

2018 Childhood Lead Surveillance Annual Report

Childhood Lead Poisoning Prevention Program

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DEPARTMENT OF HEALTH

Table of Contents	1
Executive Summary	3
Data Methods and Case Definition	6
Limitations	10
Discussion	11
Definitions	12
Findings	14
Table 1: Summary of Blood Lead Tests Performed in 2018 by Age Category	14
Table 2: Characteristics of Children Tested for Lead by Age Category, 2018	15
Table 3: Elevated Blood Lead Confirmation Status per 2016 CDC Case Definition by Age Category, 2018	16
Table 4: Details of Elevated Blood Lead Confirmation Status by Age Category, 2018	17
Table 5: Confirmation After an Elevated Capillary Blood Lead Test by Capillary Test Level, 2018	18
Table 6: Blood Lead Reporting by Method of Report and Type of Reporting Organization, 2013–2018	19
Table 7: Number of Children Aged 0–23 Months by Race/Ethnicity and Elevated Blood Lead Confirmation Status,* 2018	20
Table 8: Number of Children Aged 0–71 Months by Race/Ethnicity, and Elevated Blood Lead Confirmation Status,* 2018	21
Table 9: Number of Children Aged 0–23 Months, by Major Municipality and Elevated Blood Lead Confirmation Status,* 2018	23
Table 10: Number of Children Aged 0–71 Months by Major Municipality and Elevated Blood Lead Confirmation Status,* 2018	24
Table 11: Number of Children with Confirmed EBLL*** by County of Residence and Race, Aged 0–23 Months, 2018	25
Table 12: Number of Children with Confirmed EBLL*** by County of Residence and Race, Children Aged 0–71 Months, 2018	28

Table 13: Number of Children Tested for Lead by Maximum Blood Lead Level and County of Residence, Children Aged 0–23 Months, 2018	31
Table 14: Number of Children Aged 0–23 Months by County of Residence and Elevated Blood Lead Confirmation Status, 2018	34
Figure 2: Number and Percentage of Children Aged 0–23 Months Tested for Blood Lead Level by County, 2018	37
Figure 3: Number and Percentage of Children Aged 0–23 Months with Confirmed Elevated Blood Lead Level by County, 2018	38
Table 15: Number of Children Tested for Lead by Maximum Blood Lead Level and County of Residence, Children Aged 0–71 Months, 2018	39
Table 16: Number of Children Aged 0–71 Months by County of Residence and Elevated Blood Lead Confirmation Status, 2018	42
Figure 4: Number and Percentage of Children Aged 0–71 Months Tested for Blood Lead Level by County, 2018	45
Figure 5: Number and Percentage of Children Aged 0–71 Months with Confirmed Elevated Blood Lead Level by County, 2018	46
Table 17: Number of Children Aged 0–71 Months by Urban/Rural Status of County of Residence and Elevated Blood Lead Confirmation Status, 2018	47
References	48
Contact Information	49

Executive Summary

This is the Pennsylvania Department of Health's (Department) 13th childhood lead surveillance annual report, covering data for children tested in Pennsylvania during calendar year 2018. 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) ≥ 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 194,945 blood lead test reports for 184,310 blood lead tests for children ages 0-15 in 2018. Of the 5,491 children aged 0-15 with an initial capillary test > 5 $\mu\text{g}/\text{dL}$, 3,158 (57.51%) were retested appropriately. There were 84,475 children (30.88% of the population) under age 2 tested and 160,986 (19.01% of the population) children under age 6 tested in 2018. There were 2,562 children under the age of 2 (3.03% of those tested and 0.94% of the population) with a confirmed EBLL ≥ 5 $\mu\text{g}/\text{dL}$. There were 6,585 children under the age of 6 (4.09% of those tested and 0.78% of the population) with a confirmed EBLL > 5 $\mu\text{g}/\text{dL}$.

Nearly 60% of children did not have race or ethnicity information provided in their blood lead testing results data. This is the first year Pennsylvania was able to more fully explore race and ethnicity data by matching children's blood lead testing data to birth certificate data to determine race. Among those children 0-23 months of age, testing rates for non-Hispanic black or African American children and for Hispanic children, were higher statewide than for non-Hispanic white children (36.94% and 28.32% versus 25.39%, 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 (3.83% and 2.63% versus 1.61%, respectively) among those tested. Percentages of test results ≥ 10 $\mu\text{g}/\text{dL}$ were also higher among non-Hispanic black or African American and among Hispanic children than for non-Hispanic white children (1.42% and 1.15% versus 0.62%, 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.

The 2018 annual report also provides more detailed data for the largest counties and for the largest municipalities/cities. Testing rates and percentages of children with EBLLs among major municipalities/cities were generally higher than for their respective county 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 (43.37% of children tested) and lowest in Harrisburg (24.18% of children tested). Pittsburgh's testing rates may be that much 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. The percentage of EBLL $\geq 5 \mu\text{g/dL}$ as a percentage of those tested were highest in the cities of York (12.94% EBLL) and Reading (8.43% EBLL).

Nationally, among states with older housing stock, lead-based paint is a significant source of lead exposure in young children. According to the 2018 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 six 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 2018, 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 (≥ 5 $\mu\text{g}/\text{dL}$) 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 six county (Allegheny, Bucks, Chester, Erie, Montgomery, and Philadelphia) and four municipal (Allentown, Bethlehem, Wilkes-Barre, and York city) health departments and 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 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 2018, the Department also continued an ongoing collaboration with the 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, through the Lead-Free PA Initiative, 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 2018, 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 a 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 a single 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 2018. All BLL tests were included, 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 U.S. 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, a number of 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 three were missing, the reported date was used.
- Specimens with unknown specimen source 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 2018 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 2019 or outside of the age category. For example, if a child had an elevated capillary test at 23 months of age in November 2018 and received a confirmatory follow-up test within 12 weeks (in 2019), this was considered an EBLL result in 2018 for a child “aged 0–23 months.”

For children who had multiple BLL tests performed, it was possible for them to qualify for more than one case definition category (for example, they may have had an unconfirmed elevated test and then, six 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 2018 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 two 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. No usable race information was reported in PA-NEDSS for almost 60% of children. 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 Pa. Birth registry, supplied by the Bureau of Health Statistics. Children with lead test results in PA-NEDSS were matched to 2012-2018 birth certificate data using a deterministic matching method. Deterministic matching is a rules-based process to determine an “exact match” between two records, followed by iterative loosening of criteria. We matched 85% (137,120 out of 160,986) of children under the age of 6 who had BLL test results reported in PA-NEDSS to children in the birth registry. 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 data if ethnicity was missing or unknown and if 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 U.S. 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, two measures were used to indicate their BLL status:

- The maximum BLL was defined as the highest venous BLL obtained from a child in 2018 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 2018 by county, age, race and ethnicity were obtained from the National Center for Health Statistics (NCHS) website (Vintage 2018 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, municipality was based on the actual home address. If an address was not able to be verified automatically, it was verified by the application of manual geocoding. If a child’s residential address in the lead report was missing, his/her mother’s residential address reported in matched birth certificate data was geocoded to determine the municipality and census tract. If an address was not able to be verified, municipality was

based on the centroid of the residential zip code. A small proportion of children (8 children under 2 years of age and 103 children under 6 years of age) whose municipality could not be determined were excluded for sub-county analyses.

For municipality-level analyses, the population estimate of children was obtained by the 2017 American Community Survey, the most recent and available population data source at municipal level.

The 10 municipalities in Pennsylvania with the highest number of children under 6 years of age, as well as two 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 2018 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 influences interpretation of the data. Data such as specimen source, 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.

In addition, Allegheny County is the only county in Pennsylvania with mandatory testing for children between 9 and 12 months and at 24 months. 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 are able to do their own capillary screening tests on children on-site. These providers are often unaccustomed to reporting results for 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 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 $\mu\text{g}/\text{dL}$ and those ≥ 10 $\mu\text{g}/\text{dL}$. This report shows both the number and percentage of children tested with BLLs ≥ 5 $\mu\text{g}/\text{dL}$ and those ≥ 10 $\mu\text{g}/\text{dL}$.

