

2019 Childhood Lead Surveillance Annual Report

Childhood Lead Poisoning Prevention Program

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DEPARTMENT OF HEALTH

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Executive Summary

This is the Pennsylvania Department of Health's (Department) 14th childhood lead surveillance annual report, covering data for children tested in Pennsylvania during the calendar year 2019. Data were extracted from the Department's electronic reportable disease surveillance system, Pennsylvania National Electronic Disease Surveillance System (PA-NEDSS). This report is provided as a source of information for the public: federal, state, and local agencies; health care providers; and other organizations and individuals interested in lead poisoning prevention in Pennsylvania. The report is an overview of lead testing in Pennsylvania and provides information about testing for children under the age of 2, as well as under the age of 6 by confirmation status; method of testing; method of reporting; county of residence; municipality; race and ethnicity; and residence in a rural county or an urban county.

Exposure to lead, even at low levels, can cause intellectual, behavioral, and academic deficits.^{1,2} For this reason, in 2012, the Centers for Disease Control and Prevention (CDC) defined an elevated blood lead level (EBLL) as a blood lead level (BLL) \geq 5 micrograms per deciliter ($\mu\text{g}/\text{dL}$).³ This value is also used to identify children who require case management because, even at low levels, lead has been known to affect IQ, the ability to pay attention, and educational achievement.

This report will be used by the Department to 1) identify areas that may be at high risk for lead exposure; 2) locate areas of potential under-testing; and 3) make data available for state and local needs assessments. This report may also be used by federal agencies, hospitals, universities, providers, and county/municipal health departments.

The Department received 201,693 blood lead test results (and when deduplicated), representing 192,464 unique blood lead tests for 176,716 children ages 0-15 in 2019. There were 4,995 children aged 0-15 with an initial capillary test \geq 5 $\mu\text{g}/\text{dL}$. Of those, 2,952 (59.10%) were retested appropriately. There were 90,352 children (33.20% of the population) under age 2 tested and 167,608 (19.89% of the population) children under age 6 tested in 2019. There were 2,200 children under the age of 2 (2.43% of those tested and 0.81% of the population) with a confirmed EBLL \geq 5 $\mu\text{g}/\text{dL}$. There were 5,796 children under the age of 6 (3.46% of those tested and 0.69% of the population) with a confirmed EBLL \geq 5 $\mu\text{g}/\text{dL}$.

Nearly 58% of children did not have race or ethnicity information provided in their blood lead testing results data. We increased this percentage to nearly 90% by matching children's blood lead testing data to 2012-2019 birth certificate data to obtain the race/ethnicity information from their birth certificates. Among those children 0-23 months of age, testing rates for non-Hispanic black or African American children and non-Hispanic Asian children, were higher statewide than for Hispanic and non-Hispanic white children (38.94% and 38.92% versus 29.83% and 28.32%, respectively). Non-Hispanic black or African American and Hispanic children had higher percentages of EBLLs of 5-9.9 $\mu\text{g}/\text{dL}$ than non-Hispanic white children (2.66% and 2.30% versus 1.41%, respectively) among those tested. Percentages of test results \geq 10 $\mu\text{g}/\text{dL}$ were also higher among non-Hispanic black or African American and Hispanic children than for non-Hispanic white children (1.22% and 0.82% versus 0.47%, respectively). Non-Hispanic black or African American and Hispanic children

also had higher percentages of unconfirmed elevated results among those tested than did non-Hispanic white children, indicating gaps in appropriate follow-up among these populations. The same relationships were seen for children ages 0-71 months.

This report also includes testing and EBLL data for the 10 municipalities in Pennsylvania with the highest number of children under 6 years of age, as well as 2 other cities with an Act 315 municipal health department. These included Philadelphia, Pittsburgh, Allentown, Reading, Erie (city), Upper Darby Township, Harrisburg, Scranton, Lancaster, York City, Bethlehem, and Wilkes-Barre. Testing rates and percentages of children with EBLs among major municipalities/cities were generally higher than for their respective counties for both children under the age of 2 and under the age of 6. This finding likely highlights the historical burden of older housing stock in Pennsylvania municipalities/cities. The city of Pittsburgh had the highest (46.9%) and the city of Scranton had the lowest (26.4%) lead testing rate for children 0-23 months old among major municipalities. The higher testing rate in Pittsburgh could be due to the fact that, in 2019, Allegheny County started mandatory blood lead testing for children between 9 and 12 months and at 24 months. The percentage of EBL $\geq 5 \mu\text{g/dL}$ as a percentage of those tested under age 2 was highest in the cities of Reading (8.37% EBL) and Lancaster (8.29% EBL).

Nationally, among states with older housing stock, lead-based paint is a significant source of lead exposure in young children. According to the 2019 American Community Survey estimate, Pennsylvania ranks fifth in the nation for the percentage of housing units identified as having been built before 1950, when lead was most prevalent.⁴ Other sources of lead exposure include toys, ceramics, and other consumer products.³ Drinking water can also be a source of lead exposure when it flows through older lead plumbing or pipes where lead solder has been used (which can occur in newer plumbing as well).

Lead poisoning is a preventable environmental health hazard and, if not addressed, affects families regardless of race, ethnicity, or socioeconomic status. In recent years, there has been a national reduction in children's BLLs. The Department continues to provide resources to families to prevent and address elevated blood lead through multiple strategies. Through the federally funded Childhood Lead Poisoning Prevention Program (CLPPP), the Department is working collaboratively with 6 local county and municipal health departments in Allegheny, Chester, Montgomery, Luzerne, Lehigh, and York counties to reduce lead exposure and promote childhood lead poisoning prevention. Specifically, local partners are utilizing CLPPP funding to implement strategies and activities to increase blood lead testing; strengthen population-based interventions; and strengthen processes to identify lead-exposed children and link them to services. Additionally, the Department maintains a toll-free lead information hotline to provide information about lead poisoning prevention, testing, follow-up, and local resources for assistance.

In 2019, lead abatement efforts were continued through the federally funded Lead Hazard Control Program (LHCP), which provided funding to local partners to contract with certified lead professionals. The department worked with partners in targeted high-risk areas across the commonwealth to identify and remove lead hazards in housing units occupied by low-income families with children 6 years of age and under. The goal of the LHCP is to protect Pennsylvania's children from the long-term effects of lead poisoning as well as evaluate the

overall living conditions within the home to obtain healthier outcomes for Pennsylvania families.

The Department's community health nurses (CHNs) continue to monitor elevated lead levels ($\geq 5 \mu\text{g/dL}$) in children aged 6 and under living in Pennsylvania. The Department's community health nurses cover the counties and areas of the state not covered by the 10 county and municipal health departments (CMHDs). The CMHDs include 6 counties (Allegheny, Bucks, Chester, Erie, Montgomery, and Philadelphia) and 4 municipal (Allentown, Bethlehem, Wilkes-Barre, and York city) health departments that have their own specific case management protocols. The Department's CHNs contact families to provide education on laboratory results, potential sources of lead exposure, and actions to take to prevent/decrease the risk of exposure and help facilitate follow-up testing between clients and their pediatricians. The CHNs encourage every family of children with levels of $5 \mu\text{g/dL}$ and above to discuss the potential need for an environmental investigation with their provider; CHNs work with the pediatrician and facilitate referrals to obtain home inspections, which could identify the source of exposure as well as provide hands-on education to parents. CHNs also work to provide referrals to the Pennsylvania Special Supplemental Nutrition Program for Women, Infants and Children and to early intervention programs where appropriate.

In 2019, the Department also continued an ongoing collaboration with the Pennsylvania Department of Human Services on a data match project to share data between the Medicaid claims database and the lead surveillance database. The data match will lead to improved quality lead data and better service provision for Medicaid-enrolled children.

The Wolf administration and the Department are committed to preventing lead exposure and, by coordinating with state agencies, will work toward improving the outcomes of children throughout the commonwealth. In August 2019, Governor Wolf launched the Lead-Free PA Initiative, which seeks to increase access to blood lead level testing for children, increase local response efforts, and plan for training of more certified lead abatement professionals. The Department and other state agencies participate in an interagency workgroup to achieve the goals of the Lead-Free PA Initiative. This report is intended to provide information that is succinct, comprehensible, and accessible to the public. Although lead surveillance should be considered an ongoing process, the goal of the report is to provide meaningful, useful, and easy-to-access data to the commonwealth and its citizens, so that the data can be better utilized for decision-making, targeting of resources, and implementing initiatives aimed at preventing exposure to lead.

Data Methods and Case Definitions

Reporting of Test Results and Case Investigations

In Pennsylvania, clinical laboratories are required to report all BLL results from both venous and capillary specimens for persons under 16 years of age to the Pennsylvania Department of Health (28 Pa. Code § 27.34). In addition, clinicians are required to report cases of lead poisoning for children under 16 and for pregnant women (28 Pa. Code § 27.34). Reports are submitted electronically (either through electronic laboratory reporting or online key entry) to the Department through NEDSS. In 2019, reports with a BLL ≥ 5 $\mu\text{g}/\text{dL}$ were assigned to public health investigators for follow-up based on the location of the patients' residence. Investigators reviewed, verified, and corrected, when necessary, critical pieces of information such as date of birth, address, and specimen source.

It is quite common for different entities to report the same BLL test result. For example, the ordering provider and the lab performing the analysis may both report the same test. The Department does not discourage reporting from multiple sources, as it maximizes the likelihood that reporting will occur. In addition, different reporters often have different information about the patient—for instance, one may know more details about the specimen source (capillary or venous), and another may have better address information. PA-NEDSS is designed to handle duplicate reports from different sources. Several strategies are used in PA-NEDSS to ensure that all reports pertaining to the same patient are assigned to a single patient identifier. For the purposes of this annual report, tests with identical specimen collection dates and identical BLL results from the same patient were considered as a single test. The total number of BLL tests was defined as the total number of deduplicated BLL tests obtained from children who were within the specified age categories during 2019. All BLL tests were counted, including those collected for screening, confirmation or follow-up purposes. Since many children had more than one BLL test during the year, the total number of children tested is less than the total number of BLL tests performed. Per-child summary BLL measures were calculated using all BLL results obtained while the child was in the given age category.

Case Definition

In May 2012, the CDC accepted the recommendation from the Advisory Committee on Lead Poisoning Prevention to eliminate the term “level of concern” (associated with the level of 10 $\mu\text{g}/\text{dL}$) and to begin using a reference value of 5 $\mu\text{g}/\text{dL}$ based on the 97.5 percentile of the blood lead distribution among US children.^{3,5} A new case definition was officially implemented by CDC in 2016 and is used in this report to identify children with confirmed EBLL. A confirmed EBLL is defined as a venous blood lead test ≥ 5 $\mu\text{g}/\text{dL}$, or two capillary blood lead tests ≥ 5 $\mu\text{g}/\text{dL}$ drawn within 84 days (12 weeks) of each other. An unconfirmed EBLL is defined as a capillary blood lead test ≥ 5 $\mu\text{g}/\text{dL}$ with no other blood lead test done in the next 84 days.^{6,7}

To apply the CDC case definition, several different data elements need to be evaluated. These data elements were handled as follows in our analyses:

- If the specimen collection date was missing or illogical, the laboratory received date or result date was used instead. If all 3 were missing, the reported date was used.
- Specimens with unknown specimen sources or characterized as simply “blood” (as opposed to venous or capillary) were treated as if they were capillary specimens.
- Tests with undetectable BLLs were either reported as below a numeric detection limit or with a qualitative result of “negative,” “not detected,” or “normal.” For statistical purposes, these results were given a numeric BLL value of 0.1 µg/dL.
- If an elevated capillary test was obtained on a child near the end of 2019 or as the child neared the limit of a particular age category, and if another elevated test result was obtained within the next 84 days, the initial elevated test was considered to be confirmed, even if the confirmatory test occurred in 2020 or outside of the age category. For example, if a child had an elevated capillary test at 23 months of age in November 2019 and received a confirmatory follow-up test within 12 weeks (in 2020), this was considered an EBLL result in 2019 for a child “aged 0–23 months.”

For children who had multiple BLL tests performed, they could qualify for more than one case definition category (for example, they may have had an unconfirmed elevated test and then, 6 months later, had another elevated test that was confirmed). In these situations, a child was assigned to the highest BLL case definition category for which they qualified.

Statistical Methods

All BLL test data obtained on children less than 16 years of age in 2019 was extracted from the PA-NEDSS database. Analyses were performed on a per-test or per-child basis as indicated in the tables below.

Most of the analyses in this report are limited to children in 2 overlapping age categories, under 2 years of age (0–23 months) and under 6 years of age (0–71 months). Age was defined as age at the time of the specimen collection date.

