



pennsylvania
DEPARTMENT OF HEALTH



CHILDHOOD LEAD POISONING PREVENTION IN PENNSYLVANIA

WHAT WE KNOW ABOUT LEAD

Exposure to lead, even at **LOW LEVELS**, may cause developmental, intellectual and behavioral deficits.

At very **HIGH LEVELS** in the blood, lead may cause physical defects and even death.

Lead poisoning is a **PREVENTABLE HEALTH PROBLEM** and affects children regardless of race, ethnicity or socioeconomic status.



LEAD-BASED PAINT is a significant source of lead exposure in young children.



WATER may be problematic when flowing through lead plumbing or where lead solder has been used.



OTHER SOURCES of lead include imported items: ceramics, candy/wrappers, toys, makeup and jewelry.

Childhood Lead Poisoning Prevention in Pennsylvania

The Pennsylvania Department of Health has long supported lead prevention activities in the commonwealth. The Wolf Administration is dedicated to ensuring safe and healthy homes and water for all Pennsylvanians.

Nationally, among states with older houses, lead-based paint is a significant source of lead exposure in young children. According to the 2010 Census data, Pennsylvania ranks third in the nation for the number of housing units identified as having been built before 1950, when lead was most prevalent in paint and plumbing.

Since Pennsylvania does not have a universal testing law, there is no mandate for children not covered by Medicaid to be tested for lead. The chart below includes a statewide summary of blood lead tests performed in 2015.

	Children aged 0-23 months
Total number of children in Pennsylvania	285,132
Total number of children tested	79,265 (27.8%)

- The percentage of children tested in Pennsylvania for lead poisoning by county ranges from 12 – 47% of children aged 0-23 months.
- For children, less than 2 years of age, the percentage tested for lead in 2015 was nearly 28% of this age population.

While the childhood lead testing data provides a snapshot of testing throughout Pennsylvania, the department believes that limiting testing requirements to children covered by Medicaid only results in significant limitations to understanding the prevalence of elevated lead levels across the commonwealth. Limitations include:

- The total number of children in Pennsylvania who have elevated blood lead levels.
- The demographics and risk factors in Pennsylvania of children with elevated blood lead levels.
- Why providers may or may not test children.
- The geographic regions where children with the highest and lowest rates of blood lead levels reside.

Steps Forward

In order to address the gaps in childhood lead testing data and implement a comprehensive childhood lead poisoning prevention strategy in Pennsylvania, the department is taking the followings steps:

- Continue to coordinate childhood lead poisoning prevention efforts with the departments of Environmental Protection, Human Services, and Education.
- Update Pennsylvania's policies on childhood lead testing. In the commonwealth, not all children are tested for lead exposure. Pennsylvania does not mandate universal testing and health care providers' lead testing practices vary. Without universal lead testing, Pennsylvania's ability to capture a comprehensive picture of the impact on children is limited. The department will work with the General Assembly to develop legislation to support

universal lead testing in Pennsylvania, which will allow the department to understand who is at risk for lead poisoning and where children with the highest and lowest rates of blood lead levels reside. This information will be crucial to implement an effective childhood lead poisoning prevention strategy.

- Conduct a survey of Pennsylvania providers regarding attitudes and practices around childhood lead testing. The results of the survey will inform the department's education and outreach efforts to ensure health care providers have accurate information about childhood lead testing.

DEPARTMENT OF HEALTH IS TAKING ACTION TO REDUCE CHILDHOOD LEAD POISONING



ENCOURAGES providers and parents to test all children at ages 1 and 2.



ADMINISTERS a Lead Hazard Control Program, which provides funding to local partners to contract with certified lead professionals to remove lead hazards.



UTILIZES Community Health Nurses to monitor lead levels in children and to provide education to parents.



COMMUNITY HEALTH NURSES PROVIDE referrals to the Pennsylvania WIC Program and the early intervention program.



OPERATES a toll-free lead information line, 1-800-440-LEAD (5323), to provide information and referrals for concerned parents or professionals.



INFORMATION FOR FAMILIES

TALK to your pediatrician about risk factors and request that your pediatrician test your child.

LEARN the facts about your individual lead risks and ways to prevent lead poisoning.

TALK to your local and state representatives about policies that support lead poisoning prevention in Pennsylvania.



2015 Childhood Lead Surveillance Annual Report

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Executive Summary

This is the Pennsylvania Department of Health's (Department) ninth childhood lead surveillance annual report, covering data for children tested in Pennsylvania during calendar year 2015. Data was extracted from the Pennsylvania National Electronic Disease Surveillance System (PA-NEDSS), which is the Department's disease reporting system. Although not legislatively mandated, the report is provided as a source of information for the public, federal, state and local agencies, as well as health care providers, and any organizations and individuals interested in lead poisoning prevention in Pennsylvania. The report is an overview of lead testing in Pa. and provides information about testing for children under the age of 2, as well as under the age of 6 by: race; confirmation status; method of testing; method of reporting; county of residence; and if they live in a rural county or an urban county.

Exposure to lead, even at low levels, can cause intellectual, behavioral and academic deficits. 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 ($\mu\text{g}/\text{dL}$). 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.

Thus, the 2015 report was compiled using a different methodology for data analysis from previous years' reports. Because of the change in methodology, only state and county data are included in the report. Additionally, the report now presents data for a BLL reference value of 5 $\mu\text{g}/\text{dL}$. It is important to note that the data in this report cannot be compared to previous years' reports due to the change in methodology and must be considered independently.

This report is used by the Department to identify areas that may be at high-risk for lead exposure; locate areas of potential under-testing; and 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.

Nationally, among states with older housing stock, lead-based paint is a significant source of lead exposure in young children. According to the 2010 Census data, Pennsylvania ranks third in the nation for having the most housing units identified as having been built before 1950, when lead was most prevalent. Other sources of lead exposure include toys, ceramics and other consumer products. Water, as a source of lead exposure, can also be considered problematic when it flows through older lead plumbing and pipes or 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, along with efforts to leverage resources more efficiently, causing a shift in 2013 from the Childhood Lead Poisoning Prevention Program (focused on case management and lead abatement) to the Healthy Homes program (a holistic and comprehensive approach to preventing environmental exposures including lead exposure in the home). Lead abatement efforts were continued through the Lead Hazard Control Program, which provided funding to local partners to contract with certified lead professionals to remove lead hazards. The Department's community health nurses (CHN) continued to monitor elevated lead levels ($\geq 10\mu\text{g}/\text{dL}$) in children ages 7 and under living in Pennsylvania. The CHNs contacted families to provide education on laboratory results, sources of lead exposure and actions to take to prevent/decrease the risk of exposure and help facilitate follow-up testing between client's and their pediatricians. In cases where

there was a significant lead exposure, CHNs worked with the pediatrician and facilitated referrals to obtain home inspections, which could identify the source of exposure as well as provide hands-on education to parents. CHNs also worked to provide referrals to the Pennsylvania Special Supplemental Nutrition Program for Women, Infants and Children and to early intervention where appropriate. 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 Department also staffed a toll-free Lead Information Line, to provide information and referrals for concerned parents or professionals.