Discussion

Between 2017 and 2018, the percent of children under the age of 2 tested for lead increased from 29.55% to 30.88% (an increase of 2,159 children tested). The percent of children under the age of 6 tested increased from 17.79% to 19.01% (an increase of 9,230 children tested) from 2017 to 2018. Between 2017 and 2018, the percent of children under age 2 with a confirmed EBLL ≥ 5 $\mu\text{g/dL}$ decreased from 3.27% to 3.03% of those tested (a decrease of 127 children), while the percent of children under age 6 with a confirmed EBLL decreased from 4.52% to 4.09% of those tested (a decrease of 269 children). The percent of children with an unconfirmed EBLL ≥ 5 $\mu\text{g/dL}$ decreased from 1.33% to 1.18% for children under age 2 (a decrease of 98 children) and from 1.66% to 1.42% for children under age 6 (a decrease of 224 children), among those tested. The percent of children aged 0-15 who were appropriately retested after an elevated capillary test increased from 54.81% to 57.51% between 2017 and 2018. In summary, in 2018 compared to 2017, small gains were made in the percentages of children tested and reductions were seen in the percentages of Pennsylvania children with EBLs 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 race for the nearly 60% of children who did not have race or ethnicity information provided on their BLL testing results data. For non-Hispanic black or African American children, testing rates were higher statewide than for non-Hispanic white children. Confirmed EBL rates were also higher among non-Hispanic black or African American children as were the percentages of unconfirmed EBLs, 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 testing rates and percentages of EBLs 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 EBLs 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, Erie, Luzerne, Westmoreland and York counties. In many of these counties, the percentage of those tested with EBLs was highest among minority populations, but 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 EBLs 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:

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 at ages 1 and 2. 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 2018 by Age Category

Age Category*	Total Number of Tests†	Capillary Test#		Venous Test	
		N	%	N	%
0–23 months (under 2 years)	90,737	49,708	54.78	41,029	45.22
0–71 months (under 6 years)	175,098	90,532	51.70	84,566	48.30
0–15 years	184,310	91,625	49.71	92,685	50.29

*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 tables were analyzed on a per child basis rather than per test.

#Blood specimens of unknown source 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, 2018

	Children Aged 0–23 months		Children Aged 0–71 months	
	N	% of total	N	% of total
Total number of children tested†	84,475	100.00	160,986	100.00
Age at time of maximum BLL				
Under 1 year	45,383	53.72	45,383	28.19
One year	39,092	46.28	38,578	23.96
Two years	-	-	47,669	29.61
Three years	-	-	11,533	7.16
Four years	-	-	9,252	5.75
Five years	-	-	8,571	5.32
Sex				
Female	40,843	48.35	77,603	48.20
Male	43,338	51.30	82,696	51.37
Unknown	294	0.35	687	0.43
Race				
Asian	8,532	10.10	16,753	10.41
Black or African American	15,361	18.18	32,189	19.99
White	50,911	60.27	90,585	56.27
Other^	2,621	3.10	4,390	2.73
Unknown	7,050	8.35	17,069	10.60
Ethnicity				
Hispanic	10,350	12.25	20,211	12.55
Non-Hispanic	64,576	76.44	117,723	73.13
Unknown or missing	9,549	11.30	23,052	14.32
Maximum BLL (µg/dL)*				
< 5	80,889	95.76	152,163	94.52
5–9.9	2,719	3.22	6,721	4.17
10–19.9	702	0.83	1,676	1.04
20–44.9	150	0.18	382	0.24
45–59.9	10	0.01	24	0.01
60–69.9	4	0.00	12	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 2018

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

*Highest venous blood lead level (BLL) obtained per child in 2018, 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, 2018

	Children Aged 0–23 months		Children Aged 0–71 months	
	N	% of total	N	% of total
Total number of children tested	84,475	100.00	160,986	100.00
Confirmation status				
Not elevated (< 5 µg/dL)**	80,918	95.79	152,113	94.49
Unconfirmed elevated (≥ 5 µg/dL)†	995	1.18	2,288	1.42
Confirmed 5–9.9 µg/dL	1,843	2.18	4,809	2.99
Confirmed ≥ 10 µg/dL	719	0.85	1,776	1.10

*CDC case definition defines a confirmed elevated BLL as one venous blood lead test ≥5 µg/dL, or two 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.

†Initial capillary test was ≥5 µg/dL, but 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, 2018

		Children Aged 0–23 months		Children Aged 0–71 months	
		N	% of total	N	% of total
Total number of children tested		84,475	100	160,986	100
Confirmation status	Outcome				
Not elevated (< 5 µg/dL)	BLL < 5 µg/dL	79,926	94.61	150,072	93.22
	Repeat capillary test did NOT confirm initial elevated capillary test.	54	0.06	94	0.06
	Venous test did NOT confirm initial elevated capillary test.	938	1.11	1,947	1.21
Unconfirmed elevated (≥ 5 µg/dL)†	Not retested appropriately	995	1.18	2,288	1.42
Confirmed 5–9.9 µg/dL	Capillary confirmed by repeat capillary test	23	0.03	37	0.02
	Capillary confirmed by venous test	363	0.43	714	0.44
	Venous test	1,457	1.72	4,058	2.52
Confirmed ≥ 10 µg/dL	Capillary confirmed by repeat capillary test	4	0	13	0.01
	Capillary confirmed by venous test	174	0.21	320	0.20
	Venous test	541	0.64	1,443	0.90

*Per CDC 2016 Confirmed Elevated Blood Lead case definition

† Initial capillary test was ≥5 µg/dL, but 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, 2018

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	4,247	2,109	49.66	2,224	52.37
10–19.9	962	672	69.85	694	72.14
20–44.9	250	205	82.00	212	84.80
45–59.9	19	17	89.47	17	89.47
60–69.9	8	5	62.50	6	75.00
≥ 70	5	5	100.00	5	100.00
Overall	5,491	3,013	54.87	3,158	57.51

*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 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 2018, the number of laboratories reporting through electronic laboratory reporting increased from 20 to 23, and the proportion of lead reports received via ELR increased from 87% to 90%.

Table 6: Blood Lead Reporting by Method of Report and Type of Reporting Organization, 2013–2018

	Method of Report	2013	2014	2015	2016	2017	2018
Number of reports submitted†	ELR*	147,522	149,334	146,104	160,488	169,675	175,802
	Online key-entry by lab	21,225	16,978	14,997	14,561	13,011	11,720
	Online key-entry by provider#	1,440	2,065	2,642	3,401	2,775	7,423
	Total	170,187	168,377	163,743	178,450	185,461	194,945
% ELR		86.68	88.69	89.23	89.93	91.49	90.18

*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 number of children tested, the percent of population tested and confirmation status. For children ages 0-23 months, non-Hispanic black or African American children and Hispanic children were more often tested than non-Hispanic white children (36.94% and 28.32% versus 25.39%, 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 (3.83% and 2.63% versus 1.61%, respectively). Percentages of tests results ≥ 10 µg /dL were also higher among non-Hispanic black or African American and Hispanic children than non-Hispanic white children (1.42% and 1.15% versus 0.62%, 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,* 2018

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	273,577	84,475	30.88	995	1.18	0.36	1,843	2.18	0.67	719	0.85	0.26
Race/Ethnicity^												
Non-Hispanic white	186,034	47,237	25.39	513	1.09	0.28	762	1.61	0.41	292	0.62	0.16
Non-Hispanic black or African-American	39,272	14,507	36.94	203	1.40	0.52	556	3.83	1.42	206	1.42	0.52
Hispanic	36,546	10,350	28.32	132	1.28	0.36	272	2.63	0.74	119	1.15	0.33
Non-Hispanic Asian	11,197	3,716	33.19	33	0.89	0.29	84	2.26	0.75	33	0.89	0.29

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

†2018 intercensal estimate

^Other and Unknown are not included in 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,* 2018

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	847,012	160,986	19.01	2,288	1.42	0.27	4,809	2.99	0.57	1,776	1.10	0.21
Race/Ethnicity^												
Non-Hispanic white	568,234	83,998	14.78	1,111	1.32	0.20	1,626	1.94	0.29	624	0.74	0.11
Non-Hispanic black or African-American	127,175	30,520	24.00	509	1.67	0.40	1,813	5.94	1.43	618	2.02	0.49
Hispanic	113,909	20,211	17.74	310	1.53	0.27	686	3.39	0.60	279	1.38	0.24
Non-Hispanic Asian	35,915	7,011	19.52	95	1.36	0.26	183	2.61	0.51	79	1.13	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 number of children tested divided by the population of children in the county for the specified age range.