Information on race and ethnicity is not routinely collected or stored by most laboratories. Only 58% of the reports contained race/ethnicity data. Since obtaining more complete race and ethnicity data is critical to the evaluation of disparities in screening and lead exposures, data in PA-NEDSS was supplemented with data from the Pennsylvania birth registry, supplied by the Bureau of Health Statistics. Children with lead test results in PA-NEDSS were matched to 2013-2019 birth certificate data using a deterministic matching method by Bureau of Epidemiology program staff. Deterministic matching is a rules-based process to determine an “exact match” between 2 records, followed by iterative loosening of criteria. We matched 86.6% (145,080 out of 167,608) of children under the age of 6 who had BLL test results reported in PA-NEDSS to children in the birth registry. Information from the birth registry was added to the PA-NEDSS lead testing data if a PA-NEDSS record matched to a birth registry record by name and a combination of date of birth, sex, and residential zip code. Race and ethnicity information from the birth registry was added to the PA-NEDSS lead testing data if ethnicity was missing or unknown and if the race was listed as “Unknown” or “Other.” After the matching process was completed, race information was available for nearly 90% of the children under 6 years of age reported to PA-NEDSS with BLL test results. The race and ethnicity categories aligned with those used in the US census. Because of small numbers, multiracial children, American Indians, Alaskan Natives, and Pacific Islanders were

combined into an “Other” category. For race and ethnicity analyses by county, categories were combined and collapsed into non-Hispanic black or African American, non-Hispanic white, and Hispanic. Children in the Asian, Pacific Islander, American Indian, Alaska Native, Other and Unknown categories were not included in the county analyses due to small numbers.

For the per-child analyses, 2 measures were used to indicate their BLL status:

- The maximum BLL was defined as the highest venous BLL obtained from a child in 2019 while they were in the specified age category. If a child had no venous BLL test performed during that time period, maximum BLL was defined as the highest BLL from a capillary or unknown specimen source. Venous results were ranked over capillary results because capillary test results may be skewed by the presence of lead dust on the skin.
- EBLL confirmation status was determined as described in the case definition section above.

County-specific Analysis

For county-specific analyses, the residential address accompanying the report that contained the BLL result of interest was used to determine the county. For the maximum BLL measure, the county was determined from the report containing the maximum test result. For the EBLL confirmation status measure, county was determined from the address accompanying the initial EBLL. PA-NEDSS attempts to geocode all residential addresses. For addresses that were successfully verified, county was based on the actual home address. If an address was not able to be verified, the county was based on the centroid of the residential zip code. A small proportion of children did not have a residential address reported; the county was set by the location of the provider who ordered the test.

Intercensal population estimates for 2019 by county, age, race and ethnicity were obtained from the National Center for Health Statistics (NCHS) website (Vintage 2019 bridged-race postcensal population estimates, https://www.cdc.gov/nchs/nvss/bridged_race.htm).⁸ These figures were used to calculate the proportion of children tested for BLL and the proportion of children with EBLLs in the county-specific analysis.

The 17 counties in Pennsylvania with the largest number of children under 6 years of age were selected for county-specific race/ethnicity analyses.

Municipality-specific Analysis

For the municipality-level analyses, the residential address accompanying the report that contained the EBLL confirmation status measure was used to determine the specific municipality. PA-NEDSS attempts to geocode all residential addresses. For addresses that were successfully verified, the municipality was based on the report address. If the report address was missing, then the home address was used. If an address was not able to be verified automatically, it was verified by the application of manual geocoding. If an address was not able to be verified, municipality was based on the centroid of the residential zip code. Only 4 children whose municipality could not be determined were excluded for the sub-county analyses.

For municipality-level analyses, the population estimate of children was obtained by the 2018 American Community Survey, the most recent and available population data source at the municipal level.

The 10 municipalities in Pennsylvania with the highest number of children under 6 years of age, as well as 2 other cities with an Act 315 municipal health department were selected for municipality-specific analyses. These included Philadelphia, Pittsburgh, Allentown, Reading, Erie (city), Upper Darby Township, Harrisburg, Scranton, Lancaster, York City, Bethlehem, and Wilkes-Barre.

Limitations

The 2019 Childhood Lead Surveillance Annual Report presents an analysis of surveillance data displayed in graphic and tabular form, in keeping with CDC guidance for analysis of childhood lead data.

Users of the report should be aware that public health surveillance data for childhood lead has inherent limitations that influence the interpretation of the data. Data such as specimen source, the residence of child, race and ethnicity, and other important information may be missing on laboratory test results. As described in the Methods section, efforts were made to fill these gaps. Supplementing race and ethnicity data with information from the birth registry was done for the first time for the 2018 report and is successfully continued in this report.

In addition, Allegheny County was the only county in Pennsylvania with mandatory testing regulations or requirements for children between 9 and 12 months and at 24 months. In May 2019, the Philadelphia city council passed a bill requiring physicians to test children twice before the age of 2. Pennsylvania does not mandate universal and complete screening of all children. Therefore, testing of children for BLL is targeted rather than random, which makes interpretation of rates of EBLLs by geographic area or demographic factors difficult.

An emerging issue is the increasing use of point-of-care testing devices for blood lead screening. A growing number of clinical practices can do capillary lead screening tests on children onsite. These providers are often unaccustomed to reporting results to the Department and are unaware of reporting requirements. This could adversely affect the number of screening test results counted and skew the proportion of children screened downwards. The Department is working with many clinics who are using this equipment to ensure that BLLs are reported. Furthermore, some point-of-care analyzers have been found to give falsely low BLL results when used to analyze venous blood. These devices should be used only on capillary specimens, but the Department generally does not know the type of equipment used to perform BLL tests and cannot control for this source of uncertainty. The impact of this issue cannot be assessed, as the type of testing device used is not captured in the PA-NEDSS surveillance data sets.

High rates of children with EBLLs in one area may reflect a true higher exposure risk in that area, or it may reflect more robust and targeted testing in that area. The burden of childhood EBLLs is best understood through a series of metrics: the percentage of children tested; the percentage who go on to have retests where appropriate (and conversely the percentage who do not get appropriate testing and follow-up); and, finally, the percentage of children with BLLs 5–9.9 µg/dL and those ≥ 10 µg/dL. This report shows both the number and percentage of children tested with unconfirmed EBLLs ≥ 5 µg/dL, confirmed EBLLs 5-9.9 µg/dL, and confirmed EBLLs ≥ 10 µg/dL.

Discussion

Between 2018 and 2019, the percent of children under the age of 2 tested for lead increased from 30.88% to 33.20% (an increase of 5,877 children tested). The percent of children under the age of 6 tested increased from 19.01% to 19.89% (an increase of 6,622 children tested) from 2018 to 2019. Between 2018 and 2019, the percent of children under age 2 with a confirmed EBLL ≥ 5 $\mu\text{g}/\text{dL}$ decreased from 3.03% to 2.43% of those tested (a decrease of 362 children), while the percent of children under age 6 with a confirmed EBLL ≥ 5 $\mu\text{g}/\text{dL}$ decreased from 4.09% to 3.46% of those tested (a decrease of 789 children). The percent of children with an unconfirmed EBLL ≥ 5 $\mu\text{g}/\text{dL}$ decreased from 1.18% to 0.96% for children under age 2 (a decrease of 125 children) and from 1.42% to 1.19% for children under age 6 (a decrease of 296 children), among those tested. The percent of children aged 0-15 who were appropriately retested after an elevated capillary test increased from 57.51% to 59.10% between 2018 and 2019. In summary, in 2019 compared to 2018, improvements were made in the percentages of children tested and reductions were seen in the percentages of Pennsylvania children with EBLLs and with the number of children who did not have the appropriate confirmatory follow-up testings.

Pennsylvania was able to more fully explore race and ethnicity data for the first time in 2018 by matching children's BLL testing data to birth certificate data to determine the race for the nearly 60% of children who did not have race or ethnicity information provided on their BLL testing results data. The same approach was implemented for this report. For non-Hispanic black or African American children and non-Hispanic Asian children, testing rates were higher statewide than for Hispanic and non-Hispanic white children. Confirmed EBLL rates were also higher among non-Hispanic black or African American children, both as a percentage of children tested and as a percentage of the population, for both age groups. In general, Hispanic and non-Hispanic Asian children had percentages of EBLLs in between values for non-Hispanic black or African American children and non-Hispanic white children.

In general, for children under the age of 2 and under the age of 6, municipalities/cities had a higher percentage of children tested for lead than in their respective counties. In general, the percentage of children with EBLLs among those tested and as a percentage of the population was also higher in all municipalities/cities than in their respective counties. For the largest counties, where race and ethnicity data are presented, most had higher testing rates among non-Hispanic black or African American and Hispanic children than among non-Hispanic white children, although that pattern was not seen in Allegheny, Dauphin, Erie, Luzerne, and Westmoreland counties. In many of these counties, the percentage of those tested with EBLLs was highest among minority populations, although not all counties had this pattern.

As mentioned previously, not all of the point-of-care testing results were reported to PA-NEDSS. Because of this, for some areas, the testing rates may actually be higher than reported and the percent tested with EBLLs may actually be lower than what is in this report. As providers move toward point-of-care testing, the Department is working to facilitate reporting of test results so that an accurate understanding of the burden of childhood lead exposure is achieved. The Department is also working with laboratories to increase the use of electronic reporting of testing results to reduce the resource burden and errors associated with faxed results and hand-keyed data entry.

Definitions

Age: Age of the child at the time of the test, expressed in months. Children under age 2 are 0–23 months, and children under age 6 are 0–71 months.

Blood lead level (BLL): The numeric result of a blood lead test, expressed in micrograms per deciliter ($\mu\text{g}/\text{dL}$)

Capillary: A blood lead test with blood drawn by a finger stick

Confirmed EBLL $\geq 5 \mu\text{g}/\text{dL}$: One venous blood lead test $\geq 5 \mu\text{g}/\text{dL}$ or two capillary blood lead tests $\geq 5 \mu\text{g}/\text{dL}$ drawn within 12 weeks of each other

Confirmed EBLL $\geq 10 \mu\text{g}/\text{dL}$: One venous blood lead test $\geq 10 \mu\text{g}/\text{dL}$ or two capillary blood lead tests $\geq 10 \mu\text{g}/\text{dL}$ drawn within 12 weeks of each other

Electronic lab reporting (ELR): The system by which blood lead reports are submitted electronically from a laboratory's system to PA-NEDSS

Elevated blood lead level (EBLL): A BLL $\geq 5 \mu\text{g}/\text{dL}$

Ethnicity: Hispanic or non-Hispanic

Micrograms per deciliter ($\mu\text{g}/\text{dL}$): The amount of lead in the blood, measured by micrograms of lead per deciliter of blood

Municipality: A political subdivision of a state within which a municipal corporation has been established to provide general local government for a specific population concentration in a defined area

Not elevated: A child with a confirmed venous or capillary BLL $< 5 \mu\text{g}/\text{dL}$, or who had an initial elevated capillary BLL that was found to be $< 5 \mu\text{g}/\text{dL}$ on either a venous or capillary follow-up test

Online key entry: Manual entry of blood lead reports into PA-NEDSS

Pennsylvania National Electronic Disease Surveillance System (PA-NEDSS): the Pennsylvania Department of Health's online disease surveillance system. It serves as the Department's reporting system for all reportable conditions and has been utilized for childhood lead surveillance since 2003.

Race: White, black or African American, Asian, Other (multiracial children, American Indians, Alaska Native, and Pacific Islanders), or Unknown

Race/Ethnicity: Non-Hispanic white, non-Hispanic black or African American, Hispanic, and non-Hispanic Asian

Rural versus urban counties: The Center for Rural Pennsylvania defines rural and urban counties in terms of population density. Those counties with a population density above the state average (284 persons per square mile) are considered urban, and those below the state average are considered rural. For more information and definitions concerning rural and urban counties, please see the Center for Rural Pa's website at: http://www.rural.palegislature.us/demographics_rural_urban.html.

Findings

Statewide Summaries by Age:

The Commonwealth of Pennsylvania does not have a universal childhood BLL testing law, so there is no mandate for children to be tested by a certain age. However, the Early Periodic Screening, Diagnosis and Treatment (EPSDT) program (administered by the Pennsylvania Department of Human Services) requires providers to test children on Medical Assistance twice by age 24 months (between 9 and 11 months and at 24 months). Furthermore, most clinical practice guidelines recommend testing children under age 7 and focusing on children at ages 1 and 2.

The following charts include statewide aggregate childhood lead testing data broken out by the age groupings of children tested, as well as the age at the time of their highest result. The charts also include breakouts of sex, race, ethnicity, and the range of the highest BLL.

Table 1: Summary of Blood Lead Tests Performed in 2019 by Age Category

Age category*	Total number of tests†	Capillary test#		Venous test	
		N	%	N	%
0–23 months (under 2 years)	97,597	60,023	61.50	37,574	38.50
0–71 months (under 6 years)	182,813	105,978	57.97	76,835	42.03
0–15 years	192,464	107,451	55.83	85,013	44.17

*Age at time of specimen collection

†Total number of deduplicated blood tests obtained on children within the age category. A blood lead test may be collected for screening, confirmation, or follow-up. Many children had more than one test in any given year. The remainder of the tables were analyzed on a per child basis rather than per test.

#Blood specimens of unknown sources were treated as though they were capillary tests.

Data sources: Pennsylvania Department of Health, PA-NEDSS.