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. This report is intended to provide information that is succinct, comprehensible and more 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 Definition

Reporting of Test Results and Case Investigations

In Pennsylvania, clinical laboratories are required to report blood lead results on both venous and capillary specimens for persons under 16 years of age to the Pennsylvania Department of Health, Childhood Lead Poisoning Prevention Program, Division of Maternal and Child Health, Bureau of Family Health (28 Pa. Code § 27.34). In addition, clinicians are required to report cases of lead poisoning (28 Pa. Code § 27.21a). Reports are submitted electronically (either through electronic laboratory reporting or online key entry) to the Department through Pennsylvania's electronic reportable disease surveillance system, PA-NEDSS. In 2015, reports with a BLL ≥ 10 $\mu\text{g/dL}$ 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 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 blood lead level results from the same patient were considered as a single test. The total number of blood lead tests was defined as the total number of de-duplicated blood tests obtained from children within the specified age categories. All blood lead 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 blood lead 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 µg/dL) and to begin using a reference value of 5 µg/dL based on the 97.5 percentile of the blood lead distribution among U.S. children. Although the new case definition was not officially implemented by CDC until 2016, for consistency with other state analyses, this report uses the 2016 case definition to identify children with confirmed elevated blood lead. Therefore, a confirmed elevated BLL is defined as a venous blood lead test ≥ 5 µg/dL, or two capillary blood lead tests ≥ 5 µg/dL drawn within 84 days (12 weeks) of each other. An unconfirmed elevated BLL is defined as a capillary blood lead test ≥ 5 µg/dL with no other blood lead test done in the next 84 days.

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 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. In cases where a test result was reported by different entities as coming from both a capillary and venous specimen, case records were reviewed to determine the proper specimen source.
- Tests with undetectable blood lead levels 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 2015 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 2016 or outside of the age category. For example, if a child had an elevated capillary test at 23 months of age in November 2015 and received a confirmatory follow-up test within 12 weeks (in 2016), this was considered an elevated BLL result in 2015 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 2015 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 (i.e., 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.

Childhood lead race and sex data in PA-NEDSS is obtained primarily from laboratory reports. Although nearly all labs can report sex information, race information is not routinely collected or stored by most laboratories. For these analyses, when possible, children were categorized as either African-American, Asian, white, or other (which included multiracial children, American Indians, and Pacific Islanders). However, given that race is unknown for almost 60 percent of children, the race tables and

figures should be interpreted with caution, and inferences regarding the implications of the percentages presented in this report cannot be generalized.

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 2015 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.
- Elevated blood lead confirmation status was determined as described in the case definition section above.

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 elevated blood lead confirmation status measure, county was determined from the address accompanying the initial elevated BLL. 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 (approximately 3 percent, depending on the measure and age category). In these instances, when possible, the county was set by the location of the provider who ordered the test.

Intercensal population estimates for 2015 by county and age were provided by the Pennsylvania Department of Health, Division of Health Informatics. These figures were used to calculate the proportion of children tested for blood lead, and the proportion of children with elevated lead levels.

Differences from Previous Annual Reports

The methodology used to create the 2015 Childhood Lead Annual Surveillance report differs from previous reports. Therefore, the data generated for the 2015 report cannot be compared to previous years' data, and trend analyses are not presented.

The Department reviewed annual childhood blood lead reports from other states, as well as CDC online data and reports, to design a report which provides the best data available to assess the burden of elevated childhood blood lead. Age categories used in this report differ from prior years and were based on our review of best practices in reporting. Analyses below the county level were removed from the report, given the small numbers of children with elevated blood lead in many counties and the lack of mandated universal testing (the proportion of children tested was less than 30 percent overall, and below this percentage in many counties). Without universal testing, the number of children tested and the characteristics of children tested are dependent upon provider practices, access to testing and parental preferences. Current testing patterns do not allow for an unbiased estimate of the prevalence of children with elevated blood lead levels and assessment of burden at the local level.

In addition, calculation of the geometric mean for BLLs was dropped, given that the value of the geometric mean is strongly dependent upon the arbitrary value the Department would use to represent negative or undetected BLLs (those results sent to us as negative but without a numeric value). BLL distribution frequencies are presented instead.

Finally, the Department undertook a detailed review of data entry and electronic laboratory reporting of BLL test results from 2015. Thousands of records were discovered to have miscoded or misplaced information which could be recaptured with custom computer algorithms and/or individual review and recoding. Records with these types of issues would have been unseen or excluded in prior years' reports. Coding changes are being made to prevent many of these issues from occurring in future years. Throughout this document, extensive use of footnotes and an enhanced methodology section have been provided to enable readers to better understand details of the analysis and decisions made.

Limitations

The 2015 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. The analytic methodologies used to produce the 2015 Report changed significantly from previous reports, so direct comparison to previous reports is not recommended.

Users of the report should be aware that public health surveillance data for childhood lead has inherent limitations that influences interpretation of the data. Most information comes from laboratories, and laboratories generally do not collect variables such as race or ethnicity; thus, there is a substantial amount of missing data for these key public health indicators. Data such as specimen source, residence of child and other important information may also be missing on laboratory test results.

For the 2015 Report, the Department did an enhanced review and cleaning of the data and was able to retrieve some missing data; nevertheless, for fields with a large amount of missing data (such as race), interpretation is not possible. Furthermore, Pennsylvania does not mandate universal and complete screening of all children. Therefore, testing of children for blood lead is targeted rather than random, which makes interpretation of rates of elevated blood lead levels by geographic area or demographic factors difficult.

High rates of children with elevated blood lead levels in one area may reflect a true higher exposure risk in that area, or may reflect more robust and targeted testing in that area. The burden of elevated childhood lead levels is best understood through a series of metrics: the percentage of children tested; the percentage who go on to have retests where appropriate (and alternatively the percentage who do not get appropriate testing and follow-up); and finally, the percentage of children with blood lead levels ≥ 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 blood lead levels ≥ 5 $\mu\text{g}/\text{dL}$ and those ≥ 10 $\mu\text{g}/\text{dL}$.

Pennsylvania lowered the threshold for outreach and follow-up from ≥ 10 $\mu\text{g}/\text{dL}$ to 5 $\mu\text{g}/\text{dL}$ in 2016, but in anticipation of this change, data for ≥ 5 $\mu\text{g}/\text{dL}$ are shown for 2015. Finally, in May 2017, concerns were raised about the falsely low blood test results from LeadCare® analyzers, the impact of this cannot be assessed as the type of testing device used is not known in surveillance data sets.

