in the number of children 0-72 months tested from CY16-19 compared to the average number of children who were tested from CY10-15 (an average of 16% increase). The increase in testing can also be attributed to the implementation of POC Testing, where children are tested in office instead of going to a laboratory draw site.

## Table Two

**Number of Blood Lead Test of Children 0-72 Months**
**CY16-19**

| 2010-2015 (average) | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| 110,705 | 118,619 | 131,832 | 131,621 | 132,224 |

The most significant increase in lead testing has been among children aged one and two years, which were the focus of the "Universal Lead Testing" initiative. Approximately 70% (69.7%) of children who were tested for lead in CY19 were one or two years of age, which is slightly higher than in previous years CY16 (68.4%), CY17 (68.8%), and CY18 (68.7%). Overall, the percentages of children aged one and two years tested for lead increased every year since March 2016, when the universal testing initiative began. (Figure Three).

## Figure Three

**% of Children One and Two Years of Age**
**Tested for Lead CY00-19**

The percent of children aged one and two years tested for lead CY17-19 by jurisdiction is illustrated in Table Three. Table Four details blood lead testing for all children 0-72 months of age by jurisdiction in CY19.

## Table Three

**Percent of Children Aged One and Two Years Tested for Lead CY17-19**

| Jurisdiction | One Year Old | | | Two Years Old | | |
|---|---|---|---|---|---|---|
| | 2017 | 2018 | 2019 | 2017 | 2018 | 2019 |
| Allegany | 61.0 | 63.2 | 63.9 | 57.2 | 57.2 | 54.6 |
| Anne Arundel | 58.2 | 57.8 | 57.4 | 49.0 | 51.3 | 53.9 |
| Baltimore | 55.5 | 55.0 | 55.7 | 52.3 | 52.1 | 53.5 |
| Baltimore City | 53.9 | 50.3 | 50.8 | 52.3 | 50.0 | 45.6 |
| Calvert | 35.6 | 42.6 | 43.0 | 23.7 | 29.0 | 33.6 |
| Caroline | 55.2 | 58.5 | 59.7 | 51.2 | 52.2 | 52.2 |
| Carroll | 51.9 | 51.2 | 59.2 | 37.3 | 48.7 | 46.6 |
| Cecil | 41.4 | 42.5 | 39.0 | 25.6 | 27.3 | 25.4 |
| Charles | 43.6 | 52.9 | 56.0 | 37.5 | 40.3 | 38.9 |
| Dorchester | 54.8 | 47.7 | 51.4 | 45.2 | 48.4 | 45.8 |
| Frederick | 61.9 | 61.0 | 63.6 | 49.1 | 49.6 | 49.7 |
| Garrett | 45.8 | 42.3 | 55.8 | 38.7 | 35.6 | 36.2 |
| Harford | 47.7 | 45.1 | 46.0 | 42.0 | 48.2 | 46.4 |
| Howard | 55.5 | 53.7 | 53.9 | 42.5 | 46.0 | 45.8 |
| Kent | 36.0 | 32.8 | 33.0 | 28.9 | 29.2 | 22.6 |
| Montgomery | 51.4 | 47.7 | 47.9 | 49.9 | 52.4 | 50.2 |
| Prince George's | 47.6 | 44.7 | 46.3 | 43.6 | 42.0 | 43.2 |
| Queen Anne's | 47.2 | 54.7 | 60.8 | 43.5 | 46.3 | 49.4 |
| Saint Mary's | 42.6 | 41.6 | 48.7 | 24.3 | 25.1 | 29.9 |
| Somerset | 60.9 | 46.6 | 51.4 | 51.5 | 50.7 | 42.5 |
| Talbot | 56.7 | 61.3 | 57.5 | 52.4 | 48.8 | 58.6 |
| Washington | 46.1 | 44.9 | 48.1 | 40.8 | 39.5 | 38.4 |
| Wicomico | 59.3 | 55.6 | 53.5 | 55.3 | 52.3 | 52.6 |
| Worcester | 66.2 | 54.0 | 60.4 | 59.2 | 59.2 | 54.4 |
| Statewide | 52.2 | 50.5 | 51.6 | 46.6 | 47.5 | 47.2 |

## Table Four

### Blood Lead Testing of Children 0-72 Months by Jurisdiction in CY19[1]

| County | Population of Children[2] | Children Tested | | Blood Lead Level ≥ 5 µg/dL | | | | Blood Lead Level 5-9 µg/dL | | | | Blood Lead Level ≥10 µg/dL | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Incidence[3] | | Prevalence[4] | | Incidence[3] | | Prevalence[4] | | Incidence[3] | | Prevalence[4] | |
| | | Number | % | Number | % | Number | % | Number | % | Number | % | Number | % | Number | % |
| Allegany | 5,309 | 1,167 | 22.0 | 17 | 1.5 | 30 | 2.6 | 15 | 1.3 | 26 | 2.2 | 2 | 0.2 | 4 | 0.3 |
| Anne Arundel | 52,733 | 12,909 | 24.5 | 48 | 0.4 | 57 | 0.4 | 34 | 0.3 | 42 | 0.3 | 14 | 0.1 | 15 | 0.1 |
| Baltimore | 73,455 | 18,369 | 25.0 | 143 | 0.8 | 179 | 1.0 | 114 | 0.6 | 140 | 0.8 | 29 | 0.2 | 39 | 0.2 |
| Baltimore City | 61,897 | 15,526 | 25.1 | 386 | 2.5 | 560 | 3.6 | 304 | 2.0 | 446 | 2.9 | 82 | 0.5 | 114 | 0.7 |
| Calvert | 7,837 | 1,332 | 17.0 | 1 | 0.1 | 3 | 0.2 | 1 | 0.1 | 3 | 0.2 | 0 | 0.0 | 0 | 0.0 |
| Caroline | 3,542 | 802 | 22.6 | 13 | 1.6 | 15 | 1.9 | 11 | 1.4 | 11 | 1.4 | 2 | 0.2 | 4 | 0.5 |
| Carroll | 14,287 | 2,918 | 20.4 | 27 | 0.9 | 31 | 1.1 | 21 | 0.7 | 24 | 0.8 | 6 | 0.2 | 7 | 0.2 |
| Cecil | 9,894 | 1,615 | 16.3 | 24 | 1.5 | 27 | 1.7 | 23 | 1.4 | 26 | 1.6 | 1 | 0.1 | 1 | 0.1 |
| Charles | 14,491 | 3,003 | 20.7 | 14 | 0.5 | 16 | 0.5 | 13 | 0.4 | 15 | 0.5 | 1 | 0.0 | 1 | 0.0 |
| Dorchester | 3,059 | 624 | 20.4 | 5 | 0.8 | 9 | 1.4 | 4 | 0.6 | 7 | 1.1 | 1 | 0.2 | 2 | 0.3 |
| Frederick | 22,943 | 5,456 | 23.8 | 22 | 0.4 | 30 | 0.5 | 18 | 0.3 | 25 | 0.5 | 4 | 0.1 | 5 | 0.1 |
| Garrett | 2,441 | 450 | 18.4 | 6 | 1.3 | 7 | 1.6 | 6 | 1.3 | 7 | 1.6 | 0 | 0.0 | 0 | 0.0 |
| Harford | 23,076 | 4,966 | 21.5 | 35 | 0.7 | 38 | 0.8 | 26 | 0.5 | 28 | 0.6 | 9 | 0.2 | 10 | 0.2 |
| Howard | 27,028 | 6,151 | 22.8 | 39 | 0.6 | 51 | 0.8 | 31 | 0.5 | 41 | 0.7 | 8 | 0.1 | 10 | 0.2 |
| Kent | 1,542 | 204 | 13.2 | 1 | 0.5 | 2 | 1.0 | 0 | 0.0 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 |
| Montgomery | 97,486 | 24,880 | 25.5 | 140 | 0.6 | 164 | 0.7 | 105 | 0.4 | 125 | 0.5 | 35 | 0.1 | 39 | 0.2 |
| Prince George's | 88,767 | 21,958 | 24.7 | 148 | 0.7 | 188 | 0.9 | 106 | 0.5 | 136 | 0.6 | 42 | 0.2 | 52 | 0.2 |
| Queen Anne's | 4,235 | 1,001 | 23.6 | 5 | 0.5 | 6 | 0.6 | 5 | 0.5 | 6 | 0.6 | 0 | 0.0 | 0 | 0.0 |
| Saint Mary's | 11,611 | 2,063 | 17.8 | 15 | 0.7 | 17 | 0.8 | 14 | 0.7 | 15 | 0.7 | 1 | 0.0 | 2 | 0.1 |
| Somerset | 1,943 | 439 | 22.6 | 3 | 0.7 | 3 | 0.7 | 3 | 0.7 | 3 | 0.7 | 0 | 0.0 | 0 | 0.0 |
| Talbot | 2,902 | 680 | 23.4 | 10 | 1.5 | 15 | 2.2 | 7 | 1.0 | 11 | 1.6 | 3 | 0.4 | 4 | 0.6 |
| Washington | 13,880 | 2,784 | 20.1 | 26 | 0.9 | 36 | 1.3 | 17 | 0.6 | 26 | 0.9 | 9 | 0.3 | 10 | 0.4 |
| Wicomico | 9,380 | 2,112 | 22.5 | 21 | 1.0 | 30 | 1.4 | 16 | 0.8 | 24 | 1.1 | 5 | 0.2 | 6 | 0.3 |
| Worcester | 3,547 | 815 | 23.0 | 10 | 1.2 | 12 | 1.5 | 8 | 1.0 | 10 | 1.2 | 2 | 0.2 | 2 | 0.2 |
| Statewide | 557,285 | 132,224 | 23.7 | 1,159 | 0.9 | 1,526 | 1.2 | 902 | 0.7 | 1,198 | 0.9 | 257 | 0.2 | 328 | 0.2 |

1. Table is based on the selection of the highest blood lead test for each child in CY19 in the order of venous, unknown, or capillary.
2. Adapted from Maryland census population 2010 provided by the Maryland Data Center, Maryland Department of Planning, planning.maryland.gov/msdc
3. Number of new cases with a given blood lead level in CY19. These subjects were either not tested before or the level of their blood lead tests were below that given level.
4. Number of cases with a given blood lead level in CY19. Some of these subjects may have had one or more blood lead tests in the past with the same or above that blood lead level.
5. The criteria for the selection of incident or prevalent case may not necessarily match the criteria for an "Environmental Investigation".