Table 2: Characteristics of Children Tested for Lead by Age Category, 2019

	Children aged 0–23 months		Children aged 0–71 months	
	N	% of total	N	% of total
Total number of children tested†	90,352	100	167,608	100
Age at time of maximum BLL				
Under 1 year	47,574	52.65	47,574	28.38
One year	42,778	47.35	42,262	25.21
Two years	-	-	49,635	29.61
Three years	-	-	10,706	6.39
Four years	-	-	9,103	5.43
Five years	-	-	8,328	4.97
Sex				
Female	43,793	48.47	80,791	48.20
Male	46,284	51.23	86,470	51.59
Unknown	275	0.30	347	0.21
Race				
Asian	5,305	5.87	13,608	8.12
Black or African American	16,105	17.82	32,762	19.55
White	56,509	62.54	97,212	58.00
Other^	3,845	4.26	5,650	3.37
Unknown	8,588	9.51	18,376	10.96
Ethnicity				
Hispanic	11,170	12.36	21,523	12.84
Non-Hispanic	69,665	77.10	123,433	73.64
Unknown or missing	9,517	10.53	22,654	13.51
Maximum BLL (µg/dL)*				
< 5	87,264	96.58	159,863	95.38
5–9.9	2,348	2.60	5,815	3.47
10–19.9	574	0.64	1,492	0.89
20–44.9	149	0.16	395	0.24
45–59.9	11	0.01	29	0.02
60–69.9	5	0.01	9	0.01
≥ 70	1	0.00	5	0.00

†Number of Pennsylvania children within the age category who had at least one blood lead test done with a specimen collection date in 2019

^Other race includes multiracial children, American Indians, and Pacific Islanders.

*Highest venous blood lead level (BLL) obtained per child in 2019, or highest BLL from a capillary or unknown specimen source, if no venous test was performed

Data sources: Pennsylvania Department of Health, PA-NEDSS, Vital Records

Statewide Summaries by Confirmed Elevated Status:

The following charts display EBLL by confirmation status. Confirmation status can be: not elevated, elevated but not confirmed, or confirmed elevated. Also included is data on how the results were confirmed. Children can be tested for lead by either a finger stick (capillary) or blood draw (venous). Because capillary tests are more subject to contamination, they are less reliable than venous tests, so venous tests are preferred to get the most accurate result. It is not always possible to perform a venous test, so elevated capillary results are confirmed with either another capillary test or a venous test. Venous testing requires a trained phlebotomist, and some clinical settings may not have this expertise; in addition, successfully getting a venous specimen in very small children can be difficult.

Table 3: Elevated Blood Lead Confirmation Status per 2016 CDC Case Definition* by Age Category, 2019

	Children aged 0–23 months		Children aged 0–71 months	
	N	% of total	N	% of total
Total number of children tested	90,352	100.00	167,608	100.00
Confirmation status				
Not elevated (< 5 µg/dL)**	87,282	96.60	159,820	95.35
Unconfirmed elevated (≥ 5 µg/dL)†	870	0.96	1,992	1.19
Confirmed 5–9.9 µg/dL	1,601	1.77	4,206	2.51
Confirmed ≥ 10 µg/dL	599	0.66	1,590	0.95

*CDC case definition defines a confirmed elevated BLL as one venous blood lead test ≥5 µg/dL, or 2 capillary blood lead tests ≥5 µg/dL drawn within 12 weeks of each other.

**The child had either no BLL ≥5 µg/dL or had an initially elevated capillary BLL that was found to be <5 µg/dL on either venous or capillary retest.

†The initial capillary test was ≥5 µg/dL, but the test result was not confirmed by a venous or capillary retest within 12 weeks.

Data sources: Pennsylvania Department of Health, PA-NEDSS.

Table 4: Details of Elevated Blood Lead Confirmation Status* by Age Category, 2019

		Children aged 0–23 months		Children aged 0–71 months	
		N	% of total	N	% of total
Total number of children tested		90,352	100	167,608	100
Confirmation status	Outcome				
Not elevated (< 5 µg/dL)	BLL < 5 µg/dL	86,272	95.48	157,953	94.24
	Repeat capillary test did NOT confirm the initial elevated capillary test.	54	0.06	97	0.06
	The venous test did NOT confirm the initial elevated capillary test.	956	1.06	1,770	1.06
Unconfirmed elevated (≥ 5 µg/dL)†	Not retested appropriately	870	0.96	1,992	1.19
Confirmed 5–9.9 µg/dL	Capillary confirmed by repeat capillary test	23	0.03	50	0.32
	Capillary confirmed by venous test	374	0.41	733	0.44
	Venous test	1,204	1.33	3,423	2.04
Confirmed ≥ 10 µg/dL	Capillary confirmed by repeat capillary test	3	0.00	7	0.00
	Capillary confirmed by venous test	126	0.14	268	0.16
	Venous test	470	0.52	1,315	0.78

*Per CDC 2016 Confirmed Elevated Blood Lead case definition

† Initial capillary test was ≥5 µg/dL, but the test result was not confirmed by a venous or capillary retest within 12 weeks.

Data sources: Pennsylvania Department of Health, PA-NEDSS.

Table 5: Confirmation After an Elevated Capillary Blood Lead Test by Capillary Test Level, Children Aged 0-15 years, 2019

Blood lead level of initial elevated capillary test (µg/dL)	Number of children*	Children with a diagnostic venous test within 12 weeks†		Children with either a venous or capillary retest within 12 weeks†	
		N	%	N	%
5–9.9	3,869	2033	52.55	2,162	55.88
10–19.9	852	543	63.73	563	66.08
20–44.9	250	204	81.60	208	83.20
45–59.9	11	8	72.73	8	72.73
60–69.9	5	4	80.00	5	100.00
≥ 70	6	5	83.33	6	100.00
Overall	4,995	2797	56.00	2,952	59.10

*Children aged 0–15 years

†Retest results may not be in the same blood lead level range as the initial capillary test.

Data sources: Pennsylvania Department of Health, PA-NEDSS.

Reporting by Method and Organization:

The chart below displays data on how BLL reports were submitted to PA-NEDSS and who submitted the report. By law, all BLL tests analyzed by laboratories on children under 16 years of age are required to be reported to the Department. Reports can be submitted by electronic laboratory reporting (ELR) or by online key-entry. ELR is the preferred method of receiving reports, as the information is usually more accurate, complete and timely. From 2013 to 2019, the number of laboratories reporting through electronic laboratory reporting increased from 20 to 33, and the proportion of lead reports received via ELR increased from 87% to 89%.

Table 6: Blood Lead Reporting by Method of Report and Type of Reporting Organization, 2013–2019

	Method of report	2014	2015	2016	2017	2018	2019
Number of reports submitted†	ELR*	149,334	146,104	160,488	169,675	175,802	178,999
	Online key-entry by lab	16,978	14,997	14,561	13,011	11,720	10,769
	Online key-entry by provider#	2,065	2,642	3,401	2,775	7,423	11,925
	Total	168,377	163,743	178,450	185,461	194,945	201,693
% ELR		88.69	89.23	89.93	91.49	90.18	88.75

*ELR=electronic laboratory reporting

†The same test result may be reported by the ordering provider, the receiving laboratory, and/or the reference lab that performs the test. The data in this table are not deduplicated. Also, reports may contain more than one test result.

#Online key-entry by provider includes some test results key-entered by Department staff on behalf of providers.

Data sources: Pennsylvania Department of Health, PA-NEDSS.

Testing Summaries by Race and Ethnicity:

The following are summaries of children under age 2 and under age 6 tested by race and ethnicity, including the number of children tested, the percent of the population tested, and confirmation status. For children ages 0-23 months, non-Hispanic black or African American children and non-Hispanic Asian children were more often tested than Hispanic and non-Hispanic white children (38.94% and 38.92% versus 29.83 and 28.32%, respectively). Among those tested, non-Hispanic black or African American and Hispanic children had higher percentages of EBLs of 5-9.9 µg/dL than non-Hispanic white children (2.66% and 2.30% versus 1.41%, respectively). Percentages of test result ≥ 10 µg /dL were also higher among non-Hispanic black or African American and Hispanic children than non-Hispanic white children (1.22% and 0.82% versus 0.47%, respectively). Among those tested, non-Hispanic black or African American and Hispanic children also had higher percentages of unconfirmed elevated results among those tested than did non-Hispanic white children. These same relationships were seen for children ages 0-71 months.

Table 7: Number of Children Aged 0–23 Months by Race/Ethnicity and Elevated Blood Lead Confirmation Status,* 2019

Race/Ethnicity	Population of children aged 0–23 months†	Children tested**		Unconfirmed elevated (≥ 5 µg/dL)			Confirmed 5–9.9 µg/dL			Confirmed ≥ 10 µg/dL		
		N	% of population***	N	% of tested	% of population	N	% of tested	% of population	N	% of tested	% of population
Total	272,114	90,352	33.20	870	0.96	0.32	1,601	1.77	0.59	599	0.66	0.22
Race/Ethnicity^												
Non-Hispanic white	184,727	52,310	28.32	449	0.86	0.24	737	1.41	0.40	248	0.47	0.13
Non-Hispanic black or African-American	38,662	15,054	38.94	168	1.12	0.43	400	2.66	1.03	183	1.22	0.47
Hispanic	37,447	11,170	29.83	142	1.27	0.38	257	2.30	0.69	92	0.82	0.25
Non-Hispanic Asian	10,719	4,172	38.92	29	0.70	0.27	68	1.63	0.63	24	0.58	0.22

*Per CDC 2016 Confirmed Elevated Blood Lead case definition

**Note that Pennsylvania does not mandate universal screening of children; screening of children is recommended between 9 and 12 months and at 24 months. Allegheny County is currently the only county with mandatory testing.

***Percent was calculated as the number of children tested divided by the population of children in the county for the specified age range.

†2019 intercensal estimate

^Other and Unknown are not included in the table

Data sources: Pennsylvania Department of Health, PA-NEDSS., Vital Records, National Center for Health Statistics

Table 8: Number of Children Aged 0–71 Months by Race/Ethnicity and Elevated Blood Lead Confirmation Status,* 2019

Race/Ethnicity	Population of children aged 0–71 months†	Children tested**		Unconfirmed elevated (≥ 5 µg/dL)			Confirmed 5–9.9 µg/dL			Confirmed ≥ 10 µg/dL		
		N	% of population***	N	% of tested	% of population	N	% of tested	% of population	N	% of tested	% of population
Total	842,742	167,608	19.89	1,992	1.19	0.24	4,206	2.51	0.50	1,590	0.95	0.19
Race/Ethnicity^												
Non-Hispanic white	566,374	89,670	15.83	928	1.03	0.16	1,524	1.70	0.27	568	0.63	0.10
Non-Hispanic black or African-American	125,118	30,798	24.62	454	1.47	0.36	1,431	4.65	1.14	527	1.71	0.42
Hispanic	114,448	21,523	18.81	327	1.52	0.29	670	3.11	0.59	243	1.13	0.21
Non-Hispanic Asian	34,981	7,436	21.26	79	1.06	0.23	165	2.22	0.47	81	1.09	0.23

*Per CDC 2016 Confirmed Elevated Blood Lead case definition

**Note that Pennsylvania does not mandate universal screening of children; screening of children is recommended between 9 and 12 months and at 24 months. Allegheny County is currently the only county with mandatory testing.

***Percent was calculated as the number of children tested divided by the population of children in the county for the specified age range.

†2019 intercensal estimate

^Other and Unknown are not included in the table

Data sources: Pennsylvania Department of Health, PA-NEDSS., Vital Records, National Center for Health Statistics

Testing Summaries by Major Municipality:

The following are summaries of children under age 2 and under age 6 tested in major municipalities, including the number of children tested, the percent of the population tested and confirmation status. Testing rates and percentages of children with EBLLs among major municipalities/cities were generally higher than for their respective counties (except for Bethlehem), for both children under the age of 2 and under the age of 6. This finding likely highlights the historical burden of older housing stock and other urban sources of lead in Pennsylvania municipalities/cities. For children 0-23 months, testing rates were highest in Pittsburgh and lowest in Scranton, and the percentages of EBLL $\geq 5 \mu\text{g/dL}$ as a percentage of those tested were highest in the cities of Reading and Lancaster. Pittsburgh's testing rates may be higher due to the fact that in 2018, Allegheny County started mandatory blood lead testing for children between 9 and 12 months and at 24 months.

Table 9: Number of Children Aged 0–23 Months by Major Municipality and Elevated Blood Lead Confirmation Status,* 2019

Residence		Population of children aged 0–23 months†	Children tested**		Unconfirmed ≥ 5 µg/dL			Confirmed ≥ 5 µg/dL		
Municipality	County		N	% of population***	N	% of tested	% of population	N	% of tested	% of population
Philadelphia	Philadelphia	44,509	18,378	41.29	149	0.81	0.33	628	3.42	1.41
Pittsburgh	Allegheny	6,248	2,929	46.88	46	1.57	0.74	99	3.38	1.58
Allentown	Lehigh	3,586	1,662	46.35	29	1.74	0.81	51	3.07	1.42
Reading	Berks	3,049	1,147	37.62	67	5.84	2.20	96	8.37	3.15
Upper Darby Township	Delaware	2,659	977	36.75	10	1.02	0.38	27	2.76	1.02
Erie	Erie	2,640	1,090	41.29	21	1.93	0.80	32	2.94	1.21
Scranton	Lackawanna	1,833	484	26.41	8	1.65	0.44	28	5.79	1.53
Bethlehem	Northampton/Lehigh	1,829	533	29.14	2	0.38	0.11	8	1.50	0.44
Lancaster	Lancaster	1,709	567	33.18	10	1.76	0.59	47	8.29	2.75
Harrisburg	Dauphin	1,703	499	29.29	4	0.80	0.23	26	5.21	1.53
York	York	1,377	500	36.31	4	0.80	0.29	33	6.60	2.40
Wilkes-Barre	Luzerne	1,040	387	37.22	14	3.62	1.35	11	2.84	1.06
Pennsylvania Total		272,114	90,352	33.20	870	0.96	0.32	2,200	2.43	0.81

*Per CDC 2016 Confirmed Elevated Blood Lead case definition

**Note that Pennsylvania does not mandate universal screening of children; screening of children is recommended between 9 and 12 months and at 24 months. Allegheny County is currently the only county with mandatory testing.