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 $> 10 \mu\text{g}/\text{dL}$: 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 $\geq 5 \mu\text{g}/\text{dL}$.

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

Not elevated: A child with a confirmed venous BLL $\leq 5 \mu\text{g}/\text{dL}$, or who had an initial elevated capillary BLL that was found to be $\leq \mu\text{g}/\text{dL}$ 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 Pa. 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.

Rural versus urban counties: The Center for Rural Pa. 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.

Statewide Summaries by Age:

Pennsylvania does not have a universal 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 Pa. Department of Human Services [DHS]) requires providers to test children on Medical Assistance at age 1 and 2. Furthermore, most clinical practice guidelines recommend testing children under 7 and focusing on children at age 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 and the range of the highest BLL.

Table 1: Summary of Blood Lead Tests Performed in 2015, by Age Category

Age category*	Total number of tests†	Capillary		Venous		Unknown#	
		N	%	N	%	N	%
0-23 months (under 2 years)	84,157	38,219	45.41	43,829	52.08	2,109	2.51
0-71 months (under 5 years)	151,111	64,329	42.57	82,731	54.75	4,051	2.68
0-15 years	159,477	64,920	40.70	90,248	56.59	4,309	2.70

*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.

#For the remainder of analyses, blood specimens of unknown source were treated as though they were capillary tests.

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

	Children aged 0-23 months		Children aged 0-71 months	
	Number	% of total	Number	% of total
Total number of children tested†	79,265	100.00	140,147	100.00
Age at time of maximum BLL				
Under 1 year	40,563	51.17	40,563	28.94
1 year	38,702	48.83	38,216	27.27
2 years	-	-	38,100	27.19
3 years	-	-	9,969	7.11
4 years	-	-	8,008	5.71
5 years	-	-	5,291	3.78
Sex				
Male	40,492	51.08	71,971	51.35
Female	38,579	48.67	67,934	48.47
Unknown	194	0.24	242	0.17
Race				
Asian	1,379	1.74	2,467	1.76

Black or African-American	7,440	9.39	15,046	10.74
White	23,886	30.13	38,966	27.80
Other^	397	0.50	751	0.54
Unknown	46,163	58.24	82,917	59.16
Maximum BLL (µg/dL)*				
<5	75,095	94.74	130,504	93.12
5–9.9	3,350	4.23	7,775	5.55
10–19.9	670	0.85	1,522	1.09
20–44.9	141	0.18	322	0.23
45–59.9	7	0.01	19	0.01
60–69.9	1	0.00	3	0.0
>70	1	0.00	2	0.0

†Number of Pennsylvania children within the age category who had at least one blood lead test done with a specimen collection date in 2015

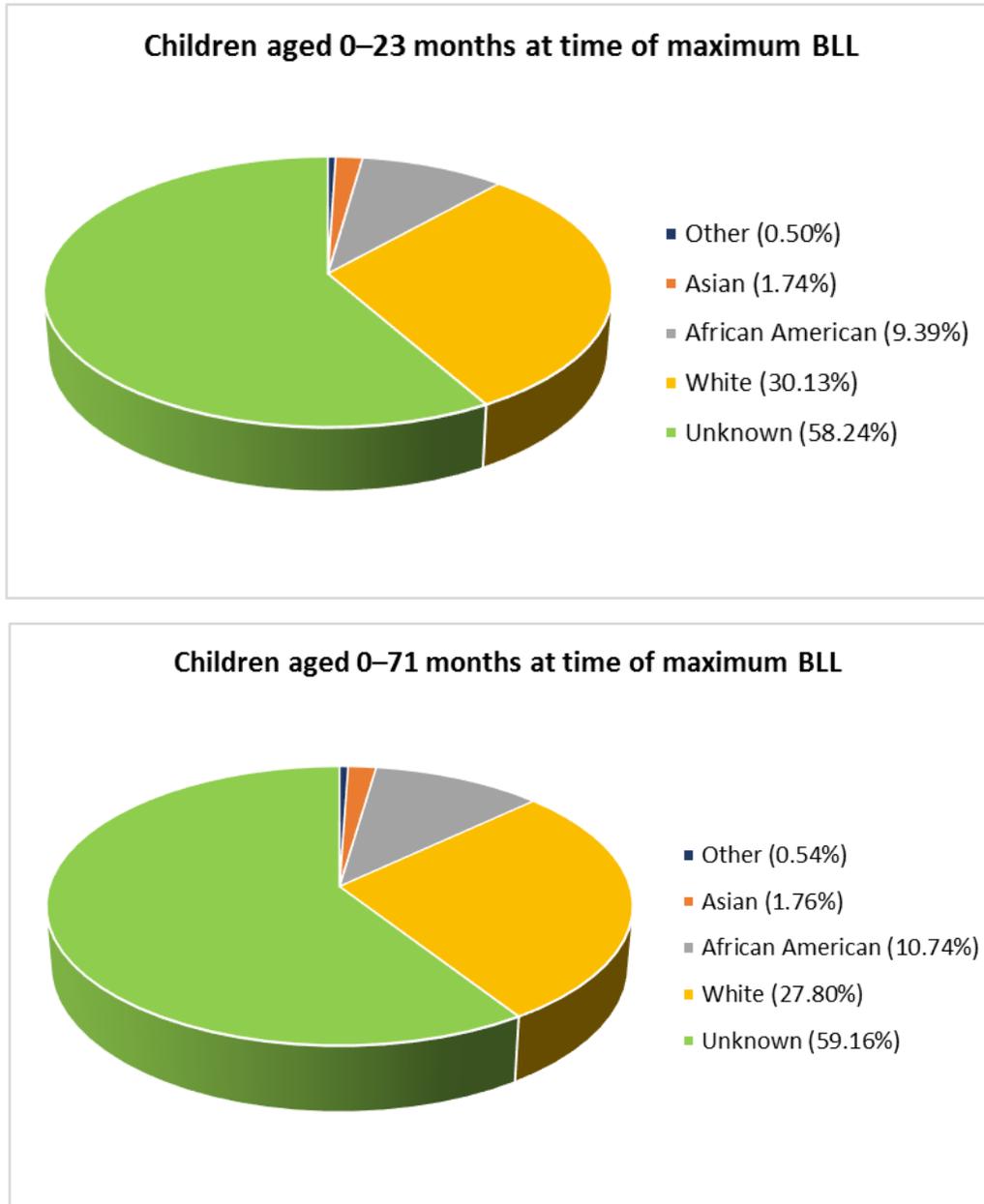
^Other race includes multiracial children, American Indians and Pacific Islanders.

*Highest venous blood lead level (BLL) obtained per child in 2015, or highest BLL from a capillary or unknown specimen source, if no venous test was performed

Statewide Summaries by Race:

The following graphic displays the percentage of children tested by race, for children under ages 2 and 6. Note, the Department does not receive identifiable race data with most childhood lead reports; therefore, the data presented in the figures below may be an over- or under-representation of children tested by race.