†2018 intercensal estimate

^Other and Unknown are not included in 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 number of children tested, the percent of population tested and confirmation status. Testing rates and percentages of children with EBLLs among major municipalities/cities were generally higher than for their respective county (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 Harrisburg, and the percentages of EBLL $\geq 5 \mu\text{g/dL}$ as a percentage of those tested were highest in the cities of York and Reading. 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,* 2018

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 city	Philadelphia	44,338	17,958	40.50	148	0.82	0.33	845	4.71	1.91
Pittsburgh city	Allegheny	6,265	2,717	43.37	66	2.43	1.05	97	3.57	1.55
Allentown city	Lehigh	3,667	1,575	42.95	35	2.22	0.95	48	3.05	1.31
Reading city	Berks	3,065	1,020	33.28	30	2.94	0.98	86	8.43	2.81
Erie city	Erie	2,575	1,076	41.79	33	3.07	1.28	38	3.53	1.48
Upper Darby township	Delaware	2,625	1,091	41.57	13	1.19	0.50	40	3.67	1.52
Harrisburg city	Dauphin	1,903	460	24.18	8	1.74	0.42	30	6.52	1.58
Scranton city	Lackawanna	1,825	498	27.28	20	4.02	1.10	35	7.03	1.92
Lancaster city	Lancaster	1,786	631	35.33	6	0.95	0.34	49	7.77	2.74
Bethlehem city	Northampton/Lehigh	1,686	428	25.38	6	1.40	0.36	6	1.40	0.36
York city	York	1,424	402	28.24	0	0.00	0.00	52	12.94	3.65
Wilkes-Barre city	Luzerne	932	386	41.43	22	5.70	2.36	16	4.15	1.72
Pennsylvania Total		273,577	84,475	30.88	995	1.18	0.36	2,562	3.03	0.94

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

†2017 American Community Survey

Data sources: Pennsylvania Department of Health, PA-NEDSS., 2017 American Community Survey

Table 10: Number of Children Aged 0–71 Months by Major Municipality and Elevated Blood Lead Confirmation Status,* 2018

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 city	Philadelphia	127,072	37,520	29.53	372	0.99	0.29	2,496	6.65	1.96
Pittsburgh city	Allegheny	17,576	5,366	30.53	139	2.59	0.79	203	3.78	1.15
Allentown city	Lehigh	10,921	3,038	27.82	82	2.70	0.75	116	3.82	1.06
Reading city	Berks	9,223	2,476	26.85	80	3.23	0.87	270	10.9	2.93
Erie city	Erie	7,633	1,936	25.36	64	3.31	0.84	103	5.32	1.35
Upper Darby township	Delaware	7,403	2,093	28.27	19	0.91	0.26	90	4.30	1.22
Harrisburg city	Dauphin	5,524	1,012	18.32	38	3.75	0.69	64	6.32	1.16
Scranton city	Lackawanna	5,381	1,195	22.21	46	3.85	0.85	117	9.79	2.17
Bethlehem city	Northampton/Lehigh	5,051	883	17.48	13	1.47	0.26	15	1.70	0.30
Lancaster city	Lancaster	5,011	1,187	23.69	15	1.26	0.30	109	9.18	2.18
York city	York	4,220	707	16.75	0	0.00	0.00	111	15.70	2.63
Wilkes-Barre city	Luzerne	2,744	840	30.61	38	4.52	1.38	45	5.36	1.64
Pennsylvania Total		847,012	160,986	19.01	2,288	1.42	0.27	6,585	4.09	0.78

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

†2017 American Community Survey

Data sources: Pennsylvania Department of Health, PA-NEDSS., 2017 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 number of children tested, the percent of population tested and confirmed EBLLs 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 EBLL* by County of Residence and Race/Ethnicity, Children Aged 0–23 Months, 2018 for Select Counties**

County of Residence	Race/Ethnicity	Population 0-23 Months†	Children Tested*		Confirmed EBLL ≥ 5		
			N	% of population**	N	% of tested	% of population
Allegheny	Non-Hispanic black or African American	4,745	2,251	47.44	88	3.91	1.85
Allegheny	Hispanic	757	202	26.68	6	2.97	0.79
Allegheny	Non-Hispanic white	18,814	7,183	38.18	92	1.28	0.49
Berks	Non-Hispanic black or African American	518	100	19.31	6	6.00	1.16
Berks	Hispanic	3,803	984	25.87	78	7.93	2.05
Berks	Non-Hispanic white	4,900	810	16.53	49	6.05	1.00
Bucks	Non-Hispanic black or African American	790	167	21.14	1	0.60	0.13
Bucks	Hispanic	1,221	351	28.75	9	2.56	0.74
Bucks	Non-Hispanic white	9,157	1,613	17.61	9	0.56	0.10
Chester	Non-Hispanic black or African American	780	229	29.36	1	0.44	0.13
Chester	Hispanic	1,669	511	30.62	13	2.54	0.78
Chester	Non-Hispanic white	7,487	1,522	20.33	16	1.05	0.21
Cumberland	Non-Hispanic black or African American	353	58	16.43	0	0.00	0.00
Cumberland	Hispanic	319	46	14.42	1	2.17	0.31
Cumberland	Non-Hispanic white	4,381	503	11.48	12	2.39	0.27
Dauphin	Non-Hispanic black or African American	1,586	393	24.78	14	3.56	0.88
Dauphin	Hispanic	1,129	188	16.65	8	4.26	0.71
Dauphin	Non-Hispanic white	3,670	543	14.80	16	2.95	0.44
Delaware	Non-Hispanic black or African American	3,763	1,443	38.35	39	2.70	1.04
Delaware	Hispanic	853	311	36.46	11	3.54	1.29
Delaware	Non-Hispanic white	7,454	2,140	28.71	23	1.07	0.31

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	732	267	36.48	12	4.49	1.64
Erie	Hispanic	495	127	25.66	1	0.79	0.20
Erie	Non-Hispanic white	4,568	1432	31.35	25	1.75	0.55
Lackawanna	Non-Hispanic black or African American	245	70	28.57	5	7.14	2.04
Lackawanna	Hispanic	782	165	21.10	11	6.67	1.41
Lackawanna	Non-Hispanic white	3,275	574	17.53	18	3.14	0.55
Lancaster	Non-Hispanic black or African American	831	169	20.34	22	13.02	2.65
Lancaster	Hispanic	2,232	562	25.18	26	4.63	1.16
Lancaster	Non-Hispanic white	10,325	1,480	14.33	86	5.81	0.83
Lehigh	Non-Hispanic black or African American	696	232	33.33	7	3.02	1.01
Lehigh	Hispanic	3,522	1,077	30.58	24	2.23	0.68
Lehigh	Non-Hispanic white	3,977	568	14.28	16	2.82	0.40
Luzerne	Non-Hispanic black or African American	416	193	46.39	4	2.07	0.96
Luzerne	Hispanic	1,773	455	25.66	17	3.74	0.96
Luzerne	Non-Hispanic white	4,057	1,246	30.71	28	2.25	0.69
Montgomery	Non-Hispanic black or African American	1,989	583	29.31	15	2.57	0.75
Montgomery	Hispanic	1,734	650	37.49	44	6.77	2.54
Montgomery	Non-Hispanic white	12,054	3,233	26.82	33	1.02	0.27
Northampton	Non-Hispanic black or African American	448	100	22.32	2	2.00	0.45
Northampton	Hispanic	1,334	299	22.41	3	1.00	0.22
Northampton	Non-Hispanic white	3,748	508	13.55	13	2.56	0.35
Philadelphia	Non-Hispanic black or African American	16,709	7,308	43.74	504	6.90	3.02
Philadelphia	Hispanic	9,366	3,232	34.51	101	3.13	1.08
Philadelphia	Non-Hispanic white	12,526	4,244	33.88	105	2.47	0.84