***Percent was calculated as the number of children tested divided by the population of children in the municipality for the specified age range.

†2018 American Community Survey

Data sources: Pennsylvania Department of Health, PA-NEDSS., 2018 American Community Survey

Table 10: Number of Children Aged 0–71 Months by Major Municipality and Elevated Blood Lead Confirmation Status,* 2019

Residence		Population of children aged 0–71 months†	Children tested**		Unconfirmed ≥ 5 µg/dL			Confirmed ≥ 5 µg/dL		
Municipality	County		N	% of population***	N	% of tested	% of population	N	% of tested	% of population
Philadelphia	Philadelphia	127,562	37,608	29.48	363	0.97	0.28	2,017	5.36	1.58
Pittsburgh	Allegheny	17,528	5,387	30.73	101	1.87	0.58	204	3.79	1.16
Allentown	Lehigh	10,680	3,161	29.60	76	2.40	0.71	131	4.14	1.23
Reading	Berks	9,173	2,721	29.78	140	5.12	1.53	269	9.85	2.93
Erie	Erie	7,825	1,977	25.27	40	2.02	0.51	104	5.26	1.33
Upper Darby Township	Delaware	7,498	1,924	25.66	23	1.20	0.31	80	4.16	1.07
Scranton	Lackawanna	5,404	1,065	19.71	26	2.44	0.48	103	9.67	1.91
Bethlehem	Northampton/Lehigh	5,394	1,007	18.67	12	1.19	0.22	20	1.99	0.37
Harrisburg	Dauphin	4,945	1,084	21.92	17	1.57	0.34	63	5.81	1.27
Lancaster	Lancaster	4,795	1,054	21.98	26	2.47	0.54	94	8.92	1.96
York	York	4,082	830	20.33	10	1.20	0.24	97	11.69	2.38
Wilkes-Barre	Luzerne	3,062	778	25.41	30	3.86	0.98	44	5.66	1.44
Pennsylvania Total		842,742	167,608	19.89	1,992	1.19	0.24	5,796	3.46	0.69

*Per CDC 2016 Confirmed Elevated Blood Lead case definition

**Note that Pennsylvania does not mandate universal screening of children; screening of children is recommended between 9 and 12 months and at 24 months. Allegheny County is currently the only county with mandatory testing.

***Percent was calculated as the number of children tested divided by the population of children in the municipality for the specified age range.

†2018 American Community Survey

Data sources: Pennsylvania Department of Health, PA-NEDSS., 2018 American Community Survey

Testing Summaries by County and Race/Ethnicity for Selected Counties:

The following are summaries of children under age 2 and under age 6 by county and race/ethnicity, including the number of children tested, the percent of the population tested and confirmed EBLs of ≥ 5 $\mu\text{g}/\text{dL}$. Other, unknown, Asian, Pacific Islander, American Indian and Alaska Native races are not included. The 17 counties with the largest populations were selected to include the largest cities and the counties with county or municipal health departments.

Table 11: Number of Children with Confirmed EBL* by County of Residence and Race/Ethnicity, Children Aged 0–23 Months, for Select Counties, 2019**

County of residence	Race/Ethnicity	Population 0-23 months†	Children tested*		Confirmed EBL ≥ 5		
			N	% of population**	N	% of tested	% of population
Allegheny	Non-Hispanic black or African American	4,620	2,312	50.04	77	3.33	1.67
Allegheny	Hispanic	728	244	33.52	7	2.87	0.96
Allegheny	Non-Hispanic white	18,689	7,727	41.35	100	1.29	0.54
Berks	Non-Hispanic black or African American	555	154	27.75	8	5.19	1.44
Berks	Hispanic	3,806	1,065	27.98	70	6.57	1.84
Berks	Non-Hispanic white	4,964	1,247	25.12	52	4.17	1.05
Bucks	Non-Hispanic black or African American	798	144	18.05	1	0.69	0.13
Bucks	Hispanic	1,199	281	23.44	4	1.42	0.33
Bucks	Non-Hispanic white	8,932	1,339	14.99	8	0.60	0.09
Chester	Non-Hispanic black or African American	778	238	30.59	1	0.42	0.13
Chester	Hispanic	1,565	544	34.76	5	0.92	0.32
Chester	Non-Hispanic white	7,758	1,704	21.96	14	0.82	0.18
Cumberland	Non-Hispanic black or African American	389	80	20.57	1	1.25	0.26
Cumberland	Hispanic	346	60	17.34	1	1.67	0.29
Cumberland	Non-Hispanic white	4,237	720	16.99	13	1.81	0.31
Dauphin	Non-Hispanic black or African American	1,533	393	25.64	9	2.29	0.59
Dauphin	Hispanic	1,154	246	21.32	10	4.07	0.87
Dauphin	Non-Hispanic white	3,593	808	22.49	18	2.23	0.50
Delaware	Non-Hispanic black or African American	3,806	1,556	40.88	29	1.86	0.76
Delaware	Hispanic	906	355	39.18	8	2.25	0.88
Delaware	Non-Hispanic white	7,642	2,116	27.69	16	0.76	0.21

County of residence	Race/Ethnicity	Population 0-23 months†	Children tested*		Confirmed EBLL ≥ 5		
			N	% of population**	N	% of tested	% of population
Erie	Non-Hispanic black or African American	722	238	32.96	11	4.62	1.52
Erie	Hispanic	505	116	22.97	4	3.45	0.79
Erie	Non-Hispanic white	4,403	1,362	30.93	19	1.40	0.43
Lackawanna	Non-Hispanic black or African American	252	101	40.08	2	1.98	0.79
Lackawanna	Hispanic	658	159	24.16	5	3.14	0.76
Lackawanna	Non-Hispanic white	3,023	651	21.53	21	3.23	0.69
Lancaster	Non-Hispanic black or African American	839	186	22.17	16	8.60	1.91
Lancaster	Hispanic	2,192	573	26.14	20	3.49	0.91
Lancaster	Non-Hispanic white	10,779	1,560	14.47	70	4.49	0.65
Lehigh	Non-Hispanic black or African American	672	270	40.18	2	0.74	0.30
Lehigh	Hispanic	3,760	1,326	35.27	37	2.79	0.98
Lehigh	Non-Hispanic white	3,887	670	17.24	13	1.94	0.33
Luzerne	Non-Hispanic black or African American	448	181	40.40	7	3.87	1.56
Luzerne	Hispanic	2,039	468	22.95	14	2.99	0.69
Luzerne	Non-Hispanic white	3,985	1,333	33.45	28	2.10	0.70
Montgomery	Non-Hispanic black or African American	2,012	600	29.82	10	1.67	0.50
Montgomery	Hispanic	1,853	692	37.34	33	4.77	1.78
Montgomery	Non-Hispanic white	12,137	3,339	27.51	32	0.96	0.26
Northampton	Non-Hispanic black or African American	441	128	29.02	0	0.00	0.00
Northampton	Hispanic	1,371	377	27.50	6	1.59	0.44
Northampton	Non-Hispanic white	3,587	689	19.21	13	1.89	0.36
Philadelphia	Non-Hispanic black or African American	16,257	7,261	44.66	359	4.94	2.21
Philadelphia	Hispanic	9,373	3,240	34.57	79	2.44	0.84
Philadelphia	Non-Hispanic white	12,973	4,429	34.14	79	1.78	0.61

County of residence	Race/Ethnicity	Population 0-23 months†	Children tested*		Confirmed EBLL ≥ 5		
			N	% of population**	N	% of tested	% of population
Westmoreland	Non-Hispanic black or African American	284	95	33.45	4	4.21	1.41
Westmoreland	Hispanic	114	20	17.54	0	0.00	0.00
Westmoreland	Non-Hispanic white	5,403	2,006	37.13	21	1.05	0.39
York	Non-Hispanic black or African American	840	192	22.86	11	5.73	1.31
York	Hispanic	1,475	351	23.80	15	4.27	1.02
York	Non-Hispanic white	7,304	1,568	21.47	31	1.98	0.42
Pennsylvania Total	Non-Hispanic black or African American	38,662	15,054	38.94	583	3.87	1.51
Pennsylvania Total	Hispanic	37,447	11,170	29.83	349	3.12	0.93
Pennsylvania Total	Non-Hispanic white	184,727	52,310	28.32	985	1.88	0.57
Pennsylvania Total		272,114	90,352	33.20	2,200	2.43	0.53

*Note that Pennsylvania does not mandate universal screening of children; screening of children is recommended between 9 and 12 months and at 24 months. Allegheny County is currently the only county with mandatory testing.

**Percent was calculated as the number of children tested divided by the population of children in the county for the specified age range.

****Per CDC 2016 Elevated Blood Lead case definition

†2019 intercensal estimate

Data sources: Pennsylvania Department of Health, PA-NEDSS., Vital Records, National Center for Health Statistics

Table 12: Number of Children with Confirmed EBLL* by County of Residence and Race/Ethnicity, Children Aged 0–71 Months, for Select Counties, 2019**

County of residence	Race/Ethnicity	Population 0-71 months†	Children tested*		Confirmed EBLL ≥ 5		
			N	% of population**	N	% of tested	% of population
Allegheny	Non-Hispanic black or African American	15,150	4,562	30.11	191	4.19	1.26
Allegheny	Hispanic	2,481	442	17.82	12	2.71	0.48
Allegheny	Non-Hispanic white	54,434	15,389	28.27	184	1.20	0.34
Berks	Non-Hispanic black or African American	1,701	297	17.46	22	7.41	1.29
Berks	Hispanic	11,336	2,320	20.47	188	8.10	1.66
Berks	Non-Hispanic white	15,607	1,897	12.15	88	4.64	0.56
Bucks	Non-Hispanic black or African American	2,413	234	9.70	3	1.28	0.12
Bucks	Hispanic	3,671	534	14.55	8	1.50	0.22
Bucks	Non-Hispanic white	28,517	2,133	7.48	12	0.56	0.04
Chester	Non-Hispanic black or African American	2,405	476	19.79	9	1.89	0.37
Chester	Hispanic	4,806	1,024	21.31	18	1.76	0.37
Chester	Non-Hispanic white	25,102	2,749	10.95	21	0.76	0.08
Cumberland	Non-Hispanic black or African American	1,250	129	10.32	3	2.33	0.24
Cumberland	Hispanic	1,067	116	10.87	4	3.45	0.37
Cumberland	Non-Hispanic white	13,066	1,119	8.56	18	1.61	0.14
Dauphin	Non-Hispanic black or African American	5,013	772	15.40	29	3.76	0.58
Dauphin	Hispanic	3,637	505	13.89	21	4.16	0.58
Dauphin	Non-Hispanic white	10,575	1,378	13.03	35	2.54	0.33
Delaware	Non-Hispanic black or African American	11,620	3,065	26.38	97	3.16	0.83
Delaware	Hispanic	2,622	638	24.33	27	4.23	1.03
Delaware	Non-Hispanic white	23,405	3,696	15.79	36	0.97	0.15

County of residence	Race/Ethnicity	Population 0-71 months†	Children tested*		Confirmed EBLL ≥ 5		
			N	% of population**	N	% of tested	% of population
Erie	Non-Hispanic black or African American	2,485	454	18.27	36	7.93	1.45
Erie	Hispanic	1,580	216	13.67	10	4.63	0.63
Erie	Non-Hispanic white	13,511	2,437	18.04	60	2.46	0.44
Lackawanna	Non-Hispanic black or African American	902	185	20.51	13	7.03	1.44
Lackawanna	Hispanic	2,297	341	14.85	12	3.52	0.52
Lackawanna	Non-Hispanic white	9,650	1,245	12.90	67	5.38	0.69
Lancaster	Non-Hispanic black or African American	2,497	342	13.70	39	11.40	1.56
Lancaster	Hispanic	6,743	1,025	15.20	48	4.68	0.71
Lancaster	Non-Hispanic white	32,252	2,307	7.15	107	4.64	0.33
Lehigh	Non-Hispanic black or African American	2,224	475	21.36	15	3.16	0.67
Lehigh	Hispanic	11,058	2,308	20.87	92	3.99	0.83
Lehigh	Non-Hispanic white	12,241	1,165	9.52	29	2.49	0.24
Luzerne	Non-Hispanic black or African American	1,522	376	24.70	18	4.79	1.18
Luzerne	Hispanic	5,918	845	14.28	40	4.73	0.68
Luzerne	Non-Hispanic white	12,234	2,318	18.95	76	3.28	0.62
Montgomery	Non-Hispanic black or African American	6,134	1,165	18.99	40	3.43	0.65
Montgomery	Hispanic	5,391	1,254	23.26	72	5.74	1.34
Montgomery	Non-Hispanic white	38,462	5,448	14.16	55	1.01	0.14
Northampton	Non-Hispanic black or African American	1,506	241	16.00	7	2.90	0.46
Northampton	Hispanic	4,249	754	17.75	20	2.65	0.47
Northampton	Non-Hispanic white	11,266	1,251	11.10	33	2.64	0.29
Philadelphia	Non-Hispanic black or African American	53,474	15,851	29.64	1,284	8.10	2.40
Philadelphia	Hispanic	28,284	6,804	24.06	238	3.50	0.84
Philadelphia	Non-Hispanic white	32,902	7,379	22.43	167	2.26	0.51

County of residence	Race/Ethnicity	Population 0-71 months†	Children tested*		Confirmed EBLL ≥ 5		
			N	% of population**	N	% of tested	% of population
Westmoreland	Non-Hispanic black or African American	1,010	180	17.82	11	6.11	1.09
Westmoreland	Hispanic	475	37	7.79	0	0.00	0.00
Westmoreland	Non-Hispanic white	17,199	3,352	19.49	41	1.22	0.24
York	Non-Hispanic black or African American	2,817	312	11.08	36	11.54	1.28
York	Hispanic	4,529	554	12.23	39	7.04	0.86
York	Non-Hispanic white	22,844	2,495	10.92	68	2.73	0.30
Pennsylvania Total	Non-Hispanic black or African American	125,118	30,798	24.62	1,958	6.36	1.56
Pennsylvania Total	Hispanic	114,448	21,523	18.81	913	4.24	0.80
Pennsylvania Total	Non-Hispanic white	566,374	89,670	15.83	2,092	2.33	0.37
Pennsylvania Total		842,742	167,608	19.89	5,796	3.46	0.69

*Note that Pennsylvania does not mandate universal screening of children; screening of children is recommended between 9 and 12 months and at 24 months. Allegheny County is currently the only county with mandatory testing.