Figure 1: Percent of Children Tested for Lead, by Age Category and Race



*Percent calculated as the number of children in race category divided by the total number of children tested in each age category

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. 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 setting 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

	Children aged 0-23 months		Children aged 0-71 months	
	Number	Percent of total	Number	Percent of total
Total number of children tested	79,265	100.00	140,147	100.00
Confirmation status				
Not elevated (<5 µg/dL)**	75,104	94.75	130,458	93.09
Unconfirmed elevated (≥5 µg/dL)†	1,452	1.83	3,223	2.30
Confirmed 5 – 9.9 µg/dL	2,041	2.57	4,931	3.52
Confirmed ≥10 µg/dL	668	0.84	1,535	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.

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

		Children aged 0-23 months		Children aged 0-71 months	
		Number	Percent	Number	Percent
Total number of children tested		79,265	100.00	140,147	100.00
Confirmation status†detail					
Not elevated (<5 µg/dL)	BLL <5 µg/dL	74,517	94.01	129,243	92.22
	Repeat capillary test did NOT confirm initial elevated capillary test.	59	0.07	97	0.07
	Venous test did NOT confirm initial elevated capillary test.	528	0.67	1,118	0.80
Unconfirmed elevated (≥5 µg/dL) ††	Not retested appropriately	1,452	1.83	3,223	2.30
Confirmed 5 – 9.9 µg/dL	Capillary confirmed by repeat capillary test	46	0.06	67	0.05
	Capillary confirmed by venous test	292	0.37	567	0.40
	Venous test	1,703	2.15	4,297	3.07
Confirmed ≥10 µg/dL	Capillary confirmed by repeat capillary test	16	0.02	34	0.02
	Capillary confirmed by venous test	141	0.18	247	0.18
	Venous test	511	0.64	1,254	0.89

†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.

Table 5: Confirmation After an Elevated Capillary Blood Lead Test, by Capillary Test Level

Blood Lead Level of Initial Elevated Capillary Test (µg/dL)	Number of Children*	Children with a Diagnostic Venous Retest Within 12 weeks†		Children with either a Venous or Capillary Retest Within 12 weeks†	
		N	%	N	%
5 – 9.9	4,382	1,242	28.34	1,302	29.71
10 – 19.9	889	547	61.53	574	64.57
20 – 44.9	190	144	75.79	159	83.68
45 – 59.9	8	8	100.00	8	100.00
60 – 69.9	2	2	100.00	2	100.00
>70	5	5	100.00	5	100.00
Overall	5,476	1,948	35.57	2,050	37.44

*Children aged 0-15 years

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

Reporting by Method and Organization:

The chart below displays data on how blood lead reports were submitted to PA-NEDSS and who submitted the report. By law, all blood lead tests analyzed by laboratories are required to be reported to the Department. Reports can be submitted by electronic lab reporting or by online key-entry.

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

	Method of Report	2011	2012	2013	2014	2015
Number of Reports Submitted*	ELR*	155,301	160,647	147,522	149,334	146,104
	Online key-entry by lab	21,846	18,950	21,368	17,076	14,997
	Online key-entry by provider	670	829	1,291	1,727	2,536
	Other	591	5	6	240	106
	Total	178,408	180,431	170,187	168,377	163,743
% ELR		87.05	89.04	86.68	88.69	89.23
Number of Reporting Organizations	ELR	19	19	20	22	22
	Online key-entry by lab	59	56	55	57	51
	Online key-entry by provider	15	11	11	13	19
	Other	1	0	0	0	0
	Total	94	86	86	92	92
% ELR		20.21	22.09	23.26	23.91	23.91

*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.

Testing Summaries by County:

The following are summaries of children under age 2 and 6 tested by county, including number of children tested, the percent of population tested, and BLLs of 5 -9.9 and ≥ 10 $\mu\text{g}/\text{dL}$.

Table 7: Number of Children Tested for Lead by Maximum Blood Lead Level and County of Residence, Children Aged 0–23 Months

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 $\mu\text{g}/\text{dL}$		
		Number	Percent of population**	Number	Percent of tested	Percent of population	Number	Percent of tested	Percent of population
Adams	2,038	487	23.90	7	1.44	0.34	4	0.82	0.20
Allegheny	27,100	8,507	31.39	279	3.28	1.03	63	0.74	0.23
Armstrong	1,197	426	35.59	20	4.69	1.67	3	0.70	0.25
Beaver	3,374	849	25.16	40	4.71	1.19	8	0.94	0.24
Bedford	938	298	31.77	9	3.02	0.96	4	1.34	0.43
Berks	9,803	2,285	23.31	213	9.32	2.17	54	2.36	0.55
Blair	2,713	728	26.83	34	4.67	1.25	10	1.37	0.37
Bradford	1,315	381	28.97	16	4.20	1.22	4	1.05	0.30
Bucks	12,034	2,432	20.21	40	1.64	0.33	5	0.21	0.04
Butler	3,665	793	21.64	18	2.27	0.49	3	0.38	0.08
Cambria	2,528	755	29.87	53	7.02	2.10	9	1.19	0.36
Cameron	95	44	46.32	1	2.27	1.05	1	2.27	1.05
Carbon	1,144	280	24.48	15	5.36	1.31	4	1.43	0.35
Centre	2,542	694	27.30	10	1.44	0.39	0	0	0
Chester	11,527	2,646	22.95	73	2.76	0.63	24	0.91	0.21
Clarion	787	206	26.18	11	5.34	1.40	0	0	0
Clearfield	1,473	548	37.20	10	1.82	0.68	3	0.55	0.20
Clinton	872	226	25.92	3	1.33	0.34	6	2.65	0.69
Columbia	1,183	226	19.10	5	2.21	0.42	2	0.88	0.17
Crawford	1,889	433	22.92	35	8.08	1.85	3	0.69	0.16
Cumberland	5,244	626	11.94	27	4.31	0.51	4	0.64	0.08
Dauphin	6,980	1,589	22.77	76	4.78	1.09	20	1.26	0.29
Delaware	13,511	4,253	31.48	154	3.62	1.14	26	0.61	0.19