## 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. The program staff work to improve data quality with respect to completeness, timeliness, and accuracy. MDE staff keep daily track of reporting to make sure establishments are reporting all blood lead tests no later than biweekly. In CY19, blood lead results ε20 ⌈g/dL were required to be reported to the Department within 24 hours after the result is known. However, upon MDE's request, laboratories/clinics agreed to report the result of all blood lead tests ε10 ⌈g/dL within 24 hours. Effective July 1, 2020 the laboratory regulations were amended to be more consistent with the newly established lower reference level, currently at ε5 ⌈g/dL in Maryland as follows:

A laboratory shall report the result of a blood lead level test to the Department by facsimile or other manner required by the Department within the following time frames:

(1) By the close of business of the next business day following a final blood lead level test result of greater than or equal to the reference level; and

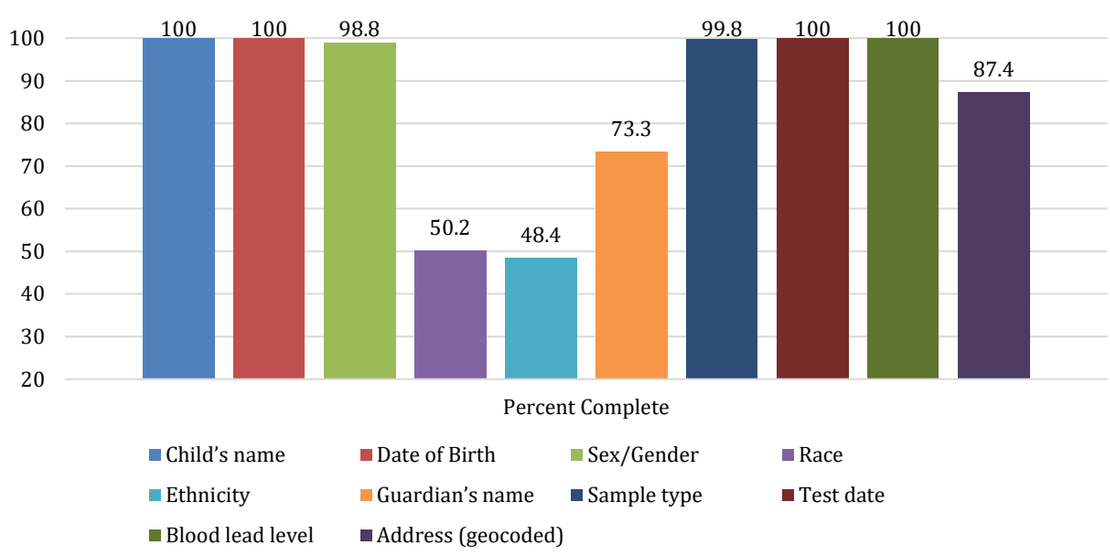
(2) Within 2 weeks of a final blood lead level test result of less than the reference level.

In CY19, a total of 141 clinics/laboratories reported blood lead tests to the CLR. The number of tests reported for each clinic/laboratory ranged from 12 to 58,845. It should be noted that the number of establishments that report during any current year may increase or decrease based on their decision to continue performing analysis of blood lead samples. Of the 141 clinics/laboratories that sent reports to the CLR, five establishments sent their reports electronically, comprising 59.3% of all reports. The remaining 40.7% reports were sent to MDE in hard copy (e.g., mail, fax). These reports were manually data entered and then electronically uploaded to the CLR.

Since 2016, there has been a decrease in the percentage of electronic blood lead reporting. The drop can partially be attributed to an increase in the number of establishments (clinics) using POC to do blood lead tests. At this time, POC test results cannot be sent electronically to the CLR. Another reason for the decrease in electronic reporting is that there are some new laboratories that send reports in a format, which the CLR cannot process electronically. Figure Four displays a summary of the completeness of data in blood lead reports for CY19. Completeness of data does not necessarily mean accuracy of the data.

**Figure Four**

**Completeness of Demographic Information in Laboratory Reporting CY19**

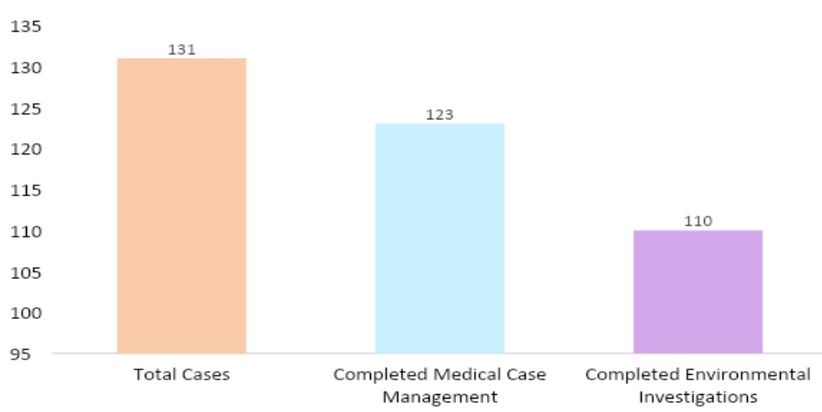


## Medical and Environmental Case Management

In CY19, the Maryland's Case Management Guidelines ("Guidelines") required medical case management when a child aged 0-72 months was identified with a first time venous or two capillary blood lead tests of ≥10 µg/dL within 12 weeks of each other. On July 1, 2020, new regulations became effective that now require case management when a child aged 0-72 months is identified with a blood lead level at the new reference level of ≥5 µg/dL. Case management consists of comprehensive medical and environmental case management, coordinated between the health care provider, 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 Guidelines.

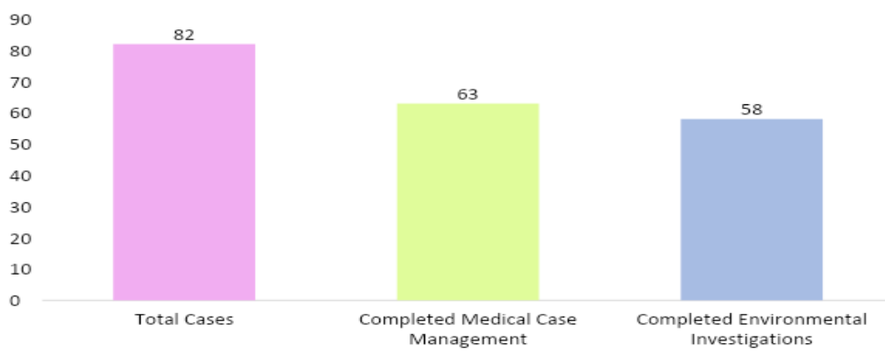
During CY19, there were 131 new cases of children aged 0-72 months identified with blood lead levels of ≥10 µg/dL in Maryland counties (excluding Baltimore City). This was five fewer cases compared to the 136 new cases in Maryland counties during CY18. Figure Five illustrates the medical and environmental case management outcomes for the new cases in the counties in CY19. Of the 131 total cases, medical case management was completed on 123 (94%) of the new cases. Environmental investigations were completed on 110 (85%) of the new cases. Though every effort is made by the MDE staff to make joint visits with the local health department nurses, this is not always possible. Those families that did not receive medical or environmental case management either refused intervention, moved prior to contact or contact could not be made after many attempts.

**Figure Five**
**Medical and Environmental Case Management Outcomes Maryland Counties CY19**




During CY19, there were 82 new cases of children aged 0-72 months identified with blood lead levels of ≥10 µg/dL in Baltimore City. This was 17 fewer cases compared to the 99 new cases during CY18. Figure Six illustrates the medical case management outcomes for new cases in Baltimore City in CY19. Of the 82 total cases, medical case management was completed on 63 (77%) of the new cases. Environmental investigations were completed on 58 (71%) of the new cases. Like the Maryland counties, the Baltimore City Health Department medical and environmental staff make every effort to perform joint visits when possible. Similarly, those families that did not receive medical or environmental case management either refused intervention, moved prior to contact or contact could not be made after many attempts.