**Percent was calculated as the number of children tested divided by the population of children in the county for the specified age range.

****Per CDC 2016 Elevated Blood Lead case definition

†2019 intercensal estimate

Data sources: Pennsylvania Department of Health, PA-NEDSS., Vital Records, National Center for Health Statistics

Testing Summaries by County:

The following are summaries of children under age 2 and under age 6 tested by county, including the number of children tested, the percent of population tested, and BLLs of 5–9.9 and ≥ 10 $\mu\text{g}/\text{dL}$ by maximum blood level and by confirmed blood level for all 67 counties.

Table 13: Number of Children Tested for Lead by Maximum Blood Lead Level and County of Residence, Children Aged 0–23 Months, 2019

County of residence	Population of children aged 0–23 months†	Children tested*		Maximum BLL 5–9.9 $\mu\text{g}/\text{dL}$			Maximum BLL ≥ 10 $\mu\text{g}/\text{dL}$		
		N	% of population**	N	% of tested	% of population	N	% of tested	% of population
Adams	1,967	763	38.79	8	1.05	0.41	4	0.52	0.20
Allegheny	25,385	11,916	46.94	263	2.21	1.04	75	0.63	0.30
Armstrong	1,263	528	41.81	9	1.70	0.71	2	0.38	0.16
Beaver	3,051	1,055	34.58	20	1.90	0.66	2	0.19	0.07
Bedford	916	387	42.25	6	1.55	0.66	2	0.52	0.22
Berks	9,450	2,779	29.41	192	6.91	2.03	45	1.62	0.48
Blair	2,350	925	39.36	28	3.03	1.19	9	0.97	0.38
Bradford	1,244	460	36.98	13	2.83	1.05	6	1.30	0.48
Bucks	11,612	2,122	18.27	14	0.66	0.12	7	0.33	0.06
Butler	3,455	1,655	47.90	24	1.45	0.69	7	0.42	0.20
Cambria	2,448	1,220	49.84	31	2.54	1.27	18	1.48	0.74
Cameron	74	24	32.43	2	8.33	2.70	0	0.00	0.00
Carbon	1,173	286	24.38	15	5.24	1.28	3	1.05	0.26
Centre	2,303	577	25.05	2	0.35	0.09	0	0.00	0.00
Chester	10,843	2,960	27.30	39	1.32	0.36	10	0.34	0.09
Clarion	734	223	30.38	7	3.14	0.95	7	3.14	0.95
Clearfield	1,469	492	33.49	7	1.42	0.48	0	0.00	0.00
Clinton	766	233	30.42	6	2.58	0.78	1	0.43	0.13
Columbia	1,042	201	19.29	7	3.48	0.67	1	0.50	0.10
Crawford	1,830	412	22.51	9	2.18	0.49	2	0.49	0.11
Cumberland	5,269	1,012	19.21	25	2.47	0.47	4	0.40	0.08
Dauphin	6,684	1,802	26.96	34	1.89	0.51	22	1.22	0.33

County of residence	Population of children aged 0–23 months†	Children tested*		Maximum BLL 5–9.9 µg/dL			Maximum BLL ≥ 10 µg/dL		
		N	% of population**	N	% of tested	% of population	N	% of tested	% of population
Delaware	13,199	4,669	35.37	70	1.50	0.53	28	0.60	0.21
Elk	539	161	29.87	5	3.11	0.93	0	0.00	0.00
Erie	5,803	2,057	35.45	50	2.43	0.86	24	1.17	0.41
Fayette	2,487	648	26.06	12	1.85	0.48	5	0.77	0.20
Forest	41	10	24.39	1	10.00	2.44	0	0.00	0.00
Franklin	3,461	1,055	30.48	26	2.46	0.75	5	0.47	0.14
Fulton	295	91	30.85	2	2.20	0.68	0	0.00	0.00
Greene	708	247	34.89	8	3.24	1.13	2	0.81	0.28
Huntingdon	702	285	40.60	10	3.51	1.42	3	1.05	0.43
Indiana	1,538	624	40.57	15	2.40	0.98	5	0.80	0.33
Jefferson	927	258	27.83	8	3.10	0.86	2	0.78	0.22
Juniata	574	136	23.69	8	5.88	1.39	2	1.47	0.35
Lackawanna	4,086	1,073	26.26	29	2.70	0.71	18	1.68	0.44
Lancaster	14,218	2,545	17.90	118	4.64	0.83	31	1.22	0.22
Lawrence	1,759	550	31.27	17	3.09	0.97	4	0.73	0.23
Lebanon	3,261	729	22.36	28	3.84	0.86	8	1.10	0.25
Lehigh	8,587	2,570	29.93	73	2.84	0.85	17	0.66	0.20
Luzerne	6,581	2,158	32.79	63	2.92	0.96	29	1.34	0.44
Lycoming	2,336	659	28.21	29	4.40	1.24	8	1.21	0.34
McKean	756	338	44.71	10	2.96	1.32	2	0.59	0.26
Mercer	2,090	736	35.22	23	3.13	1.10	5	0.68	0.24
Mifflin	1,156	285	24.65	8	2.81	0.69	1	0.35	0.09
Monroe	3,126	626	20.03	2	0.32	0.06	2	0.32	0.06
Montgomery	17,481	5,493	31.42	89	1.62	0.51	25	0.46	0.14
Montour	420	98	23.33	2	2.04	0.48	0	0.00	0.00
Northampton	5,572	1,400	25.13	30	2.14	0.54	7	0.50	0.13
Northumberland	1,848	525	28.41	32	6.10	1.73	10	1.90	0.54
Perry	996	233	23.39	11	4.72	1.10	0	0.00	0.00
Philadelphia	41,338	18,378	44.46	596	3.24	1.44	183	1.00	0.44

County of residence	Population of children aged 0–23 months†	Children tested*		Maximum BLL 5–9.9 µg/dL			Maximum BLL ≥ 10 µg/dL		
		N	% of population**	N	% of tested	% of population	N	% of tested	% of population
Pike	866	206	23.79	1	0.49	0.12	1	0.49	0.12
Potter	313	124	39.62	0	0.00	0.00	0	0.00	0.00
Schuylkill	2,576	938	36.41	45	4.80	1.75	14	1.49	0.54
Snyder	826	155	18.77	5	3.23	0.61	1	0.65	0.12
Somerset	1,286	648	50.39	17	2.62	1.32	2	0.31	0.16
Sullivan	65	18	27.69	1	5.56	1.54	0	0.00	0.00
Susquehanna	723	150	20.75	1	0.67	0.14	0	0.00	0.00
Tioga	832	174	20.91	4	2.30	0.48	2	1.15	0.24
Union	809	196	24.23	4	2.04	0.49	0	0.00	0.00
Venango	899	239	26.59	12	5.02	1.33	8	3.35	0.89
Warren	836	267	31.94	7	2.62	0.84	3	1.12	0.36
Washington	3,911	1,542	39.43	26	1.69	0.66	11	0.71	0.28
Wayne	745	244	32.75	5	2.05	0.67	1	0.41	0.13
Westmoreland	5,877	2,232	37.98	31	1.39	0.53	9	0.40	0.15
Wyoming	523	86	16.44	1	1.16	0.19	0	0.00	0.00
York	9,814	2,464	25.11	52	2.11	0.53	35	1.42	0.36
Total	272,114	90,352	33.20	2,348	2.60	0.86	740	0.82	0.27

*Note that Pennsylvania does not mandate universal screening of children; screening of children is recommended between 9 and 12 months and at 24 months. Allegheny County is currently the only county with mandatory testing.

**Percent was calculated as the number of children tested divided by the population of children in the county for the specified age range.

†2019 intercensal estimate

Data sources: Pennsylvania Department of Health, PA-NEDSS., National Center for Health Statistics

Table 14: Number of Children Aged 0–23 Months by County of Residence and Elevated Blood Lead Confirmation Status,* 2019

County of residence	Population of children aged 0–23 months†	Children tested**		Unconfirmed elevated (≥ 5 µg/dL)			Confirmed 5–9.9 µg/dL			Confirmed ≥ 10 µg/dL		
		N	% of population^	N	% of tested	% of population	N	% of tested	% of population	N	% of tested	% of population
Adams	1,967	762	38.74	4	0.52	0.20	5	0.66	0.25	3	0.39	0.15
Allegheny	25,385	11,918	46.95	123	1.03	0.48	145	1.22	0.57	57	0.48	0.22
Armstrong	1,263	527	41.73	2	0.38	0.16	5	0.95	0.40	2	0.38	0.16
Beaver	3,051	1,053	34.51	9	0.85	0.29	10	0.95	0.33	2	0.19	0.07
Bedford	916	387	42.25	4	1.03	0.44	4	1.03	0.44	1	0.26	0.11
Berks	9,450	2,773	29.34	94	3.39	0.99	112	4.04	1.19	34	1.23	0.36
Blair	2,350	926	39.40	7	0.76	0.30	21	2.27	0.89	8	0.86	0.34
Bradford	1,244	460	36.98	4	0.87	0.32	10	2.17	0.80	5	1.09	0.40
Bucks	11,612	2,121	18.27	6	0.28	0.05	11	0.52	0.09	5	0.24	0.04
Butler	3,455	1,657	47.96	16	0.97	0.46	12	0.72	0.35	4	0.24	0.12
Cambria	2,448	1,223	49.96	18	1.47	0.74	17	1.39	0.69	12	0.98	0.49
Cameron	74	24	32.43	1	4.17	1.35	1	4.17	1.35	0	0.00	0.00
Carbon	1,173	288	24.55	5	1.74	0.43	11	3.82	0.94	1	0.35	0.09
Centre	2,303	576	25.01	0	0.00	0.00	2	0.35	0.09	0	0.00	0.00
Chester	10,843	2,961	27.31	16	0.54	0.15	17	0.57	0.16	8	0.27	0.07
Clarion	734	222	30.25	5	2.25	0.68	6	2.70	0.82	4	1.80	0.54
Clearfield	1,469	493	33.56	2	0.41	0.14	4	0.81	0.27	0	0.00	0.00
Clinton	766	233	30.42	2	0.86	0.26	4	1.72	0.52	1	0.43	0.13
Columbia	1,042	202	19.39	0	0.00	0.00	7	3.47	0.67	1	0.50	0.10
Crawford	1,830	411	22.46	4	0.97	0.22	5	1.22	0.27	2	0.49	0.11
Cumberland	5,269	1,016	19.28	11	1.08	0.21	16	1.57	0.30	3	0.30	0.06
Dauphin	6,684	1,801	26.94	12	0.67	0.18	26	1.44	0.39	19	1.05	0.28
Delaware	13,199	4,676	35.43	31	0.66	0.23	50	1.07	0.38	23	0.49	0.17
Elk	539	161	29.87	0	0.00	0.00	5	3.11	0.93	0	0.00	0.00
Erie	5,803	2,058	35.46	33	1.60	0.57	22	1.07	0.38	20	0.97	0.34