Elk	560	202	36.07	6	2.97	1.07	0	0	0
Erie	6,373	2,032	31.88	96	4.72	1.51	33	1.62	0.52
Fayette	2,810	727	25.87	19	2.61	0.68	0	0	0
Forest	53	11	20.75	0	0	0	0	0	0
Franklin	3,594	817	22.73	32	3.92	0.89	7	0.86	0.19
Fulton	287	91	31.71	5	5.49	1.74	0	0	0
Greene	760	157	20.66	9	5.73	1.18	3	1.91	0.39
Huntingdon	868	235	27.07	6	2.55	0.69	2	0.85	0.23
Indiana	1,672	440	26.32	17	3.86	1.02	0	0	0
Jefferson	966	258	26.71	5	1.94	0.52	0	0	0
Juniata	535	134	25.05	3	2.24	0.56	1	0.75	0.19
Lackawanna	4,440	939	21.15	47	5.01	1.06	13	1.38	0.29
Lancaster	14,514	2,299	15.84	124	5.39	0.85	38	1.65	0.26
Lawrence	1,825	389	21.32	11	2.83	0.60	3	0.77	0.16
Lebanon	3,199	657	20.54	36	5.48	1.13	5	0.76	0.16
Lehigh	8,680	1,793	20.66	77	4.29	0.89	15	0.84	0.17
Luzerne	6,476	1,851	28.58	77	4.16	1.19	15	0.81	0.23
Lycoming	2,541	772	30.38	40	5.18	1.57	1	0.13	0.04
McKean	795	344	43.27	19	5.52	2.39	5	1.45	0.63
Mercer	2,277	684	30.04	26	3.80	1.14	8	1.17	0.35
Mifflin	1,108	347	31.32	6	1.73	0.54	3	0.86	0.27
Monroe	3,000	452	15.07	2	0.44	0.07	1	0.22	0.03
Montgomery	18,059	5,006	27.72	138	2.76	0.76	34	0.68	0.19
Montour	389	93	23.91	5	5.38	1.29	0	0	0
Northampton	5,705	1,109	19.44	28	2.52	0.49	4	0.36	0.07
Northumberland	1,890	544	28.78	30	5.51	1.59	9	1.65	0.48
Perry	1,040	251	24.13	21	8.37	2.02	3	1.20	0.29
Philadelphia	44,631	19,020	42.62	1,004	5.28	2.25	262	1.38	0.59
Pike	799	227	28.41	3	1.32	0.38	1	0.44	0.13
Potter	346	162	46.82	6	3.70	1.73	1	0.62	0.29
Schuylkill	2,647	893	33.74	40	4.48	1.51	15	1.68	0.57
Snyder	922	170	18.44	3	1.76	0.33	1	0.59	0.11
Somerset	1,355	336	24.80	13	3.87	0.96	3	0.89	0.22
Sullivan	85	21	24.71	1	4.76	1.18	0	0	0
Susquehanna	695	129	18.56	2	1.55	0.29	1	0.78	0.14

Tioga	796	222	27.89	7	3.15	0.88	0	0	0
Union	811	230	28.36	15	6.52	1.85	2	0.87	0.25
Venango	1,068	224	20.97	16	7.14	1.50	6	2.68	0.56
Warren	788	213	27.03	13	6.10	1.65	1	0.47	0.13
Washington	4,067	1,024	25.18	31	3.03	0.76	7	0.68	0.17
Wayne	806	200	24.81	9	4.50	1.12	1	0.50	0.12
Westmoreland	6,320	1,682	26.61	46	2.73	0.73	16	0.95	0.25
Wyoming	535	89	16.64	2	2.25	0.37	0	0	0
York	10,093	2,066	20.47	104	5.03	1.03	32	1.55	0.32
Unable to determine	.	11	.	1	9.09	.	8	72.73	.
Total	285,132	79,265	27.80	3,350	4.23	1.17	820	1.03	0.29

*Note that Pennsylvania does not mandate universal screening of children; screening of children at risk is recommended.

†2.45% of children did not have a street address reported. For these children, county designation is based on the location of the provider who ordered the BLL test. For an additional 11.56% of children, we were unable to verify their given street address, so county is based on their zip code rather than their complete address.

††2015 intercensal estimate

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

Table 8: Number of Children Tested for Lead by Maximum Blood Lead Level and County of Residence, Children Aged 0–71 Months

County of Residence†	Population of Children Aged 0-71 Months††	Children Tested*		Maximum BLL 5-9.9 µg/dL			Maximum BLL ≥ 10 µg/dL		
		Number	Percent of population**	Number	Percent of tested	Percent of population	Number	Percent of tested	Percent of population
Adams	6,357	982	15.45	27	2.75	0.42	9	0.92	0.14
Allegheny	78,040	13,662	17.51	548	4.01	0.70	132	0.97	0.17
Armstrong	4,023	833	20.71	42	5.04	1.04	10	1.20	0.25
Beaver	10,469	1,523	14.55	75	4.92	0.72	15	0.98	0.14
Bedford	2,970	506	17.04	21	4.15	0.71	6	1.19	0.20
Berks	29,456	4,656	15.81	471	10.12	1.60	120	2.58	0.41
Blair	8,515	1,246	14.63	91	7.30	1.07	22	1.77	0.26
Bradford	4,298	540	12.56	24	4.44	0.56	7	1.30	0.16
Bucks	37,429	3,575	9.55	73	2.04	0.20	10	0.28	0.03
Butler	11,359	1,166	10.26	36	3.09	0.32	6	0.51	0.05
Cambria	8,137	1,431	17.59	139	9.71	1.71	27	1.89	0.33
Cameron	258	82	31.78	2	2.44	0.78	1	1.22	0.39
Carbon	3,661	569	15.54	35	6.15	0.96	7	1.23	0.19
Centre	7,822	823	10.52	13	1.58	0.17	2	0.24	0.03
Chester	35,493	4,327	12.19	170	3.93	0.48	54	1.25	0.15
Clarion	2,362	343	14.52	19	5.54	0.80	1	0.29	0.04
Clearfield	4,564	857	18.78	25	2.92	0.55	5	0.58	0.11
Clinton	2,693	349	12.96	6	1.72	0.22	11	3.15	0.41
Columbia	3,646	379	10.39	13	3.43	0.36	3	0.79	0.08
Crawford	5,693	746	13.10	69	9.25	1.21	8	1.07	0.14
Cumberland	15,721	995	6.33	38	3.82	0.24	6	0.60	0.04
Dauphin	20,261	2,987	14.74	207	6.93	1.02	52	1.74	0.26
Delaware	40,355	7,329	18.16	329	4.49	0.82	59	0.81	0.15
Elk	1,770	320	18.08	10	3.13	0.56	4	1.25	0.23
Erie	19,381	3,658	18.87	246	6.72	1.27	76	2.08	0.39
Fayette	8,252	1,307	15.84	36	2.75	0.44	8	0.61	0.10
Forest	113	21	18.58	1	4.76	0.88	0	0	0