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	295	89	30.17	4	4.49	1.36
Westmoreland	Hispanic	137	23	16.79	1	4.35	0.73
Westmoreland	Non-Hispanic white	5,226	1,820	34.83	22	1.21	0.42
York	Non-Hispanic black or African American	863	112	12.98	14	12.50	1.62
York	Hispanic	1,351	299	22.13	18	6.02	1.33
York	Non-Hispanic white	7,358	1,090	14.81	39	3.58	0.53
Pennsylvania Total	Non-Hispanic black or African American	39,727	14,507	36.94	762	5.25	1.92
Pennsylvania Total	Hispanic	36,546	10,350	28.32	391	3.78	1.07
Pennsylvania Total	Non-Hispanic white	186,034	47,237	25.39	1,054	2.23	0.57
Pennsylvania Total		273,577	84,475	30.88	2,562	3.03	0.94

*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 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

†2018 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, 2018, for Select Counties**

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	15,457	4,568	29.55	214	4.68	1.38
Allegheny	Hispanic	2,498	394	15.77	11	2.79	0.44
Allegheny	Non-Hispanic white	54,358	15,149	27.87	181	1.19	0.33
Berks	Non-Hispanic black or African American	1,662	228	13.72	19	8.33	1.14
Berks	Hispanic	11,422	2,133	18.67	218	10.22	1.91
Berks	Non-Hispanic white	15,648	1,295	8.28	84	6.49	0.54
Bucks	Non-Hispanic black or African American	2,410	281	11.66	5	1.78	0.21
Bucks	Hispanic	3,726	628	16.85	11	1.75	0.3
Bucks	Non-Hispanic white	28,520	2,370	8.31	16	0.68	0.06
Chester	Non-Hispanic black or African American	2,389	480	20.09	17	3.54	0.71
Chester	Hispanic	4,870	975	20.02	22	2.26	0.45
Chester	Non-Hispanic white	24,878	2,435	9.79	30	1.23	0.12
Cumberland	Non-Hispanic black or African American	1,184	107	9.04	2	1.87	0.17
Cumberland	Hispanic	1,048	80	7.63	2	2.50	0.19
Cumberland	Non-Hispanic white	13,218	878	6.64	20	2.28	0.15
Dauphin	Non-Hispanic black or African American	5,123	780	15.23	40	5.13	0.78
Dauphin	Hispanic	3,681	395	10.73	20	5.06	0.54
Dauphin	Non-Hispanic white	10,587	998	9.43	28	2.81	0.26
Delaware	Non-Hispanic black or African American	11,582	2,948	25.45	122	4.14	1.05
Delaware	Hispanic	2,488	604	24.28	24	3.97	0.96
Delaware	Non-Hispanic white	23,201	3,585	15.45	52	1.45	0.22

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	2,528	510	20.17	39	7.65	1.54
Erie	Hispanic	1,537	242	15.74	9	3.72	0.59
Erie	Non-Hispanic white	13,673	2,371	17.34	46	1.94	0.34
Lackawanna	Non-Hispanic black or African American	830	157	18.92	19	12.1	2.29
Lackawanna	Hispanic	2,313	352	15.22	22	6.25	0.95
Lackawanna	Non-Hispanic white	9,863	1,175	11.91	56	4.77	0.57
Lancaster	Non-Hispanic black or African American	2,528	275	10.88	41	14.91	1.62
Lancaster	Hispanic	6,775	1,021	15.07	56	5.48	0.83
Lancaster	Non-Hispanic white	31,698	2,200	6.94	132	6.00	0.42
Lehigh	Non-Hispanic black or African American	2,272	424	18.66	16	3.77	0.70
Lehigh	Hispanic	10,811	1,909	17.66	67	3.51	0.62
Lehigh	Non-Hispanic white	12,184	1,074	8.81	38	3.54	0.31
Luzerne	Non-Hispanic black or African American	1,461	396	27.10	16	4.04	1.10
Luzerne	Hispanic	5,373	770	14.33	48	6.23	0.89
Luzerne	Non-Hispanic white	12,401	2,277	18.36	67	2.94	0.54
Montgomery	Non-Hispanic black or African American	6,097	1,096	17.98	54	4.93	0.89
Montgomery	Hispanic	5,333	1,238	23.21	90	7.27	1.69
Montgomery	Non-Hispanic white	38,187	5,056	13.24	59	1.17	0.15
Northampton	Non-Hispanic black or African American	1,512	205	13.56	8	3.90	0.53
Northampton	Hispanic	4,236	623	14.71	14	2.25	0.33
Northampton	Non-Hispanic white	11,574	1,003	8.67	29	2.89	0.25
Philadelphia	Non-Hispanic black or African American	55,171	16,165	29.30	1,664	10.29	3.02
Philadelphia	Hispanic	28,889	6,740	23.33	274	4.07	0.95
Philadelphia	Non-Hispanic white	32,128	7,237	22.53	214	2.96	0.67

County of Residence	Race/Ethnicity	Population 0-71 Months†	Children Tested*		Confirmed EBLL \geq 5		
			N	% of population**	N	% of tested	% of population
Westmoreland	Non-Hispanic black or African American	1,034	191	18.47	10	5.24	0.97
Westmoreland	Hispanic	483	38	7.87	2	5.26	0.41
Westmoreland	Non-Hispanic white	17,229	3,155	18.31	49	1.55	0.28
York	Non-Hispanic black or African American	2,841	217	7.64	40	18.43	1.41
York	Hispanic	4,465	463	10.37	33	7.13	0.74
York	Non-Hispanic white	22,897	1,871	8.17	80	4.28	0.35
Pennsylvania Total	Non-Hispanic black or African American	127,175	30,520	24.00	2,431	7.97	1.91
Pennsylvania Total	Hispanic	113,909	20,211	17.74	965	4.77	0.85
Pennsylvania Total	Non-Hispanic white	568,234	83,988	14.78	2,250	2.68	0.40
Pennsylvania Total		847,012	160,986	19.01	6,585	4.09	0.78

*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 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

†2018 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 number of children tested, the percent of population tested, and BLLs of 5–9.9 and ≥ 10 $\mu\text{g/dL}$ 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, 2018