County of residence	Population of children aged 0–23 months†	Children tested**		Unconfirmed elevated (≥ 5 µg/dL)			Confirmed 5–9.9 µg/dL			Confirmed ≥ 10 µg/dL		
		N	% of population^	N	% of tested	% of population	N	% of tested	% of population	N	% of tested	% of population
Fayette	2,487	649	26.10	4	0.62	0.16	9	1.39	0.36	5	0.77	0.20
Forest	41	11	26.83	0	0.00	0.00	1	9.09	2.44	0	0.00	0.00
Franklin	3,461	1,055	30.48	14	1.33	0.40	14	1.33	0.40	4	0.38	0.12
Fulton	295	91	30.85	1	1.10	0.34	1	1.10	0.34	0	0.00	0.00
Greene	708	247	34.89	2	0.81	0.28	6	2.43	0.85	2	0.81	0.28
Huntingdon	702	286	40.74	3	1.05	0.43	8	2.80	1.14	3	1.05	0.43
Indiana	1,538	621	40.38	11	1.77	0.72	4	0.64	0.26	4	0.64	0.26
Jefferson	927	259	27.94	4	1.54	0.43	5	1.93	0.54	2	0.77	0.22
Juniata	574	136	23.69	0	0.00	0.00	8	5.88	1.39	2	1.47	0.35
Lackawanna	4,086	1,071	26.21	10	0.93	0.24	24	2.24	0.59	14	1.31	0.34
Lancaster	14,218	2,547	17.91	25	0.98	0.18	94	3.69	0.66	28	1.10	0.20
Lawrence	1,759	550	31.27	6	1.09	0.34	10	1.82	0.57	4	0.73	0.23
Lebanon	3,261	728	22.32	10	1.37	0.31	21	2.88	0.64	7	0.96	0.21
Lehigh	8,587	2,570	29.93	31	1.21	0.36	46	1.79	0.54	14	0.54	0.16
Luzerne	6,581	2,159	32.81	38	1.76	0.58	39	1.81	0.59	16	0.74	0.24
Lycoming	2,336	660	28.25	1	0.15	0.04	28	4.24	1.20	8	1.21	0.34
McKean	756	338	44.71	1	0.30	0.13	9	2.66	1.19	2	0.59	0.26
Mercer	2,090	735	35.17	10	1.36	0.48	14	1.90	0.67	4	0.54	0.19
Mifflin	1,156	285	24.65	0	0.00	0.00	8	2.81	0.69	1	0.35	0.09
Monroe	3,126	626	20.03	0	0.00	0.00	2	0.32	0.06	2	0.32	0.06
Montgomery	17,481	5,491	31.41	18	0.33	0.10	67	1.22	0.38	22	0.40	0.13
Montour	420	98	23.33	0	0.00	0.00	2	2.04	0.48	0	0.00	0.00
Northampton	5,572	1,401	25.14	14	1.00	0.25	18	1.28	0.32	7	0.50	0.13
Northumberland	1,848	524	28.35	7	1.34	0.38	28	5.34	1.52	8	1.53	0.43
Perry	996	232	23.29	8	3.45	0.80	4	1.72	0.40	0	0.00	0.00
Philadelphia	41,338	18,374	44.45	148	0.81	0.36	466	2.54	1.13	161	0.88	0.39
Pike	866	205	23.67	1	0.49	0.12	2	0.98	0.23	0	0.00	0.00

County of residence	Population of children aged 0–23 months†	Children tested**		Unconfirmed elevated (≥ 5 µg/dL)			Confirmed 5–9.9 µg/dL			Confirmed ≥ 10 µg/dL		
		N	% of population^	N	% of tested	% of population	N	% of tested	% of population	N	% of tested	% of population
Potter	313	124	39.62	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00
Schuylkill	2,576	935	36.30	25	2.67	0.97	23	2.46	0.89	10	1.07	0.39
Snyder	826	154	18.64	1	0.65	0.12	4	2.60	0.48	1	0.65	0.12
Somerset	1,286	649	50.47	4	0.62	0.31	11	1.69	0.86	2	0.31	0.16
Sullivan	65	18	27.69	1	5.56	1.54	0	0.00	0.00	0	0.00	0.00
Susquehanna	723	150	20.75	0	0.00	0.00	1	0.67	0.14	0	0.00	0.00
Tioga	832	174	20.91	0	0.00	0.00	4	2.30	0.48	1	0.57	0.12
Union	809	195	24.10	0	0.00	0.00	4	2.05	0.49	0	0.00	0.00
Venango	899	239	26.59	5	2.09	0.56	9	3.77	1.00	7	2.93	0.78
Warren	836	267	31.94	2	0.75	0.24	6	2.25	0.72	2	0.75	0.24
Washington	3,911	1,539	39.35	21	1.36	0.54	12	0.78	0.31	5	0.32	0.13
Wayne	745	246	33.02	2	0.81	0.27	3	1.22	0.40	1	0.41	0.13
Westmoreland	5,877	2,233	38.00	10	0.45	0.17	20	0.90	0.34	6	0.27	0.10
Wyoming	523	86	16.44	0	0.00	0.00	1	1.16	0.19	0	0.00	0.00
York	9,814	2,465	25.12	23	0.93	0.23	37	1.50	0.38	29	1.18	0.30
Total	272,114	90,352	33.20	870	0.96	0.32	1,601	1.77	0.59	599	0.66	0.22

*Per CDC 2016 Confirmed Elevated Blood Lead case definition

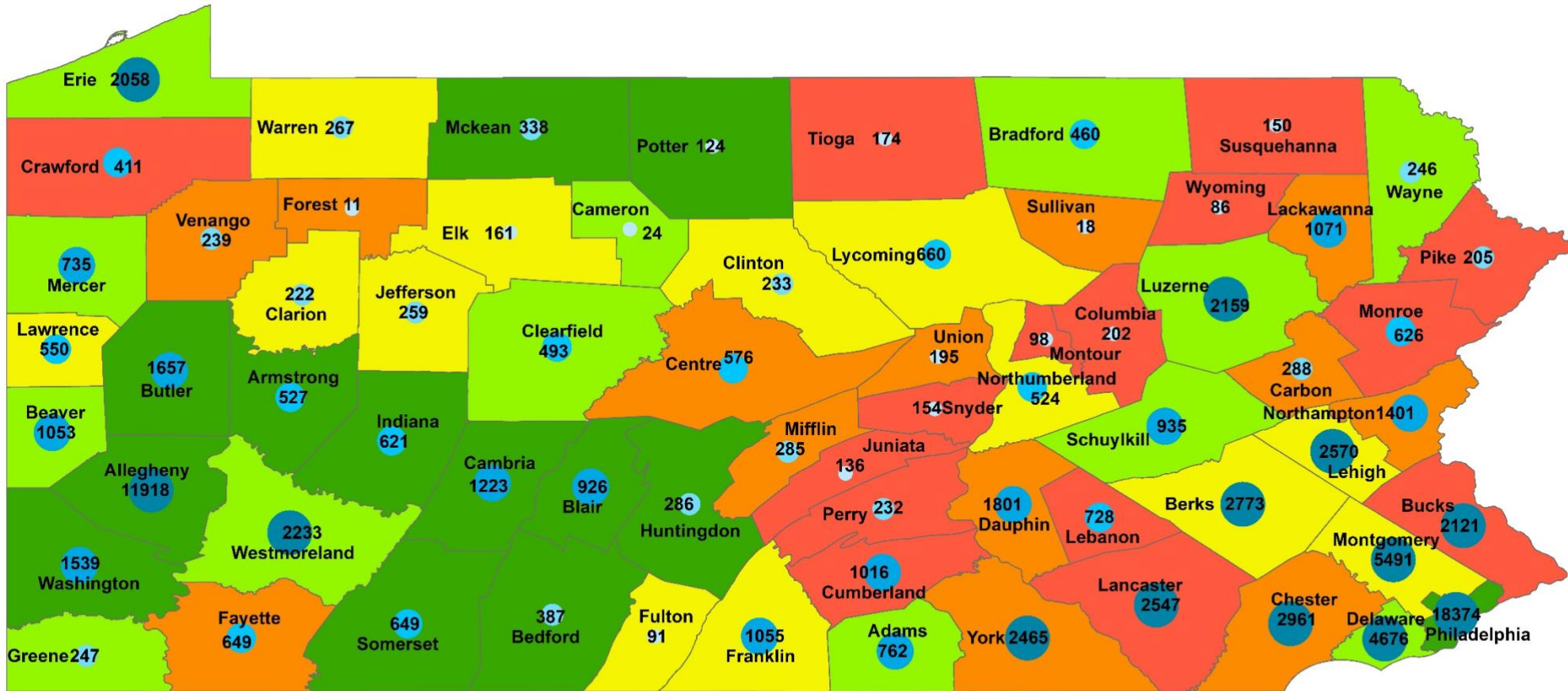
**Note that Pennsylvania does not mandate universal screening of children; screening of children is recommended between 9 and 12 months and at 24 months. Allegheny County is currently the only county with mandatory testing.

^Percent was calculated as the number of children tested divided by the population of children in the county for the specified age range.

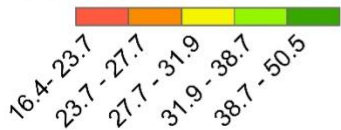
†2019 intercensal estimate

Data sources: Pennsylvania Department of Health, PA-NEDSS., National Center for Health Statistics

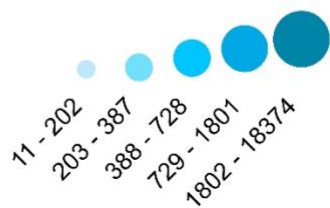
Figure 1: Number and Percentage* of Children Aged 0–23 Months Tested for Blood Lead Level by County, 2019



Percentage of children with BLL test



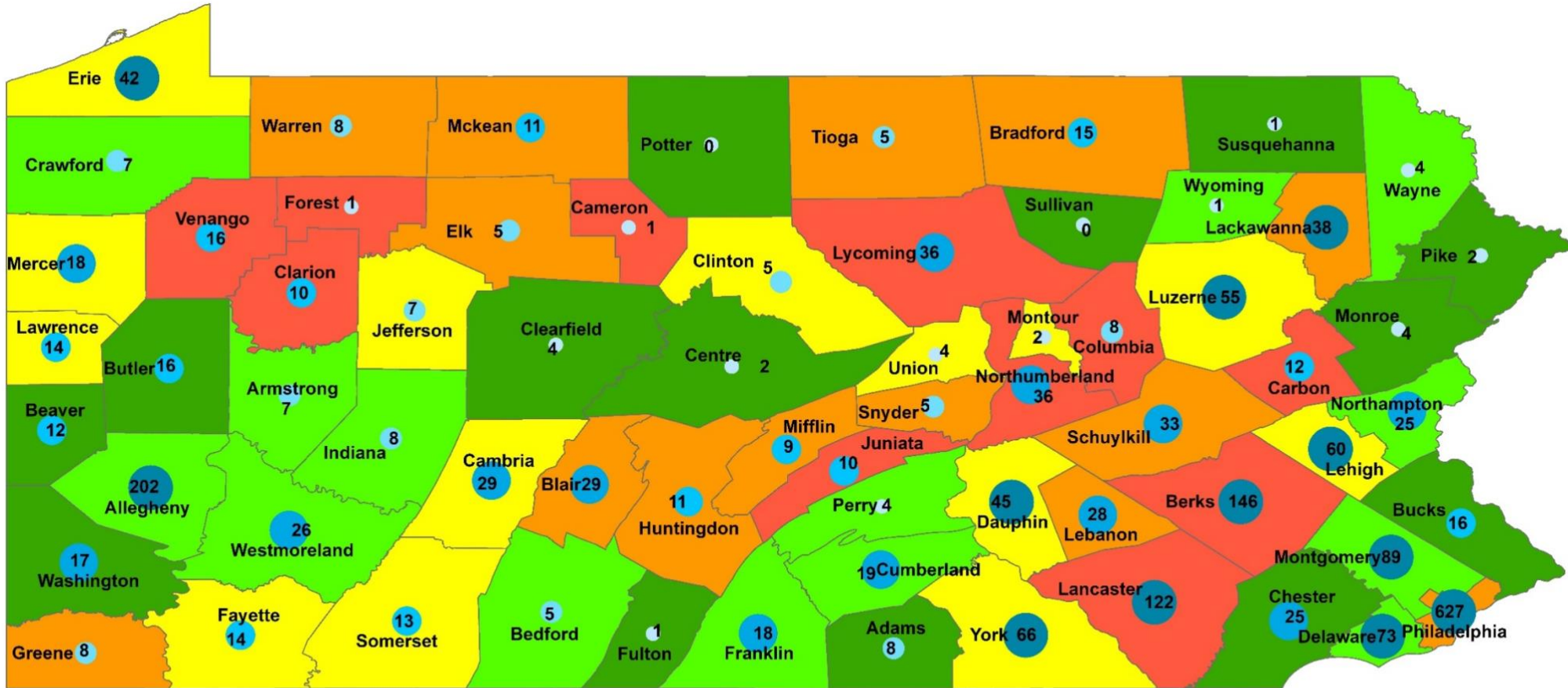
Number of children with BLL test



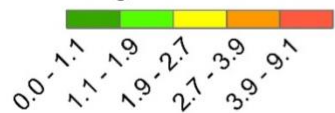
Data Sources: Pennsylvania's Electronic Reportable Disease Surveillance System and U.S. Census Bureau

*Percentage was calculated by dividing the number of children aged 0–23 months tested in each county by the 2019 intercensal estimate of the number of children aged 0–23 months residing in the county.

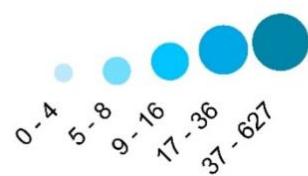
Figure 2: Number and Percentage* of Children Aged 0–23 Months with Confirmed Elevated Blood Lead Level by County, 2019



Percentage of tested children with EBLL



Number of children with EBLL



Data Sources: Pennsylvania's Electronic Reportable Disease Surveillance System and U.S. Census Bureau

*Percentage was calculated by dividing the number of children aged 0–23 months with EBLL by the total number of children aged 0–23 months tested for blood lead level in 2019.