**Figure Six**
**Medical and Environmental**
**Lead Case Management Outcomes**
**Baltimore City CY19**




**Property Details: Environmental Investigations**
In CY19, when a child under the age of 6 years old was diagnosed as a with a blood lead level of ≥10 µg/dL and resided or frequented a pre-1978 residential rental property (Affected Property), MDE or the local health department was required to send a Notice of Elevated Blood Level (EBL) the rental owner. The Notice of EBL notified the owner of an Affected Property that a child or a pregnant woman living in the property was diagnosed with an EBL. This required the rental owner to meet the modified lead risk reduction (MRR) standard, by performing certain lead hazard reduction treatments and obtaining a new MRR lead inspection certificate within 30 days of receiving a Notice of EBL. The rental property owner could also provide for the temporary or permanent relocation of the family to a lead safe or lead-free property within 30 days of receipt of the Notice of EBL. Maryland passed the Maryland Healthy Children Act in 2019. The law lowered the blood lead level that defines EBL from ≥10 µg/dL to ≥5 µg/dL, matching the current CDC blood lead reference level. On July 1, 2020, the events that trigger the MRR standard changed. Effective July 1, 2020, a Notice of EBL no longer triggers the MRR standard. A Notice of Defect will now serve as the trigger for the rental owner to meet the MRR standard. Table Five lists the property type of each environmental Investigation by jurisdiction.

## Table Five
**Property Type by County**
**Calendar Year 2019**

| | Total Environmental Investigations | 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 | 1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 100.0 | 0 | 0.0 | 0 | 0.0 |
| Anne Arundel | 2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 100.0 |
| Baltimore | 20 | 6 | 30.0 | 4 | 20.0 | 0 | 0.0 | 4 | 20.0 | 6 | 30.0 | 0 | 0.0 |
| Calvert | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Caroline | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Carroll | 1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 100.0 | 0 | 0.0 | 0 | 0.0 |
| Cecil | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Charles | 1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 100.0 |
| Dorchester | 1 | 1 | 100.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 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 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 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 | 5 | 0 | 0.0 | 0 | 0.0 | 3 | 60.0 | 0 | 0.0 | 0 | 0.0 | 2 | 40.0 |
| Kent | 1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 100.0 |
| Montgomery | 22 | 1 | 4.5 | 0 | 0.0 | 8 | 36.4 | 1 | 4.5 | 8 | 36.4 | 4 | 18.1 |
| Prince George's | 38 | 6 | 15.8 | 5 | 13.2 | 1 | 2.6 | 5 | 13.2 | 18 | 47.3 | 3 | 7.9 |
| Queen Anne's | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Saint Mary's | 1 | 0 | 0.0 | 1 | 100.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Somerset | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Talbot | 2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 50.0 | 1 | 50.0 | 0 | 0.0 |
| Washington | 7 | 3 | 42.9 | 0 | 0.0 | 0 | 0.0 | 3 | 42.9 | 1 | 14.3 | 0 | 0.0 |
| Wicomico | 3 | 1 | 33.3 | 1 | 33.3 | 0 | 0.0 | 1 | 33.3 | 0 | 0.0 | 0 | 0.0 |
| Worcester | 1 | 1 | 100.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| **County Total*** | **110** | **20** | **18.1** | **11** | **10.0** | **13** | **11.8** | **19** | **17.3** | **34** | **31.0** | **13** | **11.8** |
| **Baltimore City** | **58** | **23** | **39.7** | **1** | **1.7** | **1** | **1.7** | **31** | **53.4** | **2** | **3.4** | **0** | **0.0** |
| | | | | | | | | | | | | | |

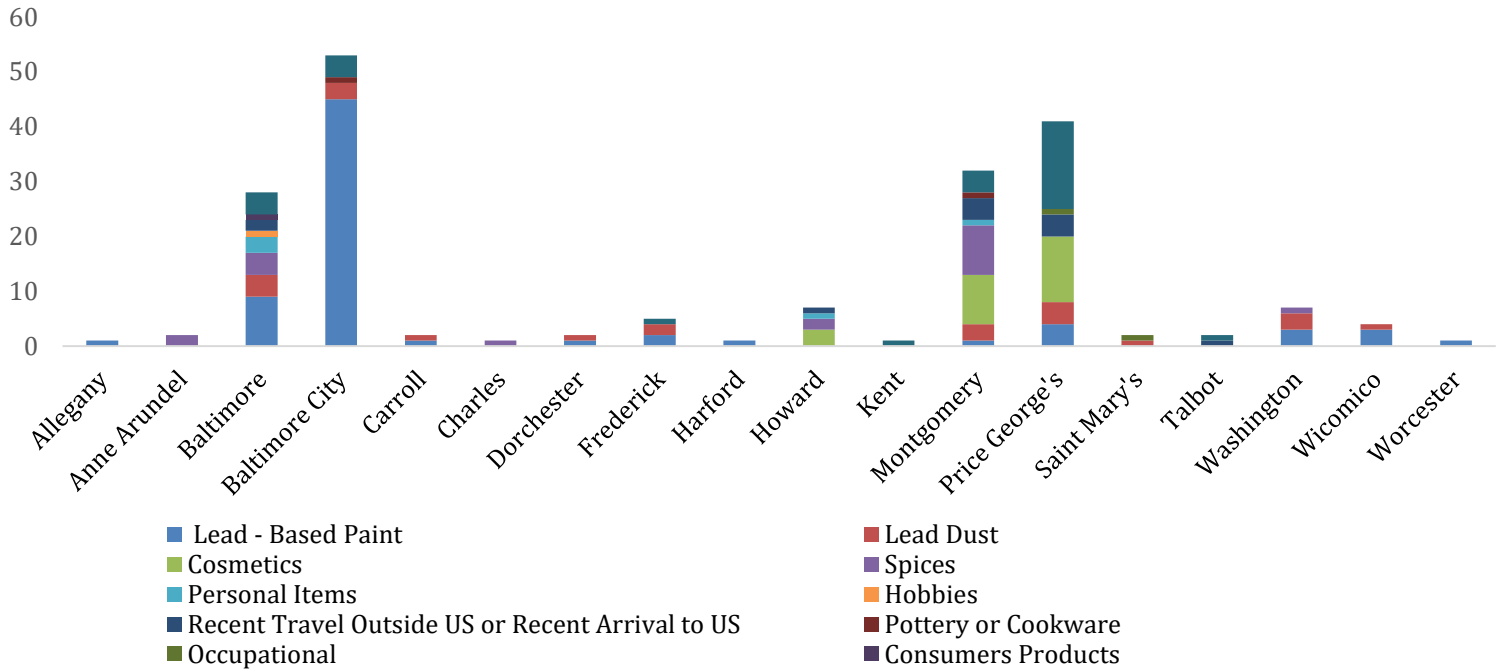
**Sources of Lead Identified CY19**

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 statewide. Table Six lists all lead hazards identified during completed environmental investigations by county for CY16-CY19.

**Figure Seven**

**Distribution of Lead Sources by County**

**CY 2019**



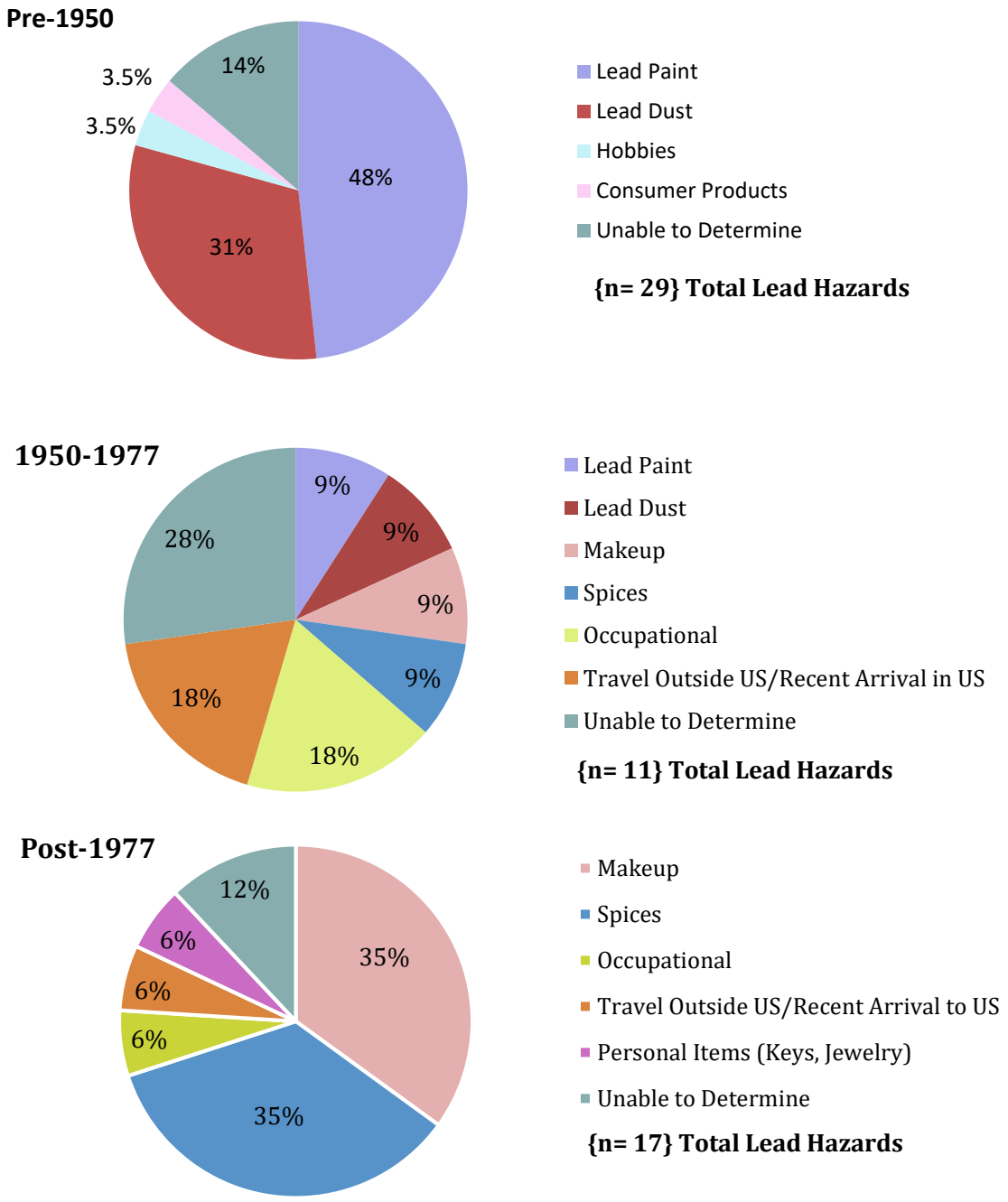
## Table Six
**Lead Hazards Identified by County**
**CY 2016-2019**