County of Residence	Population of Children Aged 0–23 Months†	Children Tested*		Maximum BLL 5–9.9 $\mu\text{g/dL}$			Maximum BLL ≥ 10 $\mu\text{g/dL}$		
		N	% of population**	N	% of tested	% of population	N	% of tested	% of population
Adams	1,849	551	29.80	16	2.90	0.87	4	0.73	0.22
Allegheny	25,690	11,267	43.86	278	2.47	1.08	97	0.86	0.38
Armstrong	1,305	550	42.15	16	2.91	1.23	3	0.55	0.23
Beaver	3,274	970	29.63	22	2.27	0.67	3	0.31	0.09
Bedford	1,000	345	34.50	15	4.35	1.50	2	0.58	0.20
Berks	9,359	2,161	23.09	147	6.80	1.57	47	2.17	0.50
Blair	2,449	842	34.38	34	4.04	1.39	8	0.95	0.33
Bradford	1,362	297	21.81	8	2.69	0.59	3	1.01	0.22
Bucks	11,899	2,535	21.30	23	0.91	0.19	5	0.20	0.04
Butler	3,667	1,364	37.20	20	1.47	0.55	9	0.66	0.25
Cambria	2,609	819	31.39	51	6.23	1.95	13	1.59	0.50
Cameron	73	37	50.68	3	8.11	4.11	2	5.41	2.74
Carbon	1,203	292	24.27	16	5.48	1.33	4	1.37	0.33
Centre	2,443	630	25.79	8	1.27	0.33	1	0.16	0.04
Chester	10,702	2,788	26.05	53	1.90	0.50	16	0.57	0.15
Clarion	750	198	26.40	9	4.55	1.20	5	2.53	0.67
Clearfield	1,432	485	33.87	10	2.06	0.70	3	0.62	0.21
Clinton	769	193	25.10	6	3.11	0.78	1	0.52	0.13
Columbia	1,122	202	18.00	3	1.49	0.27	4	1.98	0.36
Crawford	1,770	434	24.52	20	4.61	1.13	5	1.15	0.28
Cumberland	5,360	739	13.79	17	2.30	0.32	4	0.54	0.07
Dauphin	6,748	1,440	21.34	51	3.54	0.76	23	1.60	0.34

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	12,918	4,634	35.87	110	2.37	0.85	29	0.63	0.22
Elk	593	130	21.92	1	0.77	0.17	1	0.77	0.17
Erie	5,973	2,155	36.08	64	2.97	1.07	34	1.58	0.57
Fayette	2,567	648	25.24	6	0.93	0.23	1	0.15	0.04
Forest	51	14	27.45	0	0.00	0.00	1	7.14	1.96
Franklin	3,703	839	22.66	26	3.10	0.70	9	1.07	0.24
Fulton	302	90	29.80	4	4.44	1.32	1	1.11	0.33
Greene	732	269	36.75	5	1.86	0.68	3	1.12	0.41
Huntingdon	748	229	30.61	1	0.44	0.13	3	1.31	0.40
Indiana	1,626	471	28.97	14	2.97	0.86	4	0.85	0.25
Jefferson	869	210	24.17	7	3.33	0.81	6	2.86	0.69
Juniata	566	133	23.50	6	4.51	1.06	3	2.26	0.53
Lackawanna	4,497	959	21.33	51	5.32	1.13	13	1.36	0.29
Lancaster	13,760	2,565	18.64	119	4.64	0.86	46	1.79	0.33
Lawrence	1,720	566	32.91	14	2.47	0.81	4	0.71	0.23
Lebanon	3,225	624	19.35	32	5.13	0.99	13	2.08	0.40
Lehigh	8,493	2,310	27.20	82	3.55	0.97	20	0.87	0.24
Luzerne	6,350	2,054	32.35	80	3.89	1.26	24	1.17	0.38
Lycoming	2,301	652	28.34	20	3.07	0.87	14	2.15	0.61
McKean	702	337	48.01	15	4.45	2.14	3	0.89	0.43
Mercer	2,230	684	30.67	30	4.39	1.35	5	0.73	0.22
Mifflin	1,075	285	26.51	7	2.46	0.65	3	1.05	0.28
Monroe	2,984	590	19.77	7	1.19	0.23	1	0.17	0.03
Montgomery	17,413	5,390	30.95	100	1.86	0.57	34	0.63	0.20
Montour	423	108	25.53	3	2.78	0.71	0	0.00	0.00
Northampton	5,716	1,136	19.87	41	3.61	0.72	9	0.79	0.16
Northumberland	1,794	529	29.49	18	3.40	1.00	13	2.46	0.72
Perry	1,009	227	22.50	9	3.96	0.89	4	1.76	0.40
Philadelphia	41,407	18,330	44.27	768	4.19	1.85	218	1.19	0.53

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	886	200	22.57	0	0.00	0.00	1	0.50	0.11
Potter	325	149	45.85	6	4.03	1.85	0	0.00	0.00
Schuylkill	2,702	947	35.05	47	4.96	1.74	11	1.16	0.41
Snyder	866	112	12.93	6	5.36	0.69	1	0.89	0.12
Somerset	1,323	410	30.99	8	1.95	0.6	5	1.22	0.38
Sullivan	63	25	39.68	2	8.00	3.17	0	0.00	0.00
Susquehanna	688	119	17.30	2	1.68	0.29	1	0.84	0.15
Tioga	781	174	22.28	6	3.47	0.77	0	0.00	0.00
Union	821	176	21.44	12	6.82	1.46	1	0.57	0.12
Venango	1,015	217	21.38	16	7.37	1.58	4	1.84	0.39
Warren	762	203	26.64	12	5.91	1.57	6	2.96	0.79
Washington	3,965	1,273	32.11	28	2.20	0.71	7	0.55	0.18
Wayne	817	219	26.81	5	2.28	0.61	0	0.00	0.00
Westmoreland	5,742	2,055	35.79	40	1.95	0.70	11	0.54	0.19
Wyoming	480	76	15.83	0	0.00	0.00	1	1.32	0.21
York	9,759	1,813	18.58	63	3.47	0.65	37	2.04	0.38
Total	273,577	84,475	30.88	2,719	3.22	0.99	867	1.03	0.32

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

†2018 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,* 2018

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	1,849	550	29.75	5	0.91	0.27	9	1.64	0.49	4	0.73	0.22
Allegheny	25,690	11,270	43.87	147	1.30	0.57	143	1.27	0.56	74	0.66	0.29
Armstrong	1,305	548	41.99	4	0.73	0.31	11	2.01	0.84	2	0.36	0.15
Beaver	3,274	972	29.69	18	1.85	0.55	6	0.62	0.18	2	0.21	0.06
Bedford	1,000	344	34.40	2	0.58	0.20	11	3.20	1.10	1	0.29	0.10
Berks	9,359	2,157	23.05	40	1.85	0.43	113	5.24	1.21	40	1.85	0.43
Blair	2,449	841	34.34	11	1.31	0.45	24	2.85	0.98	7	0.83	0.29
Bradford	1,362	296	21.73	1	0.34	0.07	7	2.36	0.51	3	1.01	0.22
Bucks	11,899	2,533	21.29	7	0.28	0.06	17	0.67	0.14	5	0.20	0.04
Butler	3,667	1,365	37.22	9	0.66	0.25	12	0.88	0.33	5	0.37	0.14
Cambria	2,609	818	31.35	43	5.26	1.65	11	1.34	0.42	4	0.49	0.15
Cameron	73	38	52.05	1	2.63	1.37	2	5.26	2.74	2	5.26	2.74
Carbon	1,203	291	24.19	8	2.75	0.67	10	3.44	0.83	2	0.69	0.17
Centre	2,443	631	25.83	4	0.63	0.16	4	0.63	0.16	0	0.00	0.00
Chester	10,702	2,791	26.08	27	0.97	0.25	30	1.07	0.28	10	0.36	0.09
Clarion	750	200	26.67	0	0.00	0.00	9	4.50	1.20	4	2.00	0.53
Clearfield	1,432	484	33.80	5	1.03	0.35	4	0.83	0.28	3	0.62	0.21
Clinton	769	192	24.97	2	1.04	0.26	4	2.08	0.52	1	0.52	0.13
Columbia	1,122	201	17.91	1	0.50	0.09	3	1.49	0.27	4	1.99	0.36
Crawford	1,770	433	24.46	16	3.70	0.90	8	1.85	0.45	3	0.69	0.17
Cumberland	5,360	738	13.77	7	0.95	0.13	11	1.49	0.21	4	0.54	0.07
Dauphin	6,748	1,441	21.35	21	1.46	0.31	33	2.29	0.49	19	1.32	0.28
Delaware	12,918	4,634	35.87	39	0.84	0.30	75	1.62	0.58	24	0.52	0.19
Elk	593	130	21.92	1	0.77	0.17	1	0.77	0.17	1	0.77	0.17
Erie	5,973	2,155	36.08	50	2.32	0.84	25	1.16	0.42	23	1.07	0.39