Table 15: Number of Children Tested for Lead by Maximum Blood Lead Level and County of Residence, Children Aged 0–71 Months, 2019

County of residence	Population of children aged 0–71 months†	Children tested*		Maximum BLL 5–9.9 µg/dL			Maximum BLL ≥ 10 µg/dL		
		N	% of population**	N	% of tested	% of population	N	% of tested	% of population
Adams	6,203	1,288	20.76	19	1.48	0.31	10	0.78	0.16
Allegheny	76,390	24,161	31.63	562	2.33	0.74	177	0.73	0.23
Armstrong	3,793	1,040	27.42	29	2.79	0.76	6	0.58	0.16
Beaver	9,890	1,681	17.00	38	2.26	0.38	6	0.36	0.06
Bedford	2,819	690	24.48	19	2.75	0.67	3	0.43	0.11
Berks	29,040	5,402	18.60	418	7.74	1.44	118	2.18	0.41
Blair	7,618	1,362	17.88	57	4.19	0.75	22	1.62	0.29
Bradford	4,146	838	20.21	27	3.22	0.65	17	2.03	0.41
Bucks	36,927	3,548	9.61	30	0.85	0.08	12	0.34	0.03
Butler	11,405	2,722	23.87	34	1.25	0.30	12	0.44	0.11
Cambria	7,778	1,903	24.47	83	4.36	1.07	37	1.94	0.48
Cameron	265	59	22.26	3	5.08	1.13	0	0.00	0.00
Carbon	3,708	652	17.58	38	5.83	1.02	7	1.07	0.19
Centre	7,450	757	10.16	5	0.66	0.07	1	0.13	0.01
Chester	35,016	5,177	14.78	93	1.80	0.27	26	0.50	0.07
Clarion	2,383	352	14.77	12	3.41	0.50	8	2.27	0.34
Clearfield	4,430	820	18.51	16	1.95	0.36	2	0.24	0.05
Clinton	2,367	351	14.83	11	3.13	0.46	2	0.57	0.08
Columbia	3,443	356	10.34	16	4.49	0.46	5	1.40	0.15
Crawford	5,541	810	14.62	23	2.84	0.42	13	1.60	0.23
Cumberland	16,426	1,715	10.44	38	2.22	0.23	11	0.64	0.07
Dauphin	20,567	3,503	17.03	101	2.88	0.49	47	1.34	0.23
Delaware	40,473	8,682	21.45	206	2.37	0.51	74	0.85	0.18
Elk	1,766	287	16.25	10	3.48	0.57	1	0.35	0.06
Erie	18,191	3,758	20.66	134	3.57	0.74	57	1.52	0.31
Fayette	7,853	1,196	15.23	35	2.93	0.45	12	1.00	0.15

County of residence	Population of children aged 0–71 months†	Children tested*		Maximum BLL 5–9.9 µg/dL			Maximum BLL ≥ 10 µg/dL		
		N	% of population**	N	% of tested	% of population	N	% of tested	% of population
Forest	174	18	10.34	1	5.56	0.57	0	0.00	0.00
Franklin	10,940	1,807	16.52	49	2.71	0.45	13	0.72	0.12
Fulton	913	173	18.95	3	1.73	0.33	0	0.00	0.00
Greene	2,299	502	21.84	24	4.78	1.04	6	1.20	0.26
Huntingdon	2,334	518	22.19	17	3.28	0.73	4	0.77	0.17
Indiana	4,748	924	19.46	24	2.60	0.51	6	0.65	0.13
Jefferson	2,931	443	15.11	19	4.29	0.65	6	1.35	0.20
Juniata	1,716	197	11.48	11	5.58	0.64	3	1.52	0.17
Lackawanna	13,409	2,149	16.03	111	5.17	0.83	60	2.79	0.45
Lancaster	42,779	4,200	9.82	209	4.98	0.49	82	1.95	0.19
Lawrence	5,443	992	18.23	31	3.13	0.57	6	0.60	0.11
Lebanon	9,997	1,301	13.01	55	4.23	0.55	20	1.54	0.20
Lehigh	26,469	4,788	18.09	188	3.93	0.71	50	1.04	0.19
Luzerne	20,062	3,904	19.46	151	3.87	0.75	75	1.92	0.37
Lycoming	7,250	1,020	14.07	53	5.20	0.73	15	1.47	0.21
McKean	2,395	681	28.43	35	5.14	1.46	12	1.76	0.50
Mercer	6,462	1,258	19.47	51	4.05	0.79	12	0.95	0.19
Mifflin	3,391	399	11.77	13	3.26	0.38	3	0.75	0.09
Monroe	9,567	1,132	11.83	7	0.62	0.07	4	0.35	0.04
Montgomery	55,145	9,488	17.21	199	2.10	0.36	66	0.70	0.12
Montour	1,262	300	23.77	6	2.00	0.48	1	0.33	0.08
Northampton	17,623	2,733	15.51	78	2.85	0.44	21	0.77	0.12
Northumberland	5,664	950	16.77	71	7.47	1.25	27	2.84	0.48
Perry	3,181	380	11.95	17	4.47	0.53	2	0.53	0.06
Philadelphia	122,887	37,601	30.60	1,837	4.89	1.49	541	1.44	0.44
Pike	2,619	422	16.11	3	0.71	0.11	1	0.24	0.04
Potter	1,016	247	24.31	5	2.02	0.49	0	0.00	0.00
Schuylkill	8,343	1,736	20.81	99	5.70	1.19	51	2.94	0.61

County of residence	Population of children aged 0–71 months†	Children tested*		Maximum BLL 5–9.9 µg/dL			Maximum BLL ≥ 10 µg/dL		
		N	% of population**	N	% of tested	% of population	N	% of tested	% of population
Snyder	2,611	233	8.92	7	3.00	0.27	3	1.29	0.11
Somerset	4,024	875	21.74	22	2.51	0.55	3	0.34	0.07
Sullivan	204	44	21.57	1	2.27	0.49	0	0.00	0.00
Susquehanna	2,274	248	10.91	6	2.42	0.26	2	0.81	0.09
Tioga	2,554	313	12.26	9	2.88	0.35	3	0.96	0.12
Union	2,469	292	11.83	7	2.40	0.28	1	0.34	0.04
Venango	2,897	547	18.88	43	7.86	1.48	16	2.93	0.55
Warren	2,449	518	21.15	28	5.41	1.14	14	2.70	0.57
Washington	12,556	2,661	21.19	50	1.88	0.40	20	0.75	0.16
Wayne	2,504	528	21.09	8	1.52	0.32	3	0.57	0.12
Westmoreland	18,955	3,806	20.08	68	1.79	0.36	20	0.53	0.11
Wyoming	1,574	146	9.28	3	2.05	0.19	1	0.68	0.06
York	30,764	4,024	13.08	139	3.45	0.45	71	1.76	0.23
Total	842,742	167,608	19.89	5,815	3.47	0.69	1,930	1.15	0.23

*Note that Pennsylvania does not mandate universal screening of children; screening of children is recommended between 9 and 12 months and at 24 months. Allegheny County is currently the only county with mandatory testing.

**Percent was calculated as the number of children tested divided by the population of children in the county for the specified age range.

†2019 intercensal estimate

Data sources: Pennsylvania Department of Health, PA-NEDSS., National Center for Health Statistics

Table 16: Number of Children Aged 0–71 Months by County of Residence and Elevated Blood Lead Confirmation Status,* 2019

County of residence	Population of children aged 0–71 months†	Children tested**		Unconfirmed elevated (≥ 5 µg/dL)			Confirmed 5–9.9 µg/dL			Confirmed ≥ 10 µg/dL		
		N	% of population^	N	% of tested	% of population	N	% of tested	% of population	N	% of tested	% of population
Adams	6,203	1,287	20.75	7	0.54	0.11	12	0.93	0.19	8	0.62	0.13
Allegheny	76,390	24,165	31.63	278	1.15	0.36	316	1.31	0.41	134	0.55	0.18
Armstrong	3,793	1,037	27.34	14	1.35	0.37	16	1.54	0.42	7	0.68	0.18
Beaver	9,890	1,679	16.98	20	1.19	0.20	19	1.13	0.19	5	0.30	0.05
Bedford	2,819	691	24.51	6	0.87	0.21	14	2.03	0.50	3	0.43	0.11
Berks	29,040	5,398	18.59	190	3.52	0.65	269	4.98	0.93	92	1.70	0.32
Blair	7,618	1,365	17.92	17	1.25	0.22	46	3.37	0.60	17	1.25	0.22
Bradford	4,146	838	20.21	8	0.95	0.19	21	2.51	0.51	15	1.79	0.36
Bucks	36,927	3,546	9.60	9	0.25	0.02	23	0.65	0.06	10	0.28	0.03
Butler	11,405	2,726	23.90	21	0.77	0.18	20	0.73	0.18	7	0.26	0.06
Cambria	7,778	1,903	24.47	36	1.89	0.46	55	2.89	0.71	28	1.47	0.36
Cameron	265	59	22.26	1	1.69	0.38	2	3.39	0.75	0	0.00	0.00
Carbon	3,708	655	17.66	10	1.53	0.27	33	5.04	0.89	5	0.76	0.13
Centre	7,450	756	10.15	0	0.00	0.00	5	0.66	0.07	1	0.13	0.01
Chester	35,016	5,177	14.78	51	0.99	0.15	47	0.91	0.13	14	0.27	0.04
Clarion	2,383	352	14.77	4	1.14	0.17	11	3.13	0.46	6	1.70	0.25
Clearfield	4,430	822	18.56	4	0.49	0.09	12	1.46	0.27	1	0.12	0.02
Clinton	2,367	351	14.83	2	0.57	0.08	9	2.56	0.38	2	0.57	0.08
Columbia	3,443	357	10.37	2	0.56	0.06	14	3.92	0.41	5	1.40	0.15
Crawford	5,541	810	14.62	11	1.36	0.20	15	1.85	0.27	10	1.23	0.18
Cumberland	16,426	1,717	10.45	18	1.05	0.11	24	1.40	0.15	8	0.47	0.05
Dauphin	20,567	3,503	17.03	39	1.11	0.19	71	2.03	0.35	38	1.08	0.18
Delaware	40,473	8,696	21.49	84	0.97	0.21	143	1.64	0.35	63	0.72	0.16
Elk	1,766	287	16.25	1	0.35	0.06	9	3.14	0.51	1	0.35	0.06
Erie	18,191	3,758	20.66	61	1.62	0.34	89	2.37	0.49	46	1.22	0.25

County of residence	Population of children aged 0–71 months†	Children tested**		Unconfirmed elevated (≥ 5 µg/dL)			Confirmed 5–9.9 µg/dL			Confirmed ≥ 10 µg/dL		
		N	% of population^	N	% of tested	% of population	N	% of tested	% of population	N	% of tested	% of population
Fayette	7,853	1,196	15.23	8	0.67	0.10	30	2.51	0.38	10	0.84	0.13
Forest	174	19	10.92	0	0.00	0.00	1	5.26	0.57	0	0.00	0.00
Franklin	10,940	1,809	16.54	27	1.49	0.25	32	1.77	0.29	9	0.50	0.08
Fulton	913	173	18.95	1	0.58	0.11	2	1.16	0.22	0	0.00	0.00
Greene	2,299	502	21.84	12	2.39	0.52	13	2.59	0.57	5	1.00	0.22
Huntingdon	2,334	518	22.19	6	1.16	0.26	13	2.51	0.56	4	0.77	0.17
Indiana	4,748	923	19.44	15	1.63	0.32	10	1.08	0.21	4	0.43	0.08
Jefferson	2,931	444	15.15	12	2.70	0.41	10	2.25	0.34	6	1.35	0.20
Juniata	1,716	197	11.48	0	0.00	0.00	11	5.58	0.64	3	1.52	0.17
Lackawanna	13,409	2,147	16.01	40	1.86	0.30	89	4.15	0.66	46	2.14	0.34
Lancaster	42,779	4,201	9.82	54	1.29	0.13	169	4.02	0.40	69	1.64	0.16
Lawrence	5,443	991	18.21	9	0.91	0.17	21	2.12	0.39	6	0.61	0.11
Lebanon	9,997	1,300	13.00	20	1.54	0.20	42	3.23	0.42	15	1.15	0.15
Lehigh	26,469	4,783	18.07	91	1.90	0.34	110	2.30	0.42	43	0.90	0.16
Luzerne	20,062	3,905	19.46	82	2.10	0.41	100	2.56	0.50	50	1.28	0.25
Lycoming	7,250	1,020	14.07	2	0.20	0.03	51	5.00	0.70	15	1.47	0.21
McKean	2,395	681	28.43	9	1.32	0.38	28	4.11	1.17	10	1.47	0.42
Mercer	6,462	1,257	19.45	18	1.43	0.28	32	2.55	0.50	11	0.88	0.17
Mifflin	3,391	398	11.74	0	0.00	0.00	12	3.02	0.35	3	0.75	0.09
Monroe	9,567	1,132	11.83	0	0.00	0.00	7	0.62	0.07	4	0.35	0.04
Montgomery	55,145	9,483	17.20	56	0.59	0.10	147	1.55	0.27	55	0.58	0.10
Montour	1,262	300	23.77	1	0.33	0.08	5	1.67	0.40	1	0.33	0.08
Northampton	17,623	2,739	15.54	35	1.28	0.20	48	1.75	0.27	21	0.77	0.12
Northumberland	5,664	948	16.74	10	1.05	0.18	64	6.75	1.13	24	2.53	0.42
Perry	3,181	379	11.91	12	3.17	0.38	7	1.85	0.22	1	0.26	0.03
Philadelphia	122,887	37,594	30.59	363	0.97	0.30	1,524	4.05	1.24	491	1.31	0.40