Franklin	11,253	1,447	12.86	69	4.77	0.61	16	1.11	0.14
Fulton	910	150	16.48	7	4.67	0.77	0	0	0
Greene	2,279	257	11.28	13	5.06	0.57	4	1.56	0.18
Huntingdon	2,567	445	17.34	14	3.15	0.55	3	0.67	0.12
Indiana	5,165	757	14.66	36	4.76	0.70	2	0.26	0.04
Jefferson	3,058	463	15.14	19	4.10	0.62	3	0.65	0.10
Juniata	1,663	193	11.61	4	2.07	0.24	3	1.55	0.18
Lackawanna	13,576	1,929	14.21	145	7.52	1.07	35	1.81	0.26
Lancaster	42,427	3,712	8.75	258	6.95	0.61	71	1.91	0.17
Lawrence	5,549	541	9.75	23	4.25	0.41	9	1.66	0.16
Lebanon	10,141	1,070	10.55	68	6.36	0.67	12	1.12	0.12
Lehigh	25,775	3,357	13.02	154	4.59	0.60	40	1.19	0.16
Luzerne	19,346	3,134	16.20	163	5.20	0.84	40	1.28	0.21
Lycoming	7,931	1,122	14.15	59	5.26	0.74	11	0.98	0.14
McKean	2,630	666	25.32	44	6.61	1.67	10	1.50	0.38
Mercer	6,835	1,203	17.60	70	5.82	1.02	15	1.25	0.22
Mifflin	3,312	458	13.83	10	2.18	0.30	3	0.66	0.09
Monroe	9,071	863	9.51	7	0.81	0.08	3	0.35	0.03
Montgomery	54,714	7,733	14.13	277	3.58	0.51	67	0.87	0.12
Montour	1,230	549	44.63	12	2.19	0.98	3	0.55	0.24
Northampton	17,833	2,051	11.50	84	4.10	0.47	17	0.83	0.10
Northumberland	5,884	918	15.60	63	6.86	1.07	21	2.29	0.36
Perry	3,134	379	12.09	26	6.86	0.83	4	1.06	0.13
Philadelphia	129,756	37,547	28.94	2,673	7.12	2.06	623	1.66	0.48
Pike	2,643	531	20.09	6	1.13	0.23	1	0.19	0.04
Potter	1,177	309	26.25	12	3.88	1.02	2	0.65	0.17
Schuylkill	8,313	1,508	18.14	86	5.70	1.03	27	1.79	0.32
Snyder	2,664	288	10.81	14	4.86	0.53	1	0.35	0.04
Somerset	4,048	598	14.77	22	3.68	0.54	6	1.00	0.15
Sullivan	261	31	11.88	3	9.68	1.15	0	0	0
Susquehanna	2,513	252	10.03	8	3.17	0.32	5	1.98	0.20
Tioga	2,801	381	13.60	14	3.67	0.50	2	0.52	0.07
Union	2,403	374	15.56	22	5.88	0.92	4	1.07	0.17
Venango	3,390	398	11.74	47	11.81	1.39	13	3.27	0.38
Warren	2,436	421	17.28	38	9.03	1.56	11	2.61	0.45

Washington	12,728	1,678	13.18	71	4.23	0.56	14	0.83	0.11
Wayne	2,547	429	16.84	22	5.13	0.86	2	0.47	0.08
Westmoreland	20,044	2,871	14.32	106	3.69	0.53	28	0.98	0.14
Wyoming	1,678	121	7.21	2	1.65	0.12	0	0	0
York	30,528	3,786	12.40	236	6.23	0.77	66	1.74	0.22
Unable to determine	.	15	.	2	13.33	.	10	66.67	.
Total	859,311	140,147	16.31	7,775	5.55	0.90	1,868	1.33	0.22

*Note that Pennsylvania does not mandate universal screening of children; screening of children at risk is recommended.

†2.94% of children did not have a street address reported. For these children, county designation is based on the location of the provider who ordered the BLL test. For an additional 10.79% of children, we were unable to verify their given street address, so county is based on their zip code rather than their complete address.

††2015 intercensal estimate

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

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

County of Residence [†]	Populati on 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 popul-ation ^{††}	N	% of tested	% of popul-ation	N	% of tested	% of popul-ation	N	% of tested	% of popul-ation
Adams	2,038	487	23.90	5	1.03	0.25	4	0.82	0.20	3	0.62	0.15
Allegheny	27,100	8,505	31.38	152	1.79	0.56	148	1.74	0.55	44	0.52	0.16
Armstrong	1,197	427	35.67	10	2.34	0.84	11	2.58	0.92	2	0.47	0.17
Beaver	3,374	850	25.19	36	4.24	1.07	9	1.06	0.27	4	0.47	0.12
Bedford	938	297	31.66	3	1.01	0.32	7	2.36	0.75	3	1.01	0.32
Berks	9,803	2,288	23.34	96	4.20	0.98	134	5.86	1.37	40	1.75	0.41
Blair	2,713	728	26.83	17	2.34	0.63	16	2.20	0.59	10	1.37	0.37
Bradford	1,315	381	28.97	8	2.10	0.61	8	2.10	0.61	3	0.79	0.23
Bucks	12,034	2,434	20.23	8	0.33	0.07	31	1.27	0.26	5	0.21	0.04
Butler	3,665	795	21.69	7	0.88	0.19	12	1.51	0.33	2	0.25	0.05
Cambria	2,528	755	29.87	53	7.02	2.10	3	0.40	0.12	6	0.79	0.24
Cameron	95	44	46.32	1	2.27	1.05	0	0	0	1	2.27	1.05
Carbon	1,144	280	24.48	9	3.21	0.79	7	2.50	0.61	3	1.07	0.26
Centre	2,542	695	27.34	4	0.58	0.16	6	0.86	0.24	0	0	0
Chester	11,527	2,644	22.94	41	1.55	0.36	40	1.51	0.35	17	0.64	0.15
Clarion	787	206	26.18	7	3.40	0.89	4	1.94	0.51	0	0	0
Clearfield	1,473	546	37.07	7	1.28	0.48	3	0.55	0.20	3	0.55	0.20
Clinton	872	226	25.92	1	0.44	0.11	2	0.88	0.23	6	2.65	0.69
Columbia	1,183	226	19.10	3	1.33	0.25	2	0.88	0.17	2	0.88	0.17
Crawford	1,889	431	22.82	18	4.18	0.95	16	3.71	0.85	2	0.46	0.11
Cumberland	5,244	625	11.92	18	2.88	0.34	8	1.28	0.15	0	0	0
Dauphin	6,980	1,591	22.79	55	3.46	0.79	27	1.70	0.39	11	0.69	0.16
Delaware	13,511	4,251	31.46	37	0.87	0.27	120	2.82	0.89	22	0.52	0.16
Elk	560	203	36.25	1	0.49	0.18	5	2.46	0.89	0	0	0
Erie	6,373	2,033	31.90	47	2.31	0.74	52	2.56	0.82	28	1.38	0.44
Fayette	2,810	727	25.87	5	0.69	0.18	14	1.93	0.50	0	0	0
Forest	53	11	20.75	0	0	0	0	0	0	0	0	0
Franklin	3,594	816	22.70	21	2.57	0.58	11	1.35	0.31	7	0.86	0.19