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	2,567	648	25.24	1	0.15	0.04	4	0.62	0.16	1	0.15	0.04
Forest	51	14	27.45	0	0.00	0.00	0	0.00	0.00	1	7.14	1.96
Franklin	3,703	839	22.66	17	2.03	0.46	14	1.67	0.38	4	0.48	0.11
Fulton	302	91	30.13	0	0.00	0.00	4	4.40	1.32	1	1.10	0.33
Greene	732	269	36.75	1	0.37	0.14	4	1.49	0.55	3	1.12	0.41
Huntingdon	748	230	30.75	0	0.00	0.00	1	0.43	0.13	3	1.30	0.40
Indiana	1,626	475	29.21	6	1.26	0.37	6	1.26	0.37	3	0.63	0.18
Jefferson	869	210	24.17	3	1.43	0.35	4	1.90	0.46	4	1.90	0.46
Juniata	566	133	23.50	2	1.50	0.35	4	3.01	0.71	3	2.26	0.53
Lackawanna	4,497	961	21.37	22	2.29	0.49	36	3.75	0.80	11	1.14	0.24
Lancaster	13,760	2,568	18.66	18	0.70	0.13	108	4.21	0.78	44	1.71	0.32
Lawrence	1,720	565	32.85	6	1.06	0.35	9	1.59	0.52	3	0.53	0.17
Lebanon	3,225	625	19.38	14	2.24	0.43	20	3.20	0.62	8	1.28	0.25
Lehigh	8,493	2,314	27.25	43	1.86	0.51	42	1.82	0.49	17	0.73	0.20
Luzerne	6,350	2,053	32.33	49	2.39	0.77	41	2.00	0.65	15	0.73	0.24
Lycoming	2,301	652	28.34	3	0.46	0.13	18	2.76	0.78	12	1.84	0.52
McKean	702	337	48.01	6	1.78	0.85	9	2.67	1.28	2	0.59	0.28
Mercer	2,230	683	30.63	16	2.34	0.72	13	1.90	0.58	4	0.59	0.18
Mifflin	1,075	283	26.33	0	0.00	0.00	7	2.47	0.65	3	1.06	0.28
Monroe	2,984	590	19.77	2	0.34	0.07	5	0.85	0.17	1	0.17	0.03
Montgomery	17,413	5,391	30.96	26	0.48	0.15	76	1.41	0.44	32	0.59	0.18
Montour	423	109	25.77	0	0.00	0.00	3	2.75	0.71	0	0.00	0.00
Northampton	5,716	1,134	19.84	28	2.47	0.49	13	1.15	0.23	7	0.62	0.12
Northumberland	1,794	532	29.65	6	1.13	0.33	16	3.01	0.89	12	2.26	0.67
Perry	1,009	227	22.50	3	1.32	0.30	7	3.08	0.69	3	1.32	0.30
Philadelphia	41,407	18,328	44.26	155	0.85	0.37	633	3.45	1.53	204	1.11	0.49
Pike	886	200	22.57	1	0.50	0.11	0	0.00	0.00	1	0.50	0.11

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	325	149	45.85	0	0.00	0.00	5	3.36	1.54	0	0.00	0.00
Schuylkill	2,702	950	35.16	22	2.32	0.81	27	2.84	1.00	8	0.84	0.30
Snyder	866	112	12.93	5	4.46	0.58	1	0.89	0.12	1	0.89	0.12
Somerset	1,323	410	30.99	3	0.73	0.23	4	0.98	0.30	4	0.98	0.30
Sullivan	63	25	39.68	0	0.00	0.00	2	8.00	3.17	0	0.00	0.00
Susquehanna	688	118	17.15	0	0.00	0.00	2	1.69	0.29	1	0.85	0.15
Tioga	781	175	22.41	3	1.71	0.38	3	1.71	0.38	0	0.00	0.00
Union	821	171	20.83	1	0.58	0.12	9	5.26	1.10	1	0.58	0.12
Venango	1,015	218	21.48	5	2.29	0.49	10	4.59	0.99	4	1.83	0.39
Warren	762	203	26.64	10	4.93	1.31	5	2.46	0.66	3	1.48	0.39
Washington	3,965	1,271	32.06	17	1.34	0.43	15	1.18	0.38	5	0.39	0.13
Wayne	817	219	26.81	0	0.00	0.00	5	2.28	0.61	0	0.00	0.00
Westmoreland	5,742	2,052	35.74	24	1.17	0.42	20	0.97	0.35	8	0.39	0.14
Wyoming	480	77	16.04	1	1.30	0.21	0	0.00	0.00	0	0.00	0.00
York	9,759	1,811	18.56	7	0.39	0.07	55	3.04	0.56	35	1.93	0.36
Total	273,577	84,475	30.88	995	1.18	0.36	1,843	2.18	0.67	719	0.85	0.26

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

†2018 intercensal estimate

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

Table 15: Number of Children Tested for Lead by Maximum Blood Lead Level and County of Residence, Children Aged 0–71 Months, 2018

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	6,270	1,072	17.10	27	2.52	0.43	6	0.56	0.10
Allegheny	76,592	23,862	31.15	649	2.72	0.85	197	0.83	0.26
Armstrong	3,880	1,020	26.29	31	3.04	0.80	10	0.98	0.26
Beaver	10,183	1,705	16.74	37	2.17	0.36	8	0.47	0.08
Bedford	2,926	638	21.80	32	5.02	1.09	6	0.94	0.21
Berks	29,154	4,435	15.21	372	8.39	1.28	112	2.53	0.38
Blair	7,772	1,361	17.51	67	4.92	0.86	23	1.69	0.30
Bradford	4,329	576	13.31	19	3.30	0.44	12	2.08	0.28
Bucks	37,125	3,994	10.76	39	0.98	0.11	13	0.33	0.04
Butler	11,709	2,412	20.60	36	1.49	0.31	10	0.41	0.09
Cambria	7,949	1,601	20.14	122	7.62	1.53	35	2.19	0.44
Cameron	254	66	25.98	5	7.58	1.97	2	3.03	0.79
Carbon	3,699	570	15.41	45	7.89	1.22	9	1.58	0.24
Centre	7,669	795	10.37	11	1.38	0.14	2	0.25	0.03
Chester	34,849	4,795	13.76	117	2.44	0.34	34	0.71	0.10
Clarion	2,405	342	14.22	18	5.26	0.75	9	2.63	0.37
Clearfield	4,493	793	17.65	25	3.15	0.56	8	1.01	0.18
Clinton	2,490	341	13.69	13	3.81	0.52	3	0.88	0.12
Columbia	3,580	352	9.83	14	3.98	0.39	6	1.70	0.17
Crawford	5,529	856	15.48	40	4.67	0.72	12	1.40	0.22
Cumberland	16,417	1,379	8.40	31	2.25	0.19	11	0.80	0.07
Dauphin	20,658	2,888	13.98	130	4.50	0.63	45	1.56	0.22
Delaware	40,097	8,565	21.36	250	2.92	0.62	83	0.97	0.21
Elk	1,851	247	13.34	2	0.81	0.11	1	0.40	0.05
Erie	18,391	3,717	20.21	153	4.12	0.83	65	1.75	0.35
Fayette	7,998	1,259	15.74	29	2.30	0.36	9	0.71	0.11