| County | Total Environmental Investigations | Total Hazards | Lead Paint | Lead Dust | Water Soil | Cosmetics | Spices | Personal Items | Hobbies | Recent Travel Outside US or Recent Arrival to US | Pottery or Cookware | Occupational | Consumers Products | Unable to Determine |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Allegany** | 18 | 25 | 13 | 9 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Anne Arundel** | 28 | 33 | 3 | 3 | 0 | 4 | 14 | 0 | 4 | 5 | 0 | 0 | 0 | 0 |
| **Baltimore** | 102 | 146 | 31 | 15 | 2 | 2 | 35 | 13 | 6 | 22 | 0 | 0 | 1 | 19 |
| **Calvert** | 2 | 5 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 |
| **Caroline** | 7 | 7 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 |
| **Carroll** | 9 | 17 | 6 | 6 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| **Cecil** | 4 | 4 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 |
| **Charles** | 8 | 7 | 1 | 1 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 1 |
| **Dorchester** | 10 | 17 | 9 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| **Frederick** | 18 | 28 | 7 | 6 | 1 | 2 | 3 | 4 | 1 | 3 | 0 | 0 | 0 | 1 |
| **Garret** | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| **Harford** | 7 | 8 | 4 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Howard** | 31 | 54 | 2 | 0 | 0 | 12 | 20 | 6 | 0 | 12 | 0 | 0 | 0 | 2 |
| **Kent** | 2 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| **Montgomery** | 77 | 96 | 3 | 4 | 3 | 9 | 31 | 5 | 2 | 27 | 1 | 0 | 0 | 11 |
| **Prince George's** | 171 | 182 | 11 | 8 | 2 | 12 | 5 | 5 | 3 | 84 | 0 | 1 | 0 | 51 |
| **Queen Anne's** | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Saint Mary's** | 2 | 4 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| **Somerset** | 4 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| **Talbot** | 8 | 10 | 3 | 1 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 2 |
| **Washington** | 28 | 33 | 13 | 9 | 1 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 4 |
| **Wicomico** | 18 | 25 | 13 | 6 | 2 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 |
| **Worcester** | 5 | 7 | 3 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |
| **Totals Counties** | **561** | **716** | **128** | **81** | **19** | **44** | **115** | **39** | **29** | **158** | **1** | **2** | **1** | **100** |
| **Baltimore City** | **246** | **246** | **190** | **7** | **2** | **0** | **0** | **9** | **2** | **3** | **3** | **0** | **0** | **30** |

Figures Eight and Nine break down the percentage of lead hazards identified during the 110 completed environmental investigations in Maryland counties. Separate pie charts are provided based on housing types and built date.