Fulton	287	91	31.71	1	1.10	0.35	3	3.30	1.05	0	0	0
Greene	760	156	20.53	6	3.85	0.79	4	2.56	0.53	2	1.28	0.26
Huntingdon	868	235	27.07	3	1.28	0.35	4	1.70	0.46	1	0.43	0.12
Indiana	1,672	440	26.32	10	2.27	0.60	5	1.14	0.30	0	0	0
Jefferson	966	258	26.71	1	0.39	0.10	5	1.94	0.52	0	0	0
Juniata	535	134	25.05	2	1.49	0.37	2	1.49	0.37	0	0	0
Lackawanna	4,440	938	21.13	33	3.52	0.74	21	2.24	0.47	8	0.85	0.18
Lancaster	14,514	2,299	15.84	50	2.17	0.34	79	3.44	0.54	36	1.57	0.25
Lawrence	1,825	387	21.21	1	0.26	0.05	9	2.33	0.49	2	0.52	0.11
Lebanon	3,199	655	20.48	22	3.36	0.69	14	2.14	0.44	4	0.61	0.13
Lehigh	8,680	1,796	20.69	51	2.84	0.59	26	1.45	0.30	14	0.78	0.16
Luzerne	6,476	1,852	28.60	49	2.65	0.76	35	1.89	0.54	7	0.38	0.11
Lycoming	2,541	772	30.38	22	2.85	0.87	19	2.46	0.75	1	0.13	0.04
McKean	795	344	43.27	11	3.20	1.38	6	1.74	0.75	4	1.16	0.50
Mercer	2,277	684	30.04	18	2.63	0.79	8	1.17	0.35	7	1.02	0.31
Mifflin	1,108	346	31.23	0	0	0	6	1.73	0.54	3	0.87	0.27
Monroe	3,000	452	15.07	0	0	0	2	0.44	0.07	1	0.22	0.03
Montgomery	18,059	5,009	27.74	14	0.28	0.08	124	2.48	0.69	34	0.68	0.19
Montour	389	94	24.16	2	2.13	0.51	3	3.19	0.77	0	0	0
Northampton	5,705	1,107	19.40	15	1.36	0.26	14	1.26	0.25	3	0.27	0.05
Northumberland	1,890	544	28.78	11	2.02	0.58	22	4.04	1.16	6	1.10	0.32
Perry	1,040	252	24.23	16	6.35	1.54	6	2.38	0.58	2	0.79	0.19
Philadelphia	44,631	19,013	42.60	261	1.37	0.58	779	4.10	1.75	235	1.24	0.53
Pike	799	227	28.41	1	0.44	0.13	3	1.32	0.38	0	0	0
Potter	346	162	46.82	5	3.09	1.45	1	0.62	0.29	1	0.62	0.29
Schuylkill	2,647	895	33.81	28	3.13	1.06	20	2.23	0.76	8	0.89	0.30
Snyder	922	170	18.44	2	1.18	0.22	2	1.18	0.22	0	0	0
Somerset	1,355	338	24.94	8	2.37	0.59	5	1.48	0.37	4	1.18	0.30
Sullivan	85	21	24.71	1	4.76	1.18	0	0	0	0	0	0
Susquehanna	695	129	18.56	1	0.78	0.14	1	0.78	0.14	1	0.78	0.14
Tioga	796	222	27.89	5	2.25	0.63	2	0.90	0.25	0	0	0
Union	811	229	28.24	6	2.62	0.74	9	3.93	1.11	1	0.44	0.12
Venango	1,068	223	20.88	5	2.24	0.47	10	4.48	0.94	6	2.69	0.56
Warren	788	214	27.16	9	4.21	1.14	3	1.40	0.38	1	0.47	0.13

Washington	4,067	1,027	25.25	27	2.63	0.66	8	0.78	0.20	5	0.49	0.12
Wayne	806	200	24.81	8	4.00	0.99	1	0.50	0.12	0	0	0
Westmoreland	6,320	1,680	26.58	25	1.49	0.40	21	1.25	0.33	13	0.77	0.21
Wyoming	535	89	16.64	1	1.12	0.19	1	1.12	0.19	0	0	0
York	10,093	2,068	20.49	51	2.47	0.51	57	2.76	0.56	27	1.31	0.27
Unable to determine	.	11	.	0	0	.	1	9.09	.	7	63.64	.
Total	285,132	79,265	27.80	1,452	1.83	0.51	2,041	2.57	0.72	668	0.84	0.23

*Per CDC 2016 elevated blood lead case definition

†2.42% of children did not have a street address reported. For these children, county designation is based on the location of the provider who ordered the BLL test. For an additional 11.57% of children, we were unable to verify their given street address, and county is based on their zip code rather than their complete address.

**2015 intercensal estimate.

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

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

County of Residence [†]	Populati on 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 popul-ation† †	N	% of tested	% of popul-ation	N	% of tested	% of popul-ation	N	% of tested	% of popul-ation
Adams	6,357	980	15.42	17	1.73	0.27	12	1.22	0.19	8	0.82	0.13
Allegheny	78,040	13,660	17.50	278	2.04	0.36	313	2.29	0.40	93	0.68	0.12
Armstrong	4,023	835	20.76	29	3.47	0.72	16	1.92	0.40	8	0.96	0.20
Beaver	10,469	1,525	14.57	69	4.52	0.66	15	0.98	0.14	7	0.46	0.07
Bedford	2,970	505	17.00	6	1.19	0.20	16	3.17	0.54	5	0.99	0.17
Berks	29,456	4,660	15.82	206	4.42	0.70	297	6.37	1.01	93	2.00	0.32
Blair	8,515	1,246	14.63	46	3.69	0.54	48	3.85	0.56	18	1.44	0.21
Bradford	4,298	540	12.56	13	2.41	0.30	12	2.22	0.28	5	0.93	0.12
Bucks	37,429	3,575	9.55	10	0.28	0.03	61	1.71	0.16	10	0.28	0.03
Butler	11,359	1,167	10.27	17	1.46	0.15	21	1.80	0.18	5	0.43	0.04
Cambria	8,137	1,431	17.59	116	8.11	1.43	28	1.96	0.34	24	1.68	0.29
Cameron	258	82	31.78	1	1.22	0.39	0	0	0	1	1.22	0.39
Carbon	3,661	568	15.51	17	2.99	0.46	18	3.17	0.49	6	1.06	0.16
Centre	7,822	824	10.53	4	0.49	0.05	9	1.09	0.12	2	0.24	0.03
Chester	35,493	4,326	12.19	98	2.27	0.28	92	2.13	0.26	36	0.83	0.10
Clarion	2,362	343	14.52	8	2.33	0.34	10	2.92	0.42	1	0.29	0.04
Clearfield	4,564	855	18.73	17	1.99	0.37	8	0.94	0.18	5	0.58	0.11
Clinton	2,693	350	13.00	3	0.86	0.11	4	1.14	0.15	10	2.86	0.37
Columbia	3,646	380	10.42	3	0.79	0.08	10	2.63	0.27	3	0.79	0.08
Crawford	5,693	745	13.09	36	4.83	0.63	34	4.56	0.60	5	0.67	0.09
Cumberland	15,721	995	6.33	26	2.61	0.17	13	1.31	0.08	1	0.10	0.01
Dauphin	20,261	2,985	14.73	148	4.96	0.73	74	2.48	0.37	32	1.07	0.16
Delaware	40,355	7,330	18.16	82	1.12	0.20	257	3.51	0.64	54	0.74	0.13
Elk	1,770	321	18.14	2	0.62	0.11	8	2.49	0.45	4	1.25	0.23
Erie	19,381	3,658	18.87	142	3.88	0.73	120	3.28	0.62	57	1.56	0.29
Fayette	8,252	1,306	15.83	11	0.84	0.13	27	2.07	0.33	6	0.46	0.07
Forest	113	21	18.58	0	0	0	1	4.76	0.88	0	0	0