County of Residence	Population of Children Aged 0–71 Monthst	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	185	26	14.05	0	0.00	0.00	1	3.85	0.54
Franklin	11,107	1,626	14.64	47	2.89	0.42	18	1.11	0.16
Fulton	901	173	19.20	7	4.05	0.78	1	0.58	0.11
Greene	2,292	471	20.55	21	4.46	0.92	6	1.27	0.26
Huntingdon	2,434	444	18.24	12	2.70	0.49	6	1.35	0.25
Indiana	4,860	838	17.24	33	3.94	0.68	6	0.72	0.12
Jefferson	2,923	382	13.07	17	4.45	0.58	15	3.93	0.51
Juniata	1,684	200	11.88	8	4.00	0.48	4	2.00	0.24
Lackawanna	13,640	2121	15.55	143	6.74	1.05	53	2.50	0.39
Lancaster	42,235	4,175	9.89	222	5.32	0.53	91	2.18	0.22
Lawrence	5,358	1,002	18.70	34	3.39	0.63	9	0.90	0.17
Lebanon	10,086	1,232	12.21	64	5.19	0.63	26	2.11	0.26
Lehigh	26,269	4,483	17.07	178	3.97	0.68	62	1.38	0.24
Luzerne	19,623	3774	19.23	190	5.03	0.97	58	1.54	0.30
Lycoming	7,369	1,041	14.13	61	5.86	0.83	22	2.11	0.30
McKean	2,378	642	27.00	29	4.52	1.22	11	1.71	0.46
Mercer	6,579	1,090	16.57	58	5.32	0.88	16	1.47	0.24
Mifflin	3,392	417	12.29	16	3.84	0.47	4	0.96	0.12
Monroe	9,246	1,074	11.62	7	0.65	0.08	1	0.09	0.01
Montgomery	55,005	9,017	16.39	220	2.44	0.40	73	0.81	0.13
Montour	1,277	375	29.37	8	2.13	0.63	1	0.27	0.08
Northampton	17,934	2,362	13.17	108	4.57	0.60	16	0.68	0.09
Northumberland	5,640	1,005	17.82	68	6.77	1.21	32	3.18	0.57
Perry	3,192	419	13.13	17	4.06	0.53	4	0.95	0.13
Philadelphia	124,751	37,874	30.36	2,253	5.95	1.81	628	1.66	0.50
Pike	2,594	415	16.00	5	1.20	0.19	1	0.24	0.04
Potter	1,063	273	25.68	10	3.66	0.94	1	0.37	0.09
Schuylkill	8,433	1,668	19.78	114	6.83	1.35	38	2.28	0.45

County of Residence	Population of Children Aged 0–71 Monthst	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	2,642	197	7.46	9	4.57	0.34	4	2.03	0.15
Somerset	4,039	728	18.02	27	3.71	0.67	8	1.10	0.20
Sullivan	205	48	23.41	3	6.25	1.46	0	0.00	0.00
Susquehanna	2,205	223	10.11	9	4.04	0.41	2	0.90	0.09
Tioga	2,599	338	13.01	12	3.55	0.46	1	0.30	0.04
Union	2,509	326	12.99	16	4.91	0.64	6	1.84	0.24
Venango	3,074	590	19.19	49	8.31	1.59	16	2.71	0.52
Warren	2,393	405	16.92	35	8.64	1.46	8	1.98	0.33
Washington	12,642	2,520	19.93	64	2.54	0.51	16	0.63	0.13
Wayne	2,620	440	16.79	10	2.27	0.38	5	1.14	0.19
Westmoreland	19,045	3,632	19.07	80	2.20	0.42	30	0.83	0.16
Wyoming	1,555	139	8.94	3	2.16	0.19	1	0.72	0.06
York	30,765	3,140	10.21	140	4.46	0.46	69	2.20	0.22
Total	847,012	160,986	19.01	6,721	4.17	0.79	2,101	1.31	0.25

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

†2018 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,* 2018

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	6,270	1,071	17.08	13	1.21	0.21	14	1.31	0.22	4	0.37	0.06
Allegheny	76,592	23,863	31.16	344	1.44	0.45	340	1.42	0.44	147	0.62	0.19
Armstrong	3,880	1,015	26.16	13	1.28	0.34	20	1.97	0.52	7	0.69	0.18
Beaver	10,183	1,708	16.77	28	1.64	0.27	18	1.05	0.18	3	0.18	0.03
Bedford	2,926	638	21.80	10	1.57	0.34	21	3.29	0.72	4	0.63	0.14
Berks	29,154	4,433	15.21	108	2.44	0.37	283	6.38	0.97	98	2.21	0.34
Blair	7,772	1,361	17.51	22	1.62	0.28	51	3.75	0.66	20	1.47	0.26
Bradford	4,329	575	13.28	3	0.52	0.07	16	2.78	0.37	12	2.09	0.28
Bucks	37,125	3,990	10.75	11	0.28	0.03	29	0.73	0.08	12	0.30	0.03
Butler	11,709	2,413	20.61	17	0.70	0.15	24	0.99	0.20	5	0.21	0.04
Cambria	7,949	1,603	20.17	85	5.30	1.07	47	2.93	0.59	26	1.62	0.33
Cameron	254	68	26.77	2	2.94	0.79	4	5.88	1.57	2	2.94	0.79
Carbon	3,699	569	15.38	15	2.64	0.41	31	5.45	0.84	7	1.23	0.19
Centre	7,669	794	10.35	5	0.63	0.07	5	0.63	0.07	1	0.13	0.01
Chester	34,849	4,802	13.78	70	1.46	0.20	60	1.25	0.17	25	0.52	0.07
Clarion	2,405	344	14.30	3	0.87	0.12	17	4.94	0.71	8	2.33	0.33
Clearfield	4,493	792	17.63	12	1.52	0.27	11	1.39	0.24	8	1.01	0.18
Clinton	2,490	338	13.57	4	1.18	0.16	10	2.96	0.40	2	0.59	0.08
Columbia	3,580	351	9.80	2	0.57	0.06	13	3.70	0.36	6	1.71	0.17
Crawford	5,529	858	15.52	27	3.15	0.49	21	2.45	0.38	7	0.82	0.13
Cumberland	16,417	1,378	8.39	9	0.65	0.05	24	1.74	0.15	11	0.80	0.07
Dauphin	20,658	2,890	13.99	63	2.18	0.30	84	2.91	0.41	35	1.21	0.17
Delaware	40,097	8,565	21.36	81	0.95	0.20	178	2.08	0.44	73	0.85	0.18
Elk	1,851	247	13.34	1	0.40	0.05	2	0.81	0.11	1	0.40	0.05
Erie	18,391	3,716	20.21	99	2.66	0.54	75	2.02	0.41	51	1.37	0.28

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	7,998	1,259	15.74	7	0.56	0.09	23	1.83	0.29	9	0.71	0.11
Forest	185	26	14.05	0	0.00	0.00	0	0.00	0.00	1	3.85	0.54
Franklin	11,107	1,626	14.64	36	2.21	0.32	24	1.48	0.22	8	0.49	0.07
Fulton	901	174	19.31	1	0.57	0.11	6	3.45	0.67	1	0.57	0.11
Greene	2,292	473	20.64	7	1.48	0.31	14	2.96	0.61	6	1.27	0.26
Huntingdon	2,434	444	18.24	4	0.90	0.16	8	1.80	0.33	6	1.35	0.25
Indiana	4,860	844	17.37	18	2.13	0.37	15	1.78	0.31	5	0.59	0.10
Jefferson	2,923	383	13.10	10	2.61	0.34	9	2.35	0.31	11	2.87	0.38
Juniata	1,684	200	11.88	2	1.00	0.12	6	3.00	0.36	4	2.00	0.24
Lackawanna	13,640	2,126	15.59	55	2.59	0.40	105	4.94	0.77	43	2.02	0.32
Lancaster	42,235	4,176	9.89	34	0.81	0.08	199	4.77	0.47	85	2.04	0.20
Lawrence	5,358	1,001	18.68	12	1.20	0.22	23	2.30	0.43	7	0.70	0.13
Lebanon	10,086	1,232	12.21	29	2.35	0.29	41	3.33	0.41	20	1.62	0.20
Lehigh	26,269	4,483	17.07	98	2.19	0.37	103	2.30	0.39	48	1.07	0.18
Luzerne	19,623	3,772	19.22	106	2.81	0.54	108	2.86	0.55	38	1.01	0.19
Lycoming	7,369	1,043	14.15	8	0.77	0.11	56	5.37	0.76	20	1.92	0.27
McKean	2,378	641	26.96	12	1.87	0.50	18	2.81	0.76	8	1.25	0.34
Mercer	6,579	1,088	16.54	31	2.85	0.47	30	2.76	0.46	13	1.19	0.20
Mifflin	3,392	415	12.23	1	0.24	0.03	16	3.86	0.47	4	0.96	0.12
Monroe	9,246	1,070	11.57	2	0.19	0.02	5	0.47	0.05	1	0.09	0.01
Montgomery	55,005	9,017	16.39	60	0.67	0.11	164	1.82	0.30	67	0.74	0.12
Montour	1,277	375	29.37	3	0.80	0.23	5	1.33	0.39	1	0.27	0.08
Northampton	17,934	2,362	13.17	61	2.58	0.34	47	1.99	0.26	13	0.55	0.07
Northumberland	5,640	1,010	17.91	19	1.88	0.34	57	5.64	1.01	30	2.97	0.53
Perry	3,192	419	13.13	4	0.95	0.13	15	3.58	0.47	3	0.72	0.09
Philadelphia	124,751	37,875	30.36	374	0.99	0.30	1,933	5.10	1.55	586	1.55	0.47