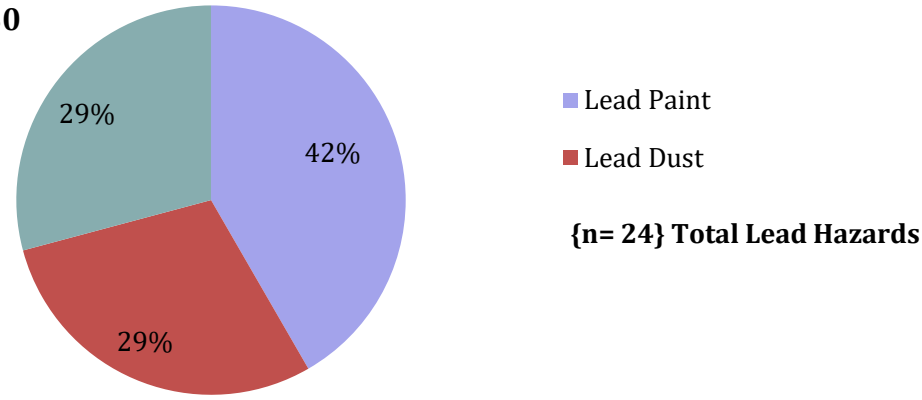
## Figure Eight

**Lead Hazards Identified in Owner- Occupied Housing**
**Maryland Counties CY19**

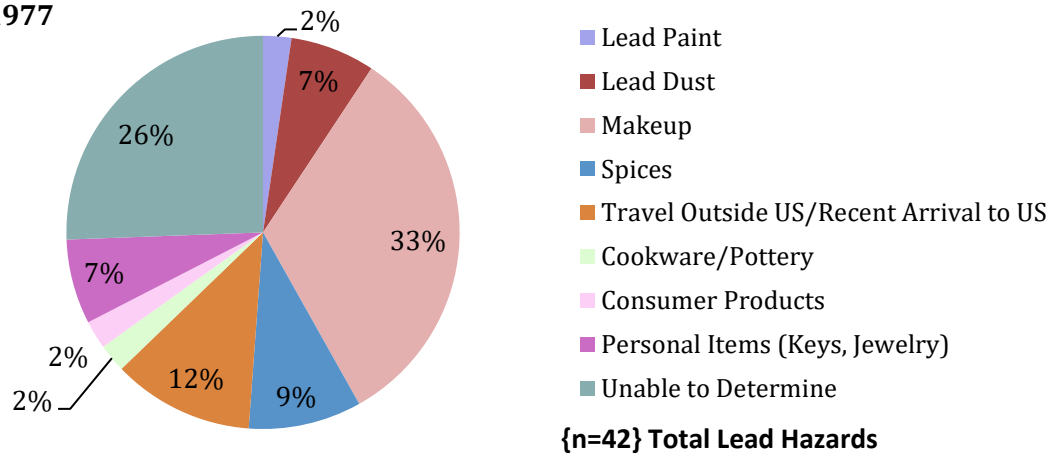


## Figure Nine
**Lead Hazards Identified in Rental Housing**
**Maryland Counties CY19**

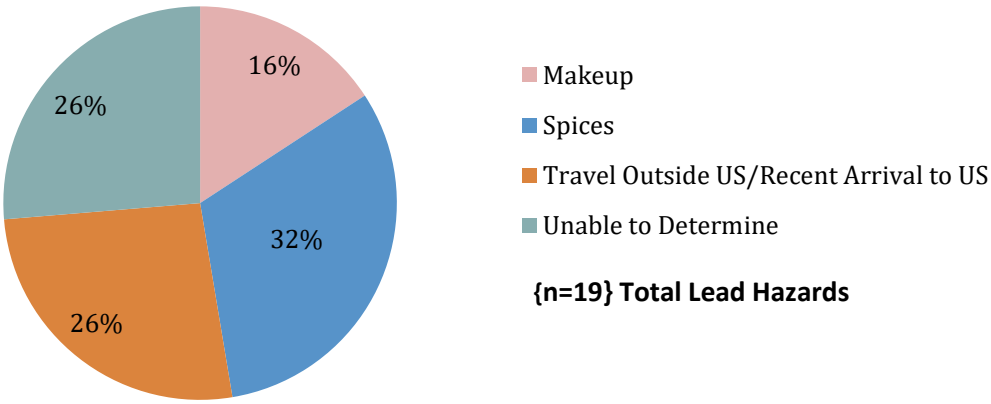
**Pre-1950**




**1950-1977**

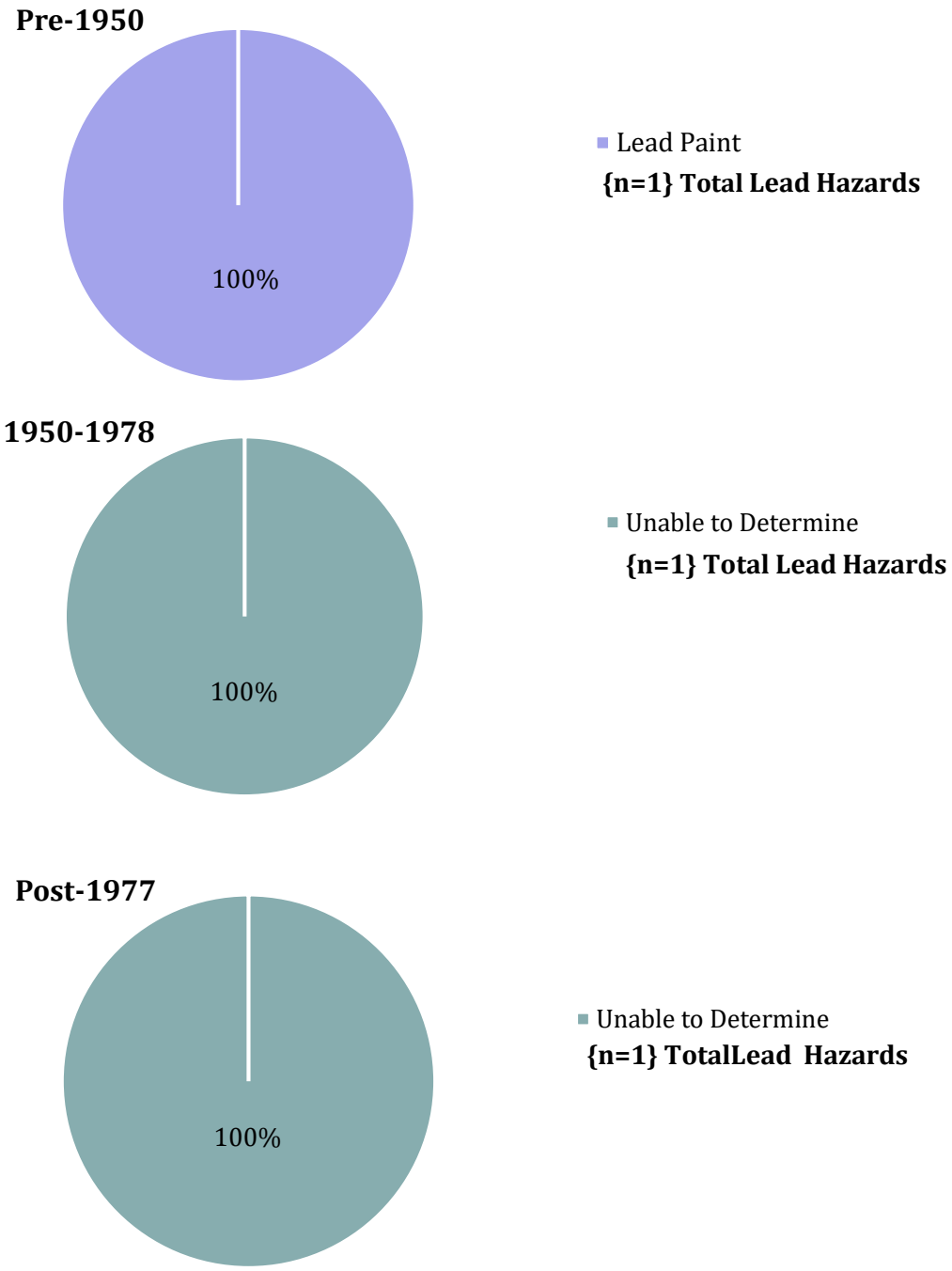



**Post - 1977**

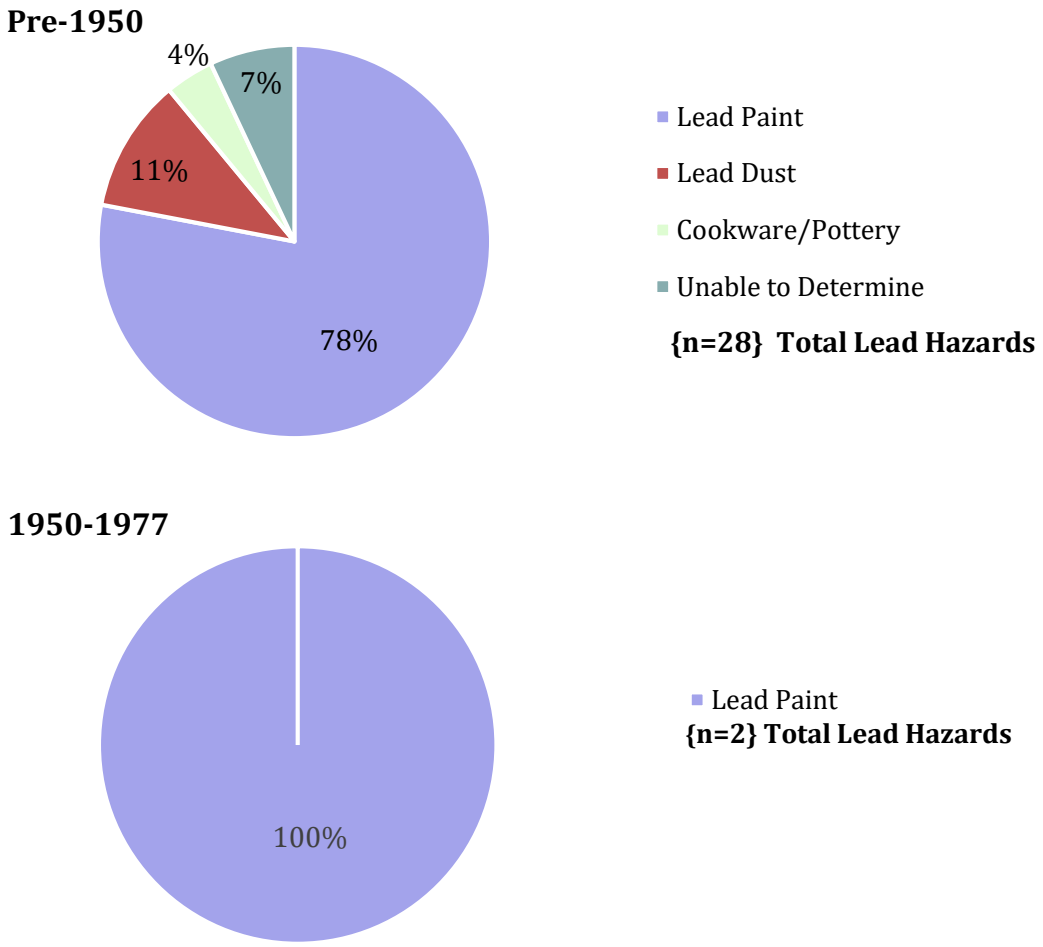


Figures Ten and Eleven break down the percentage of lead hazards identified during the 58 completed environmental investigations in Baltimore City. Separate pie charts are provided based on housing types and built date.

**Figure Ten**
**Lead Hazards Identified in Owner Occupied Housing**
**Baltimore City CY19**



## Figure Eleven
**Lead Hazards Identified in Rental Housing**
**Baltimore City CY19**




**Conclusion: Housing and Lead Hazards in Maryland**

An important distinction may be made when comparing lead hazards identified during environmental investigations in Baltimore City and those identified in other counties in Maryland. Historically, lead-based paint hazards are the single most significant factor in lead exposure for children aged 0-72 months in Baltimore City. Baltimore has one of the largest inventories of old housing stock of any major city in America. Of the more than 260,000 occupied properties in Maryland built prior to 1950, 40% are in Baltimore City (*American Community Survey, 2018 5Year Estimates*). Of the 58 properties inspected in Baltimore City, 54 (93%) were built prior to 1950. Of those 54 properties, lead-based paint hazards (including dust hazards) were identified as a potential source of lead exposure in 94% of the properties inspected. Of the 110 properties inspected in the remaining counties, 39 (35%) were built prior to 1950. Of those 39 properties, lead based paint hazards (including dust hazards) were identified as a potential source of the lead exposure in 75% of the properties inspected. From this data we may conclude that lead-based paint hazards (including dust hazards) were the most significant lead hazards identified in pre-1950 housing statewide in CY19.

Of the 58 properties inspected in Baltimore City, four (7%) were built prior after 1949. Of those properties, lead-based paint hazards (including dust hazards) were identified as a potential source of lead exposure in 50% of the properties inspected. Of the 110 properties inspected in the remaining counties, 71 (65%) were built after 1949. Of those properties, lead based paint hazards (including dust hazards) were identified as a potential source of the lead exposure in 10% of the properties inspected. Though lead-based paint hazards are still a significant potential source in Baltimore City properties built after 1949, this is not true for the remainder of the state, where 90% of potential lead hazards were identified as something other than defective lead-based paint or leaded dust.

## Maryland's Continued Efforts

**Maryland's New Lead "Reference" Level**

On July 1, 2020, the Maryland Healthy Children Act (Ch. 341) went into full effect. The law lowered the blood lead level for certain interventions from ≥10 µg/dL to the CDC reference level, currently ≥5 µg/dL. The law requires MDE or the local health department to provide case management, including environmental investigations to identify lead sources, when a child is diagnosed with a blood lead level ≥ 5µg/dL. Early intervention is a key component to ensure families with children exposed to lead are provided resources to mitigate the effects of lead exposure.

**Monitoring Drinking Water for Lead in Schools and Child Care Centers**

In 2017, House Bill 270 (Testing for Lead in Drinking Water—Public and Nonpublic Schools) was signed into law by Governor Larry Hogan, and regulations became effective April 9, 2018. The law requires all public, nonpublic and charter schools in Maryland to test all drinking water outlets for the presence of lead every three years. The law requires that testing be conducted using the protocols outlined in U.S. Environmental Protection Agency's (EPA) "3Ts for Reducing Lead in Drinking Water in Schools and Child Care Facilities" guidance and uses an action level of 20 ppb. As of October 6, 2020, MDE has received a total of 60,611 first-draw lead sample results from 22 public school systems, 235 nonpublic schools, and eight charter schools. Of this number, 2,516 samples (4.2%) exceeded the action level; 1,116 (1.8%) were from drinking water outlets, 1,376 (2.3%) were from non-consumption outlets and there were 24 samples (1%) for which a use determination could not be made. Most recently, MDE has received a grant under Section 2107 of the EPA's Water Improvement Infrastructure for the Nation program and will use those funds to expand lead testing to drinking water outlets in Maryland's childcare facilities.