Franklin	11,253	1,446	12.85	48	3.32	0.43	27	1.87	0.24	13	0.90	0.12
Fulton	910	150	16.48	1	0.67	0.11	5	3.33	0.55	0	0	0
Greene	2,279	256	11.23	9	3.52	0.39	6	2.34	0.26	2	0.78	0.09
Huntingdon	2,567	444	17.30	4	0.90	0.16	11	2.48	0.43	2	0.45	0.08
Indiana	5,165	756	14.64	23	3.04	0.45	11	1.46	0.21	2	0.26	0.04
Jefferson	3,058	463	15.14	4	0.86	0.13	16	3.46	0.52	3	0.65	0.10
Juniata	1,663	193	11.61	3	1.55	0.18	2	1.04	0.12	2	1.04	0.12
Lackawanna	13,576	1,931	14.22	106	5.49	0.78	56	2.90	0.41	18	0.93	0.13
Lancaster	42,427	3,713	8.75	84	2.26	0.20	188	5.06	0.44	65	1.75	0.15
Lawrence	5,549	539	9.71	6	1.11	0.11	16	2.97	0.29	8	1.48	0.14
Lebanon	10,141	1,067	10.52	45	4.22	0.44	24	2.25	0.24	10	0.94	0.10
Lehigh	25,775	3,362	13.04	97	2.89	0.38	62	1.84	0.24	34	1.01	0.13
Luzerne	19,346	3,141	16.24	107	3.41	0.55	76	2.42	0.39	23	0.73	0.12
Lycoming	7,931	1,122	14.15	25	2.23	0.32	37	3.30	0.47	11	0.98	0.14
McKean	2,630	666	25.32	32	4.80	1.22	11	1.65	0.42	8	1.20	0.30
Mercer	6,835	1,203	17.60	39	3.24	0.57	32	2.66	0.47	13	1.08	0.19
Mifflin	3,312	455	13.74	0	0	0	10	2.20	0.30	3	0.66	0.09
Monroe	9,071	864	9.52	2	0.23	0.02	6	0.69	0.07	3	0.35	0.03
Montgomery	54,714	7,733	14.13	33	0.43	0.06	244	3.16	0.45	65	0.84	0.12
Montour	1,230	544	44.23	3	0.55	0.24	9	1.65	0.73	3	0.55	0.24
Northampton	17,833	2,048	11.48	45	2.20	0.25	40	1.95	0.22	15	0.73	0.08
Northumberland	5,884	918	15.60	30	3.27	0.51	37	4.03	0.63	14	1.53	0.24
Perry	3,134	380	12.13	20	5.26	0.64	7	1.84	0.22	3	0.79	0.10
Philadelphia	129,756	37,537	28.93	630	1.68	0.49	2,133	5.68	1.64	563	1.50	0.43
Pike	2,643	530	20.05	3	0.57	0.11	4	0.75	0.15	0	0	0
Potter	1,177	309	26.25	9	2.91	0.76	3	0.97	0.25	2	0.65	0.17
Schuylkill	8,313	1,511	18.18	58	3.84	0.70	38	2.51	0.46	18	1.19	0.22
Snyder	2,664	291	10.92	7	2.41	0.26	5	1.72	0.19	1	0.34	0.04
Somerset	4,048	602	14.87	16	2.66	0.40	9	1.50	0.22	5	0.83	0.12
Sullivan	261	32	12.26	3	9.38	1.15	0	0	0	0	0	0
Susquehanna	2,513	250	9.95	3	1.20	0.12	5	2.00	0.20	5	2.00	0.20
Tioga	2,801	380	13.57	13	3.42	0.46	2	0.53	0.07	1	0.26	0.04
Union	2,403	371	15.44	10	2.70	0.42	12	3.23	0.50	3	0.81	0.12
Venango	3,390	397	11.71	10	2.52	0.29	36	9.07	1.06	13	3.27	0.38

Warren	2,436	422	17.32	27	6.40	1.11	13	3.08	0.53	8	1.90	0.33
Washington	12,728	1,680	13.20	55	3.27	0.43	22	1.31	0.17	10	0.60	0.08
Wayne	2,547	429	16.84	16	3.73	0.63	6	1.40	0.24	2	0.47	0.08
Westmoreland	20,044	2,870	14.32	67	2.33	0.33	45	1.57	0.22	22	0.77	0.11
Wyoming	1,678	121	7.21	1	0.83	0.06	1	0.83	0.06	0	0	0
York	30,528	3,790	12.41	123	3.25	0.40	138	3.64	0.45	52	1.37	0.17
Unable to determine	.	18	.	1	5.56	.	2	11.11	.	11	61.11	.
Total	859,311	140,147	16.31	3,223	2.30	0.38	4,931	3.52	0.57	1,535	1.10	0.18

*Per CDC 2016 elevated blood lead case definition.

†2.90% of children did not have a street address reported. For these children, county designation is based on the location of the provider who ordered the BLL test. For an additional 10.81% of children, we were unable to verify their given street address, so county is based on their zip code rather than their complete address.

**2015 intercensal estimate

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

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 or not they were confirmed.

Table 11: Number of Children Aged 0–71 Months, by Urban/Rural Status of County of Residence and Elevated Blood Lead Confirmation Status*

Status of 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
Rural	208,566	30,223	14.49	826	2.73	0.40	681	2.25	0.33	274	0.91	0.13
Urban	650,745	109,906	16.89	2,396	2.18	0.37	4,248	3.87	0.65	1,250	1.14	0.19
Total	859,311	140,129	16.31	3,222	2.30	0.37	4,929	3.52	0.57	1,524	1.09	0.18

Note: A county or school district is rural when the number of persons per square mile within the county or school district is less than 284. Counties and school districts 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.

*Per CDC 2016 elevated blood lead case definition

**2015 intercensal estimate

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

^Totals and percentages will not match totals presented on prior tables, as 18 children for whom a county of residence could not be determined are excluded.

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