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	2,594	415	16.00	4	0.9	0.15	2	0.48	0.08	1	0.24	0.04
Potter	1,063	272	25.59	1	0.37	0.09	9	3.31	0.85	1	0.37	0.09
Schuylkill	8,433	1,674	19.85	65	3.88	0.77	65	3.88	0.77	22	1.31	0.26
Snyder	2,642	198	7.49	9	4.55	0.34	3	1.52	0.11	2	1.01	0.08
Somerset	4,039	728	18.02	14	1.92	0.35	15	2.06	0.37	7	0.96	0.17
Sullivan	205	48	23.41	0	0.00	0.00	3	6.25	1.46	0	0.00	0.00
Susquehanna	2,205	222	10.07	3	1.35	0.14	6	2.70	0.27	2	0.90	0.09
Tioga	2,599	339	13.04	5	1.47	0.19	7	2.06	0.27	1	0.29	0.04
Union	2,509	315	12.55	1	0.32	0.04	13	4.13	0.52	4	1.27	0.16
Venango	3,074	591	19.23	18	3.05	0.59	36	6.09	1.17	12	2.03	0.39
Warren	2,393	405	16.92	20	4.94	0.84	19	4.69	0.79	4	0.99	0.17
Washington	12,642	2,516	19.90	40	1.59	0.32	31	1.23	0.25	11	0.44	0.09
Wayne	2,620	439	16.76	3	0.68	0.11	8	1.82	0.31	5	1.14	0.19
Westmoreland	19,045	3,628	19.05	47	1.30	0.25	38	1.05	0.20	25	0.69	0.13
Wyoming	1,555	139	8.94	1	0.72	0.06	3	2.16	0.19	0	0.00	0.00
York	30,765	3,137	10.20	16	0.51	0.05	123	3.92	0.40	66	2.10	0.21
Total	847,012	160,986	19.01	2,288	1.42	0.27	4,809	2.99	0.57	1,776	1.10	0.21

*Per CDC 2016 Confirmed Elevated Blood Lead case definition

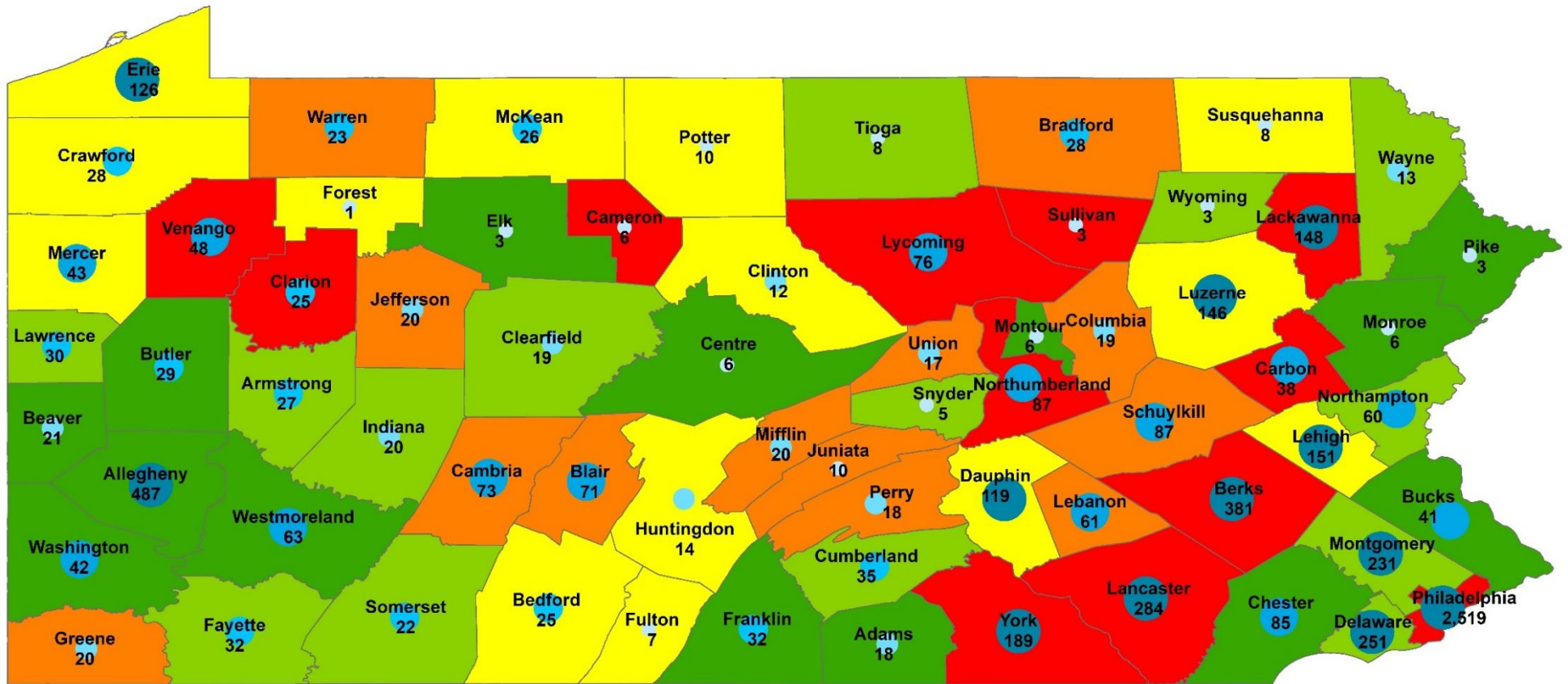
**Note that Pennsylvania does not mandate universal screening of children; screening of children is recommended between 9 and 12 months and at 24 months. Allegheny County is currently the only county with mandatory testing.

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

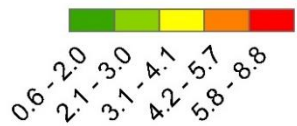
†2018 intercensal estimate

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

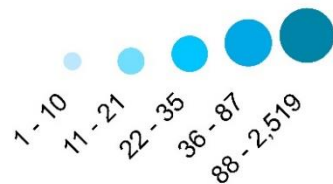
Figure 5: Number and Percentage* of Children Aged 0–71 Months with Confirmed Elevated Blood Lead Level by County, 2018.



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 2018.

Testing in Rural and Urban Counties:

The chart below contains testing data on children under 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,* 2018

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	204,193	33,832	16.57	595	1.75	0.29	857	2.53	0.42	330	0.98	0.16
Urban	642,819	127,154	19.78	1,693	1.33	0.26	3,952	3.11	0.61	1,446	1.14	0.22
Total	847,012	160,986	19.01	2,288	1.42	0.27	4,809	2.99	0.57	1,776	1.10	0.21

*Per CDC 2016 Elevated Blood Lead case definition

**2018 intercensal estimate

†Percent was calculated as number of children tested/population of children in county for 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 shows 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>.