**Lowering of Lead Dust Standards**

Maryland has lowered the lead in dust threshold, which impacts post-abatement clearance testing, environmental investigations and risk reduction compliance inspections. The amended regulations went into effect on July 1, 2020. These regulations are now consistent with the federal lead dust hazard standard. They are also more protective of public health and more consistent with the concept of a lower blood lead reference level.

| Surface | Current Standard | New Standard |
|---|---|---|
| Floors | 40 | 10 |
| Windowsills | 250 | 100 |
| Window wells | 400 | 100 |

**Establishing New Regulations for Environmental Investigations**

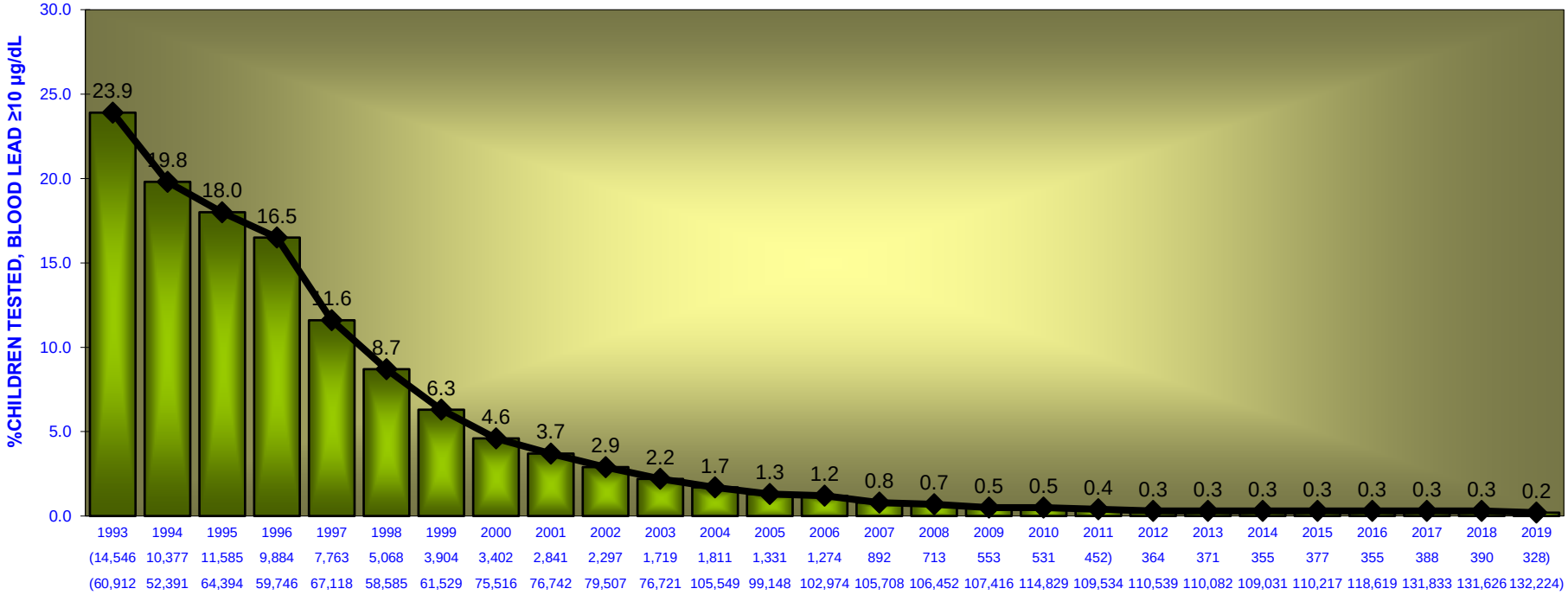
Also, part of Chapter 341, on July 1, 2020, Maryland adopted new regulations for conducting environmental investigations to determine lead hazards for children aged 0-72 months pregnant women with blood lead levels at or above the reference level. The regulations are consistent with the U.S. Department of Housing and Urban Development's Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.

**New Trigger for Meeting the Modified Risk Reduction Standard**

Ch. 341 also lowered the blood lead level that defines EBL from ≥10 µg/dL to ≥5 µg/dL, matching the current CDC blood lead reference level. On July 1, 2020, the events that trigger the MRR standard changed. Effective July 1, 2020, a Notice of EBL no longer triggers the MRR standard. A Notice of Defect will now serve as the trigger for the rental owner to meet the MRR standard. To explain further: 1. MDE or a local health department is required to perform environmental investigations for a child under the age of 6 years old or pregnant woman diagnosed with a blood lead level of ≥ 5 µg/dL. If during the environmental investigation, chipping, peeling, or flaking paint is observed by the inspector and the home is an Affected Property, a Notice of Defect will be issued by MDE or the local health department. 2. Absent a diagnosis of EBL or an environmental investigation, a tenant or any other source may still issue a Notice of Defect to the owner of an Affected Property if chipping, peeling, or flaking paint exists inside and/or outside of the property.

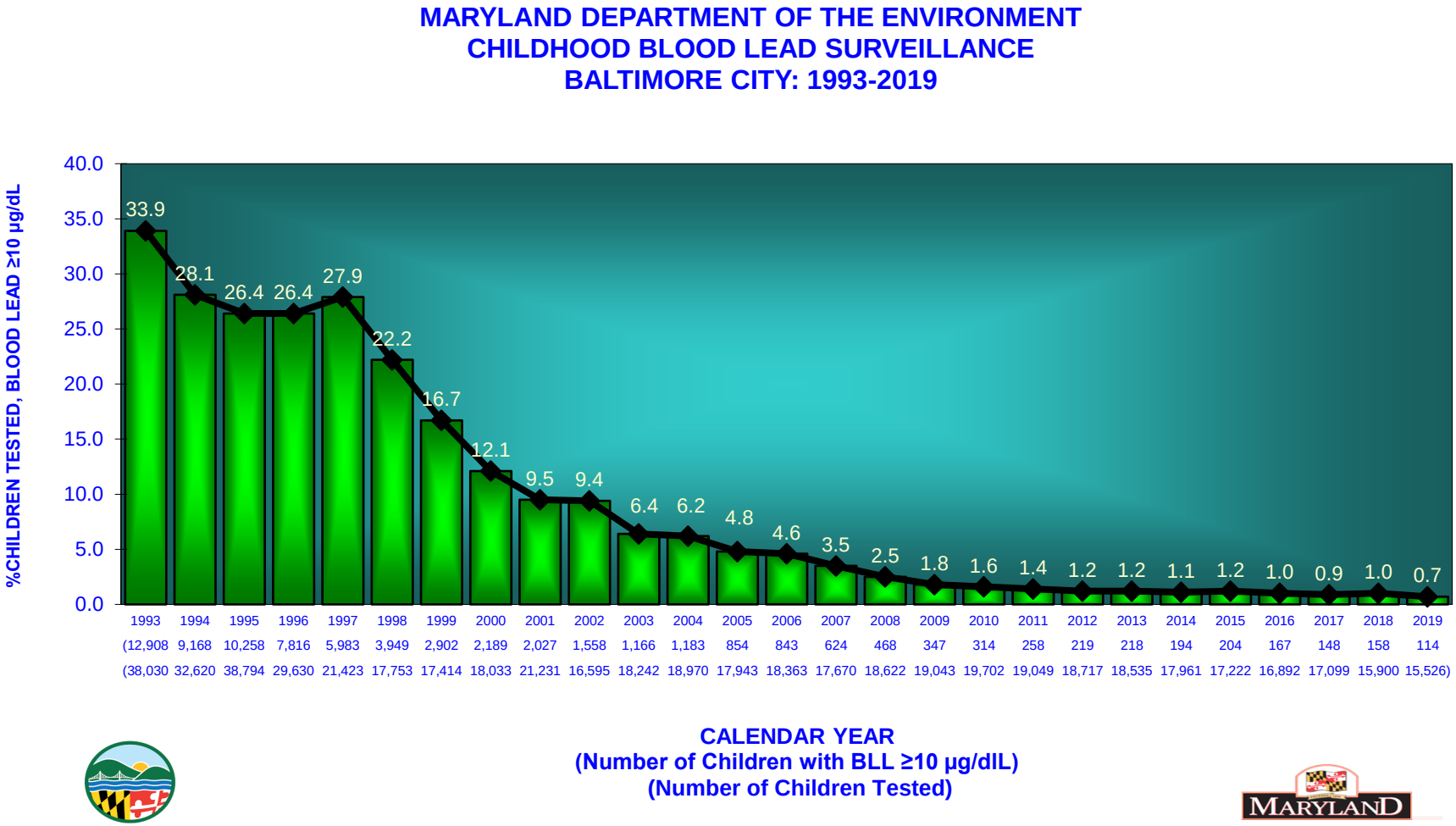
# Appendix A

## MARYLAND DEPARTMENT OF THE ENVIRONMENT
## CHILDHOOD BLOOD LEAD SURVEILLANCE
## STATEWIDE 1993-2019




**CALENDAR YEAR**
**(Number of Children with BLL ≥10 µg/dL)**
**(Number of Children Tested)**

# Appendix A


MARYLAND DEPARTMENT OF THE ENVIRONMENT
CHILDHOOD BLOOD LEAD SURVEILLANCE
BALTIMORE CITY: 1993-2019
%CHILDREN TESTED, BLOOD LEAD ≥10 µg/dL
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
33.9 28.1 26.4 26.4 27.9 22.2 16.7 12.1 9.5 9.4 6.4 6.2 4.8 4.6 3.5 2.5 1.8 1.6 1.4 1.2 1.2 1.1 1.2 1.0 0.9 1.0 0.7
1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019
(12,908 9,168 10,258 7,816 5,983 3,949 2,902 2,189 2,027 1,558 1,166 1,183 854 843 624 468 347 314 258 219 218 194 204 167 148 158 114
(38,030 32,620 38,794 29,630 21,423 17,753 17,414 18,033 21,231 16,595 18,242 18,970 17,943 18,363 17,670 18,622 19,043 19,702 19,049 18,717 18,535 17,961 17,222 16,892 17,099 15,900 15,526)
CALENDAR YEAR
(Number of Children with BLL ≥10 µg/dlL)
(Number of Children Tested)
MARYLAND