County of residence	Population of children aged 0–71 months†	Children tested**		Unconfirmed elevated (≥ 5 µg/dL)			Confirmed 5–9.9 µg/dL			Confirmed ≥ 10 µg/dL		
		N	% of population^	N	% of tested	% of population	N	% of tested	% of population	N	% of tested	% of population
Pike	2,619	421	16.07	3	0.71	0.11	2	0.48	0.08	0	0.00	0.00
Potter	1,016	247	24.31	0	0.00	0.00	5	2.02	0.49	0	0.00	0.00
Schuylkill	8,343	1,733	20.77	51	2.94	0.61	62	3.58	0.74	36	2.08	0.43
Snyder	2,611	232	8.89	2	0.86	0.08	5	2.16	0.19	3	1.29	0.11
Somerset	4,024	877	21.79	5	0.57	0.12	17	1.94	0.42	3	0.34	0.07
Sullivan	204	44	21.57	1	2.27	0.49	0	0.00	0.00	0	0.00	0.00
Susquehanna	2,274	248	10.91	1	0.40	0.04	5	2.02	0.22	2	0.81	0.09
Tioga	2,554	313	12.26	0	0.00	0.00	9	2.88	0.35	2	0.64	0.08
Union	2,469	291	11.79	0	0.00	0.00	7	2.41	0.28	1	0.34	0.04
Venango	2,897	547	18.88	15	2.74	0.52	32	5.85	1.10	13	2.38	0.45
Warren	2,449	517	21.11	20	3.87	0.82	15	2.90	0.61	6	1.16	0.24
Washington	12,556	2,656	21.15	40	1.51	0.32	22	0.83	0.18	11	0.41	0.09
Wayne	2,504	530	21.17	4	0.75	0.16	4	0.75	0.16	3	0.57	0.12
Westmoreland	18,955	3,806	20.08	30	0.79	0.16	40	1.05	0.21	14	0.37	0.07
Wyoming	1,574	146	9.28	0	0.00	0.00	3	2.05	0.19	1	0.68	0.06
York	30,764	4,026	13.09	43	1.07	0.14	105	2.61	0.34	63	1.56	0.20
Total	842,742	167,608	19.89	1,992	1.19	0.24	4,206	2.51	0.50	1,590	0.95	0.19

*Per CDC 2016 Confirmed Elevated Blood Lead case definition

**Note that Pennsylvania does not mandate universal screening of children; screening of children is recommended between 9 and 12 months and at 24 months.

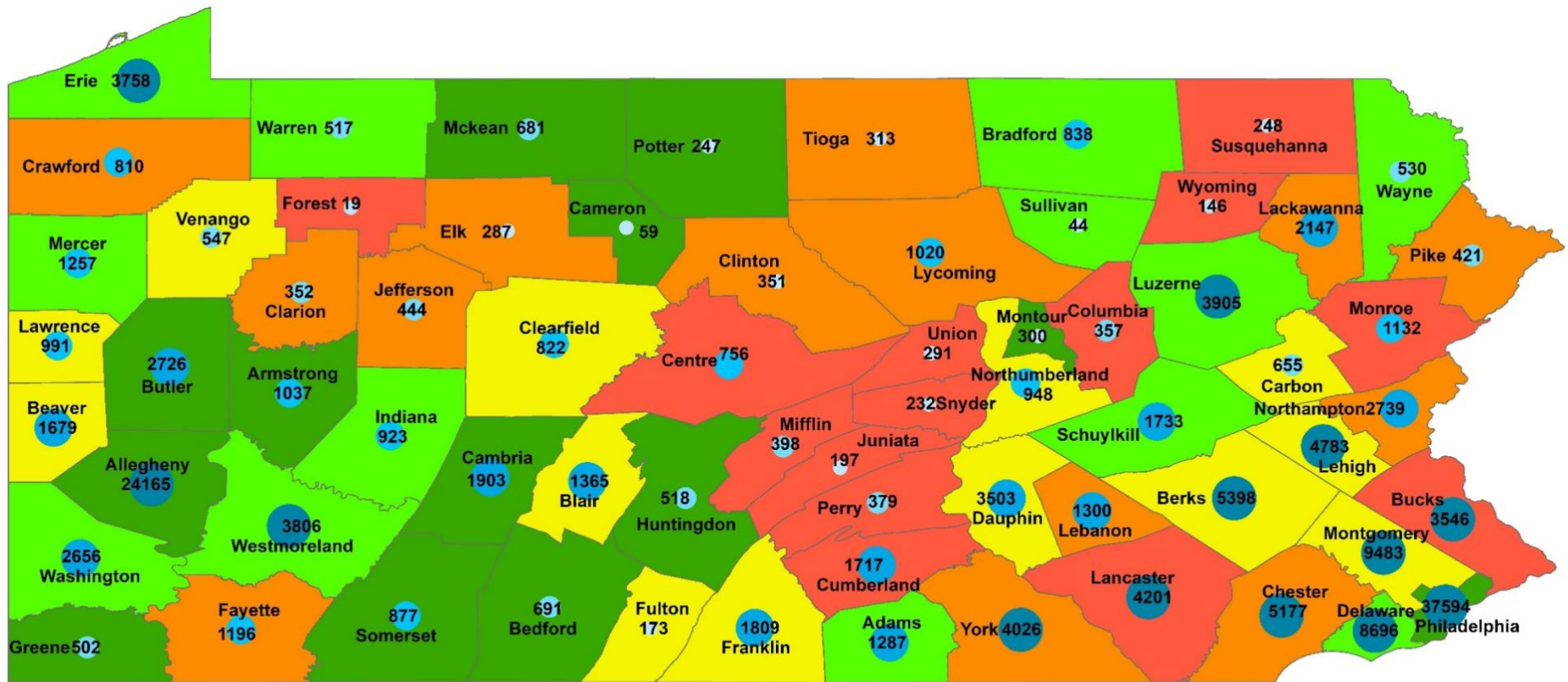
Allegheny County is currently the only county with mandatory testing.

^Percent was calculated as the number of children tested divided by the population of children in the county for the specified age range.

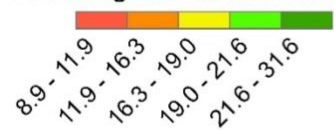
†2019 intercensal estimate

Data sources: Pennsylvania Department of Health, PA-NEDSS., National Center for Health Statistics

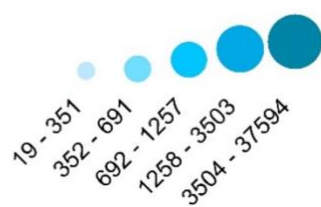
Figure 3: Number and Percentage* of Children Aged 0–71 Months Tested for Blood Lead Level by County, 2019



Percentage of children with BLL test



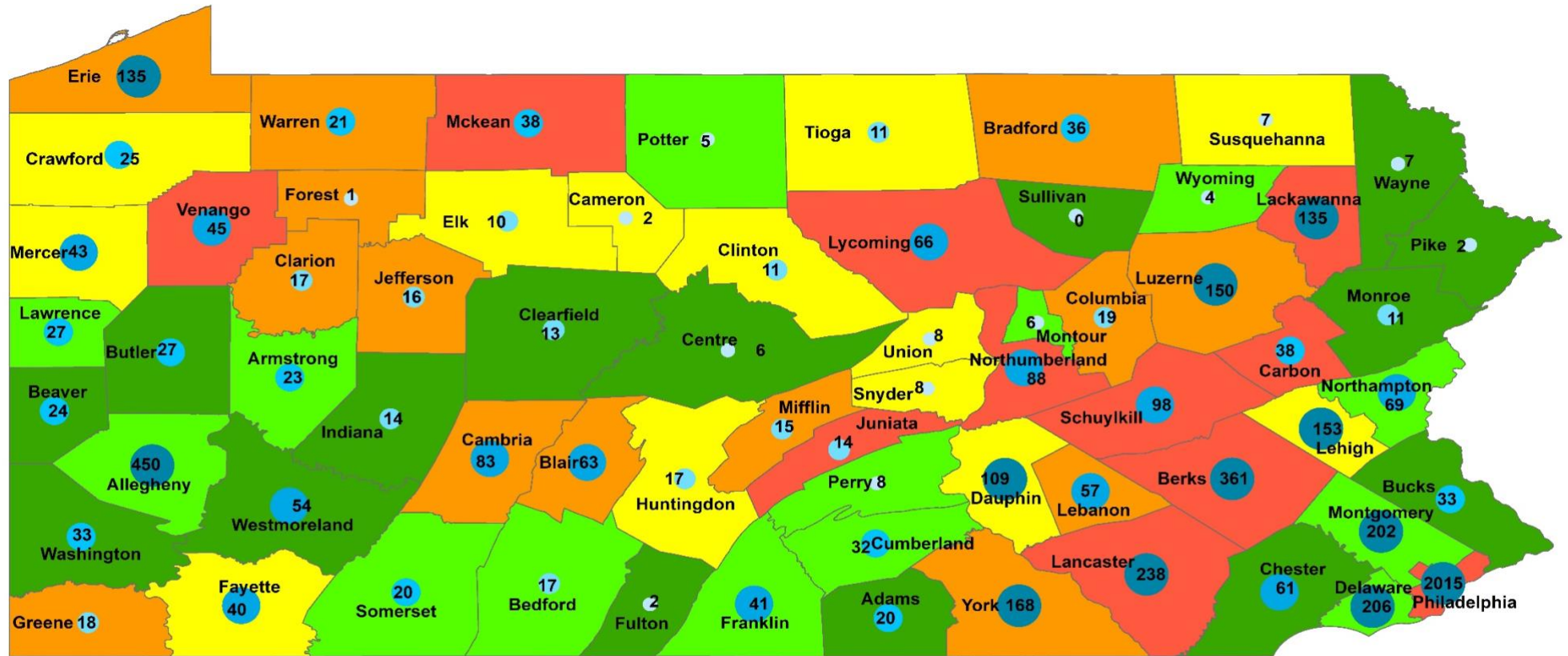
Number of children with BLL test



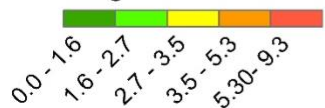
Data Sources: Pennsylvania's Electronic Reportable Disease Surveillance System and U.S. Census Bureau

*Percentage was calculated by dividing the number of children aged 0–71 months tested in each county by the 2019 intercensal estimate of the number of children aged 0–71 months residing in the county.

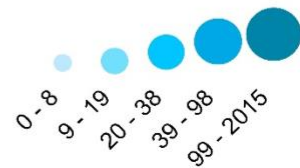
Figure 4: Number and Percentage* of Children Aged 0–71 Months with Confirmed Elevated Blood Lead Level by County, 2019.



Percentage of tested children with EBLL



Number of children with EBLL



Data Sources: Pennsylvania's Electronic Reportable Disease Surveillance System and U.S. Census Bureau

*Percentage was calculated by dividing the number of children aged 0–71 months with EBLL by the total number of children aged 0–71 months tested for blood lead level in 2019.

Testing in Rural and Urban Counties:

The chart below contains testing data on children under age 6, broken out by residence in either a rural or urban county. The chart also further displays results broken out by EBLL and whether they were confirmed.

Table 17: Number of Children Aged 0–71 Months by Urban/Rural Status of County of Residence and Elevated Blood Lead Confirmation Status,* 2019

Status of county of residence	Population of children aged 0–71 months**	Children tested		Unconfirmed elevated ($\geq 5 \mu\text{g/dL}$)			Confirmed 5–9.9 $\mu\text{g/dL}$			Confirmed $\geq 10 \mu\text{g/dL}$		
		N	% of population†	N	% of tested	% of population	N	% of tested	% of population	N	% of tested	% of population
Rural	201,732	35,985	17.84	428	1.19	0.21	831	2.31	0.41	313	0.87	0.16
Urban	641,010	131,623	20.53	1,564	1.19	0.24	3,375	2.56	0.53	1,277	0.97	0.20
Total	842,742	167,608	19.89	1,992	1.19	0.24	4,206	2.51	0.50	1,590	0.95	0.19

*Per CDC 2016 Elevated Blood Lead case definition

**2019 intercensal estimate

†Percent was calculated as the number of children tested/population of children in the county for the specified age range.

Data sources: Pennsylvania Department of Health, PA-NEDSS., National Center for Health Statistics

Note: A county is rural when the number of persons per square mile within the county is less than 284. Counties that have 284 persons or more per square mile are considered urban. The current mix of 48 rural and 19 urban counties has remained unchanged since 1970. Population projections from the Pennsylvania State Data Center show that this current mix of rural/urban counties will remain the same until 2040. Urban counties are Allegheny, Beaver, Berks, Bucks, Chester, Cumberland, Dauphin, Delaware, Erie, Lackawanna, Lancaster, Lebanon, Lehigh, Luzerne, Montgomery, Northampton, Philadelphia, Westmoreland, and York.

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This report can be found at: <https://www.health.pa.gov/Pages/default.aspx>.