# Appendix B

Blood Lead Testing of Children One and Two Years Old by Jurisdiction in CY 2019

| Age Group | Population of children | Children Tested | | Blood Lead Level ≥5 | | | | Blood Lead level 5-9 | | | | Blood Lead Level ≥10 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Incidence | | Prevalence | | Incidence | | Prevalence | | Incidence | | Prevalence | |
| | | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Allegany | | | | | | | | | | | | | | | |
| One Year | 850 | 543 | 63.9 | 6 | 1.1 | 10 | 1.8 | 6 | 1.1 | 10 | 1.8 | | 0.0 | 0 | 0.0 |
| Two Years | 889 | 485 | 54.6 | 9 | 1.9 | 15 | 3.1 | 8 | 1.6 | 13 | 2.7 | 1 | 0.2 | 2 | 0.4 |
| Total | 1,739 | 1,028 | 59.1 | 15 | 1.5 | 25 | 2.4 | 14 | 1.4 | 23 | 2.2 | 1 | 0.1 | 2 | 0.2 |
| Anne Arundel | | | | | | | | | | | | | | | |
| One Year | 8,900 | 5,112 | 57.4 | 24 | 0.5 | 26 | 0.5 | 18 | 0.4 | 19 | 0.4 | 6 | 0.1 | 7 | 0.1 |
| Two Years | 8,822 | 4,752 | 53.9 | 13 | 0.3 | 15 | 0.3 | 10 | 0.2 | 12 | 0.3 | 3 | 0.1 | 3 | 0.1 |
| Total | 17,722 | 9,864 | 55.7 | 37 | 0.4 | 41 | 0.4 | 28 | 0.3 | 31 | 0.3 | 9 | 0.1 | 10 | 0.1 |
| Baltimore | | | | | | | | | | | | | | | |
| One Year | 12,486 | 6,958 | 55.7 | 52 | 0.7 | 58 | 0.8 | 41 | 0.6 | 43 | 0.6 | 11 | 0.2 | 15 | 0.2 |
| Two Years | 12,172 | 6,512 | 53.5 | 45 | 0.7 | 54 | 0.8 | 38 | 0.6 | 45 | 0.7 | 7 | 0.1 | 9 | 0.1 |
| Total | 24,658 | 13,470 | 54.6 | 97 | 0.7 | 112 | 0.8 | 79 | 0.6 | 88 | 0.7 | 18 | 0.1 | 24 | 0.2 |
| Baltimore City | | | | | | | | | | | | | | | |
| One Year | 10,953 | 5,565 | 50.8 | 142 | 2.6 | 168 | 3.0 | 120 | 2.2 | 141 | 2.5 | 22 | 0.4 | 27 | 0.5 |
| Two Years | 10,542 | 4,807 | 45.6 | 145 | 3.0 | 190 | 4.0 | 110 | 2.3 | 147 | 3.1 | 35 | 0.7 | 43 | 0.9 |
| Total | 21,495 | 10,372 | 48.3 | 287 | 2.8 | 358 | 3.5 | 230 | 2.2 | 288 | 2.8 | 57 | 0.5 | 70 | 0.7 |
| Calvert | | | | | | | | | | | | | | | |
| One Year | 1,222 | 526 | 43.0 | 1 | 0.2 | 2 | 0.4 | 1 | 0.2 | 2 | 0.4 | | 0.0 | 0 | 0.0 |
| Two Years | 1,253 | 421 | 33.6 | 0 | 0.0 | 1 | 0.2 | | 0.0 | 1 | 0.2 | | 0.0 | 0 | 0.0 |
| Total | 2,475 | 947 | 38.3 | 1 | 0.1 | 3 | 0.3 | 1 | 0.1 | 3 | 0.3 | 0 | 0.0 | 0 | 0.0 |
| Caroline | | | | | | | | | | | | | | | |
| One Year | 575 | 343 | 59.7 | 4 | 1.2 | 4 | 1.2 | 3 | 0.9 | 3 | 0.9 | 1 | 0.3 | 1 | 0.3 |
| Two Years | 581 | 303 | 52.2 | 6 | 2.0 | 6 | 2.0 | 6 | 2.0 | 6 | 2.0 | | 0.0 | 0 | 0.0 |
| Total | 1,156 | 646 | 55.9 | 10 | 1.5 | 10 | 1.5 | 9 | 1.4 | 9 | 1.4 | 1 | 0.2 | 1 | 0.2 |

## Appendix B

Blood Lead Testing of Children One and Two Years Old by Jurisdiction in CY 2019

| Age Group | Population of children | Children Tested | | Blood Lead Level ≥5 | | | | Blood Lead level 5-9 | | | | Blood Lead Level ≥10 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Incidence | | Prevalence | | Incidence | | Prevalence | | Incidence | | Prevalence | |
| | | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Carroll | | | | | | | | | | | | | | | |
| One Year | 2,209 | 1,307 | 59.2 | 12 | 0.9 | 13 | 1.0 | 10 | 0.8 | 11 | 0.8 | 2 | 0.2 | 2 | 0.2 |
| Two Years | 2,296 | 1,071 | 46.6 | 7 | 0.7 | 9 | 0.8 | 4 | 0.4 | 5 | 0.5 | 3 | 0.3 | 4 | 0.4 |
| Total | 4,505 | 2,378 | 52.8 | 19 | 0.8 | 22 | 0.9 | 14 | 0.6 | 16 | 0.7 | 5 | 0.2 | 6 | 0.3 |
| Cecil | | | | | | | | | | | | | | | |
| One Year | 1,683 | 657 | 39.0 | 8 | 1.2 | 8 | 1.2 | 8 | 1.2 | 8 | 1.2 | | 0.0 | 0 | 0.0 |
| Two Years | 1,640 | 416 | 25.4 | 11 | 2.6 | 11 | 2.6 | 11 | 2.6 | 11 | 2.6 | | 0.0 | 0 | 0.0 |
| Total | 3,323 | 1,073 | 32.3 | 19 | 1.8 | 19 | 1.8 | 19 | 1.8 | 19 | 1.8 | 0 | 0.0 | 0 | 0.0 |
| Charles | | | | | | | | | | | | | | | |
| One Year | 2,322 | 1,300 | 56.0 | 5 | 0.4 | 5 | 0.4 | 5 | 0.4 | 5 | 0.4 | | 0.0 | 0 | 0.0 |
| Two Years | 2,515 | 979 | 38.9 | 8 | 0.8 | 10 | 1.0 | 8 | 0.8 | 10 | 1.0 | | 0.0 | 0 | 0.0 |
| Total | 4,837 | 2,279 | 47.1 | 13 | 0.6 | 15 | 0.7 | 13 | 0.6 | 15 | 0.7 | 0 | 0.0 | 0 | 0.0 |
| Dorchester | | | | | | | | | | | | | | | |
| One Year | 517 | 264 | 51.1 | 3 | 1.1 | 3 | 1.1 | 3 | 1.1 | 3 | 1.1 | | 0.0 | 0 | 0.0 |
| Two Years | 524 | 240 | 45.8 | 1 | 0.4 | 1 | 0.4 | 1 | 0.4 | 1 | 0.4 | | 0.0 | 0 | 0.0 |
| Total | 1,041 | 504 | 48.4 | 4 | 0.8 | 4 | 0.8 | 4 | 0.8 | 4 | 0.8 | 0 | 0.0 | 0 | 0.0 |
| Frederick | | | | | | | | | | | | | | | |
| One Year | 3,625 | 2,305 | 63.6 | 11 | 0.5 | 12 | 0.5 | 10 | 0.4 | 11 | 0.5 | 1 | 0.0 | 1 | 0.0 |
| Two Years | 3,848 | 1,914 | 49.7 | 5 | 0.3 | 7 | 0.4 | 3 | 0.2 | 5 | 0.3 | 2 | 0.1 | 2 | 0.1 |
| Total | 7,473 | 4,219 | 56.5 | 16 | 0.4 | 19 | 0.5 | 13 | 0.3 | 16 | 0.4 | 3 | 0.1 | 3 | 0.1 |
| Garrett | | | | | | | | | | | | | | | |
| One Year | 362 | 202 | 55.8 | 2 | 1.0 | 2 | 1.0 | 2 | 1.0 | 2 | 1.0 | | 0.0 | 0 | 0.0 |
| Two Years | 409 | 148 | 36.2 | 0 | 0.0 | 1 | 0.7 | | 0.0 | 1 | 0.7 | | 0.0 | 0 | 0.0 |
| Total | 771 | 350 | 45.4 | 2 | 0.6 | 3 | 0.9 | 2 | 0.6 | 3 | 0.9 | 0 | 0.0 | 0 | 0.0 |

## Appendix B

Blood Lead Testing of Children One and Two Years Old by Jurisdiction in CY 2019

| Age Group | Population of children | Children Tested | | Blood Lead Level ≥5 | | | | Blood Lead level 5-9 | | | | Blood Lead Level ≥10 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Incidence | | Prevalence | | Incidence | | Prevalence | | Incidence | | Prevalence | |
| | | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Harford | | | | | | | | | | | | | | | |
| One Year | 3,765 | 1,731 | 46.0 | 10 | 0.6 | 11 | 0.6 | 7 | 0.4 | 8 | 0.5 | 3 | 0.2 | 3 | 0.2 |
| Two Years | 3,793 | 1,759 | 46.4 | 9 | 0.5 | 10 | 0.6 | 6 | 0.3 | 7 | 0.4 | 3 | 0.2 | 3 | 0.2 |
| Total | 7,558 | 3,490 | 46.2 | 19 | 0.5 | 21 | 0.6 | 13 | 0.4 | 15 | 0.4 | 6 | 0.2 | 6 | 0.2 |
| Howard | | | | | | | | | | | | | | | |
| One Year | 4,262 | 2,299 | 53.9 | 16 | 0.7 | 19 | 0.8 | 16 | 0.7 | 18 | 0.8 | | 0.0 | 1 | 0.0 |
| Two Years | 4,517 | 2,071 | 45.8 | 14 | 0.7 | 17 | 0.8 | 9 | 0.4 | 12 | 0.6 | 5 | 0.2 | 5 | 0.2 |
| Total | 8,779 | 4,370 | 49.8 | 30 | 0.7 | 36 | 0.8 | 25 | 0.6 | 30 | 0.7 | 5 | 0.1 | 6 | 0.1 |
| Kent | | | | | | | | | | | | | | | |
| One Year | 261 | 86 | 33.0 | 0 | 0.0 | 0 | 0.0 | | 0.0 | 0 | 0.0 | | 0.0 | 0 | 0.0 |
| Two Years | 243 | 55 | 22.6 | 1 | 1.8 | 1 | 1.8 | | 0.0 | 0 | 0.0 | 1 | 1.8 | 1 | 1.8 |
| Total | 504 | 141 | 28.0 | 1 | 0.7 | 1 | 0.7 | 0 | 0.0 | 0 | 0.0 | 1 | 0.7 | 1 | 0.7 |
| Montgomery | | | | | | | | | | | | | | | |
| One Year | 16,265 | 7,798 | 47.9 | 51 | 0.7 | 54 | 0.7 | 38 | 0.5 | 41 | 0.5 | 13 | 0.2 | 13 | 0.2 |
| Two Years | 16,354 | 8,214 | 50.2 | 31 | 0.4 | 35 | 0.4 | 22 | 0.3 | 25 | 0.3 | 9 | 0.1 | 10 | 0.1 |
| Total | 32,619 | 16,012 | 49.1 | 82 | 0.5 | 89 | 0.6 | 60 | 0.4 | 66 | 0.4 | 22 | 0.1 | 23 | 0.1 |
| Prince George's | | | | | | | | | | | | | | | |
| One Year | 15,124 | 7,007 | 46.3 | 51 | 0.7 | 59 | 0.8 | 33 | 0.5 | 40 | 0.6 | 18 | 0.3 | 19 | 0.3 |
| Two Years | 14,858 | 6,420 | 43.2 | 41 | 0.6 | 53 | 0.8 | 32 | 0.5 | 41 | 0.6 | 9 | 0.1 | 12 | 0.2 |
| Total | 29,982 | 13,427 | 44.8 | 92 | 0.7 | 112 | 0.8 | 65 | 0.5 | 81 | 0.6 | 27 | 0.2 | 31 | 0.2 |
| Queen Anne's | | | | | | | | | | | | | | | |
| One Year | 671 | 408 | 60.8 | 2 | 0.5 | 2 | 0.5 | 2 | 0.5 | 2 | 0.5 | | 0.0 | 0 | 0.0 |
| Two Years | 676 | 334 | 49.4 | 1 | 0.3 | 2 | 0.6 | 1 | 0.3 | 2 | 0.6 | | 0.0 | 0 | 0.0 |
| Total | 1,347 | 742 | 55.1 | 3 | 0.4 | 4 | 0.5 | 3 | 0.4 | 4 | 0.5 | 0 | 0.0 | 0 | 0.0 |

## Appendix B

Blood Lead Testing of Children One and Two Years Old by Jurisdiction in CY 2019

| Age Group | Population of children | Children Tested | | Blood Lead Level ≥5 | | | | Blood Lead level 5-9 | | | | Blood Lead Level ≥10 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Incidence | | Prevalence | | Incidence | | Prevalence | | Incidence | | Prevalence | |
| | | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Saint Mary's | | | | | | | | | | | | | | | |
| One Year | 1,894 | 923 | 48.7 | 7 | 0.8 | 8 | 0.9 | 7 | 0.8 | 7 | 0.8 | | 0.0 | 1 | 0.1 |
| Two Years | 1,897 | 568 | 29.9 | 5 | 0.9 | 6 | 1.1 | 5 | 0.9 | 6 | 1.1 | | 0.0 | 0 | 0.0 |
| Total | 3,791 | 1,491 | 39.3 | 12 | 0.8 | 14 | 0.9 | 12 | 0.8 | 13 | 0.9 | 0 | 0.0 | 1 | 0.1 |
| Somerset | | | | | | | | | | | | | | | |
| One Year | 329 | 169 | 51.4 | 2 | 1.2 | 2 | 1.2 | 2 | 1.2 | 2 | 1.2 | | 0.0 | 0 | 0.0 |
| Two Years | 348 | 148 | 42.5 | 0 | 0.0 | 0 | 0.0 | | 0.0 | 0 | 0.0 | | 0.0 | 0 | 0.0 |
| Total | 677 | 317 | 46.8 | 2 | 0.6 | 2 | 0.6 | 2 | 0.6 | 2 | 0.6 | 0 | 0.0 | 0 | 0.0 |
| Talbot | | | | | | | | | | | | | | | |
| One Year | 510 | 293 | 57.5 | 5 | 1.7 | 7 | 2.4 | 5 | 1.7 | 6 | 2.0 | | 0.0 | 1 | 0.3 |
| Two Years | 507 | 297 | 58.6 | 2 | 0.7 | 3 | 1.0 | 1 | 0.3 | 2 | 0.7 | 1 | 0.3 | 1 | 0.3 |
| Total | 1,017 | 590 | 58.0 | 7 | 1.2 | 10 | 1.7 | 6 | 1.0 | 8 | 1.4 | 1 | 0.2 | 2 | 0.3 |
| Washington | | | | | | | | | | | | | | | |
| One Year | 2,241 | 1,079 | 48.1 | 12 | 1.1 | 12 | 1.1 | 11 | 1.0 | 11 | 1.0 | 1 | 0.1 | 1 | 0.1 |
| Two Years | 2,344 | 901 | 38.4 | 6 | 0.7 | 11 | 1.2 | 2 | 0.2 | 6 | 0.7 | 4 | 0.4 | 5 | 0.6 |
| Total | 4,585 | 1,980 | 43.2 | 18 | 0.9 | 23 | 1.2 | 13 | 0.7 | 17 | 0.9 | 5 | 0.3 | 6 | 0.3 |
| Wicomico | | | | | | | | | | | | | | | |
| One Year | 1,611 | 862 | 53.5 | 9 | 1.0 | 9 | 1.0 | 7 | 0.8 | 7 | 0.8 | 2 | 0.2 | 2 | 0.2 |
| Two Years | 1,564 | 822 | 52.6 | 9 | 1.1 | 12 | 1.5 | 8 | 1.0 | 11 | 1.3 | 1 | 0.1 | 1 | 0.1 |
| Total | 3,175 | 1,684 | 53.0 | 18 | 1.1 | 21 | 1.2 | 15 | 0.9 | 18 | 1.1 | 3 | 0.2 | 3 | 0.2 |
| Worcester | | | | | | | | | | | | | | | |
| One Year | 599 | 362 | 60.4 | 5 | 1.4 | 6 | 1.7 | 4 | 1.1 | 5 | 1.4 | 1 | 0.3 | 1 | 0.3 |
| Two Years | 590 | 321 | 54.4 | 4 | 1.2 | 4 | 1.2 | 3 | 0.9 | 3 | 0.9 | 1 | 0.3 | 1 | 0.3 |
| Total | 1,189 | 683 | 57.4 | 9 | 1.3 | 10 | 1.5 | 7 | 1.0 | 8 | 1.2 | 2 | 0.3 | 2 | 0.3 |

## Appendix B

Blood Lead Testing of Children One and Two Years Old by Jurisdiction in CY 2019

| Age Group | Population of children | Children Tested | | | Blood Lead Level ≥5 | | | | | Blood Lead level 5-9 | | | | | Blood Lead Level ≥10 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Incidence | | Prevalence | | | Incidence | | Prevalence | | | Incidence | | Prevalence | |
| | | Number | Percent | | Number | Percent | Number | Percent | | Number | Percent | Number | Percent | | Number | Percent | Number | Percent |
| Statewide | | | | | | | | | | | | | | | | | | |
| One Year | 93,236 | 48,099 | 51.6 | | 440 | 0.9 | 500 | 1.0 | | 359 | 0.7 | 405 | 0.8 | | 81 | 0.2 | 95 | 0.2 |
| Two Years | 93,182 | 43,958 | 47.2 | | 373 | 0.8 | 474 | 1.1 | | 288 | 0.7 | 372 | 0.8 | | 85 | 0.2 | 102 | 0.2 |
| Total | 186,418 | 92,057 | 49.4 | | 813 | 0.9 | 974 | 1.1 | | 647 | 0.7 | 777 | 0.8 | | 166 | 0.2 | 197 | 0.2 |