Association of State and Territorial Health officials (ASTHO) Environmental Public Health Tracking Peer-to-Peer Fellowship Program

Final Report

Pennsylvania Department of Health

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Environmental Health Tracking: State-to-Sate Peer Fellowship Program
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Background

Pennsylvania (PA) had a population of 12,805,537 in 2017. Pennsylvania is an industrial state and ranks third in the nation for the total number of National Priority List (NPL) sites. PA has 95 NPL sites and 589 United States Environmental Protection Agency (EPA) Comprehensive Environmental Recovery Compensation Liability Information System (CERCLIS) sites. Pennsylvania Department of Health (PADOH) was a recipient of the EPHT grant since its inception till 2017. However, PADOH was not selected for funding in the grant cycle beginning August 2017. With the cessation of funding, staff with experience in data analysis and metadata creation moved to other jobs and tracking activities came to a halt. Part of the data analysis, excluding metadata creation (e.g. hospitalization data on asthma, chronic obstructive pulmonary disease (COPD), heart attack, heat stress and CO poisoning) were taken up by the Enterprise Data Dissemination Informatics Exchange (EDDIE) under the Bureau of Informatics and Information Technology (BIIT). However, other key tracking domains such as the air quality, drinking water quality, childhood blood lead levels and housing and poverty were to be dropped due to the lack of dedicated, experienced staff to perform analysis and generate reports following the Centers of Disease Control and Prevention's (CDC) Nationally Consistent Data and Measures (NCDM) standards. Despite the changes in circumstances it is important to provide summary information on key environmental factors to the citizens of the state for public health reasons. There are a number of important environmental public health issues in PA as described below, the summary information on which are critical to public health programs to direct their efforts to minimize and prevent adverse health effects among community members.

According to the Behavioral Risk Factor Surveillance System (BRFSS) survey in 2016, 11% of adults in Pennsylvania were reported to currently have asthma compared to 9.3% of adults nationwide. Regarding the lifetime prevalence of asthma, in 2016, a total of 15% of Pennsylvania adults reported a lifetime prevalence compared to 14.0% at the national level. Based on 2017 data, only 28 of the 67 counties in PA have air quality monitoring stations.

Elevated childhood Blood Lead Levels (BLLs) are another public health concern in Pennsylvania. Per the 2015 numbers, 140,147 kids under the age of 5 (0-71 months) were tested for BLLs. Of these 4,931 (3.52%) had confirmed BLL of 5–9.9 μg/dL and 1,535 (1.1%) had confirmed BLL >10 μg/dL. There are several lead exposure sources for kids, but lead-based paint is the most widespread one for young children. According to the U.S. Census Bureau's American Community Survey (ACS) estimates (5-year estimates, 2015), 35% of PA houses were built before 1950, a proxy for potential lead exposure, compared to 18.4% for the US. Though poverty is not a causal factor, it is often associated with elevated BLLs in children. For the same period, 22% of children under 5 years old in Pennsylvania were living in poverty though at the national level it was 24%.

Linked to the numbers of children with elevated BLL in PA is the issue of high levels of lead in the adult population. Some of the industrial activities associated with lead exposure such as storage battery manufacturing and construction are very prominent in the state. Per the Morbidity and Mortality Weekly Report (MMWR) (https://www.cdc.gov/mmwr/volumes/63/wr/mm6355a5.htm), Pennsylvania has the highest prevalence rate of 25.6 per 100,000 employed state residents in 2013 for elevated adult BLL (≥ 25 μg/ dL). The report also indicated that 94.5% of elevated BLLs in Pennsylvania were occupationally related. Pennsylvania currently does not have a federally funded Adult Blood Lead Epidemiology and Surveillance **(**ABLES) program.

PADOH was selected to participate in the 2018 Association of State and Territorial Health Officials' (ASTHO) Environmental Public Health Tracking Peer-to-Peer Fellowship Program. The main goal of PADOH's participation in the fellowship program was to have a staff member trained to continue the analysis of data on air quality, water quality, childhood and adult BLLs and housing and poverty according to the NCDM standards and submit data and metadata to the CDC's National Tracking Network. The plan is to perform the data analysis tasks on an ongoing basis and train other staff members to continue these important tracking activities. The results will be made available to the public via the EDDIE/PADOH website.

Fellowship Project Activities

Site Visit to New York State Department of Health (NYSDOH)

The New York State Department of Health (NYSDOH) agreed to serve as PADOH's mentor state for the peer-to-peer fellowship program. Mr. Neil Muscatiello, who oversees New York state's EPHT program served as the mentor for the PADOH fellow. NYSDOH hosted a site visit on April 27, 2018. Prior to the site visit, ASTHO facilitated conference calls with the mentor. During these calls Mr. Muscatiello provided background information on New York State and the development of the tracking program and discussed PADOH's proposed project. During the site visit, staff from the NYSDOH EPHT program presented a comprehensive overview of their program, showcasing their respective areas of expertise. Topics presented during the site visit included:

- Staffing plan and network organization in NYSDOH
- EPHT web portal demonstration and Information Technology (IT)
    - Decision process for IT aspects of portal
    - New York State's Tracking Network design and applications
    - Challenges/solutions: lessons learned
- Lead projects and development of lead NCDMs for EPHT
- Development of metadata for EPHT project
- GIS work
    - GIS data layers
    - Geocoding
    - GIS Projects
- Development of drinking water content for EPHT
- Development of air quality content for EPHT

Fellowship Project Description

The PADOH proposed project focused on the tracking content areas of air quality, childhood lead poisoning, and drinking water quality. Adult BLL was included as an additional topic. The objective was to analyze data on air quality (ozone and $PM_{2.5}$ levels), water quality, childhood BLLs, and housing and poverty according to the NCDM standards and analyze adult BLL data to provide summary information. It was also aimed to submit data and metadata on these content areas to the CDC per its instructions and to publish results of all analyses on the EDDIE/PADOH website.

Data Collection

The previous EPHT program had updated air quality data up to 2016, childhood BLL up to 2014 and housing and poverty data up to 2015. Therefore, the project under the fellowship program aimed to update these data up to the most recent year for which data are available. Air quality data (ozone and $PM_{2.5}$) for 2017 were collected from the Environmental Protection Agency's (EPA) Air Quality System (AQS) website. Data on adult (2015, 2016 and 2017) and childhood BLLs (2015) were collected from Pennsylvania's electronic disease surveillance system, PA-NEDSS. Housing and poverty data (2012-2016) were collected from the U.S. Census Bureau's ACS. All datasets except adult BLL were summarized following NCDM standards.

Results

Air Quality

Ozone

Ozone is an air quality indicator included in the set of NCDM standards, which are used to compare different states' environmental health issues and to better understand populations at risk over time. Ground-level ozone (O3), or "bad ozone," is created by chemical reactions between nitrogen oxides and volatile organic compounds (VOCs) in the presence of sunlight. Major sources of nitrogen oxides and VOCs include emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors and chemical solvents. Exposure to high levels of ozone can cause the muscles in the airways to constrict, trapping air in the alveoli. This leads to the onset and aggravation of certain respiratory conditions and diseases, such as asthma and COPD. Analysis of the air quality data generated county level information on the number of days with maximum 8-hour average ozone concentration over the NAAQS and the number of person-days with maximum 8-hour average ozone levels (Table 1). Person-days with ozone levels over the daily 8-hr NAAQS was calculated by multiplying the number of days over the daily NAAQS by the total population of the county.

Particulate Matter (PM)

PM is an air quality indicator included in the set NCDM standards. PM is a complex mixture of extremely small particles and liquid droplets, including acids, organic chemicals, metals and soil or dust particles. PM sources include forest fires, automobiles, and industrial emissions. Of most concern are fine particles that have a diameter of 2.5 micrometers or smaller ($PM_{2.5}$) and inhalable coarse particles that have a diameter between 2.5 micrometers and 10 micrometers (PM_{10}), both of which can pass through the throat and nose and enter the lungs. Exposure to PM is linked to a variety of respiratory and cardiac problems, including decreased lung function and irregular heartbeat. $PM_{2.5}$ data were analyzed to generate annual average ambient $PM_{2.5}$ concentrations (Table 2), $PM_{2.5}$ concentrations over the NAAQS, annual percent of days with $PM_{2.5}$ levels over the NAAQS and number of person-days with $PM_{2.5}$ levels over 24-h NAAQS (Table 3). To calculate the annual percent of days over the daily NAAQS, the sum of the number of days with $PM_{2.5}$ levels over the daily NAAQS was divided by the total number of monitored days and this exceedance fraction was then multiplied by 100. The person-days with $PM_{2.5}$ levels over the NAAQS was calculated by first deriving the annual days by multiplying the exceedance fraction by 365 and then multiplying the annual days by the total population of the county. State level information on the percent of population living in counties exceeding the NAAQS (compared to percent of population

living in counties that meet the standard and percent of population living in counties without $PM_{2.5}$ monitoring) was also generated (Table 4).

Adult and childhood BLLs

Adult BLL data was analyzed to generate summary information on the annual number of cases (both incident and prevalent cases) by various BLLs (Table 5 and Table 6) along with selected demographic information. A prevalent case was defined as an adult whose highest BLL in the current calendar year was in the relevant BLL category (<5 mcg/dL, 5-<10 mcg/dL, 10-<25 mcg/dL, 25-<40 mcg/dL or greater than or equal to 40 mcg/dL). An incident (new) case was an adult whose highest BLL was greater than or equal to the relevant threshold (greater than or equal to 5 mcg/dL, 10 mcg/dL, 25 mcg/dL or 40 mcg/dL) in the current calendar year, but who was not in the PA-NEDSS in the immediately preceding calendar year with a BLL greater than or equal to the same threshold. This adult may have been in the PA-NEDSS with a BLL greater than or equal to the threshold in earlier calendar years or with a BLL less than the threshold in the immediately preceding calendar year. Childhood BLLs and the extent of childhood blood lead testing are indicators included in the set of NCDM standards. Lead is a naturally occurring element in the earth's crust, and can be found in the air, soil, water. Lead is particularly dangerous to children because their small, growing bodies absorb more lead than adults do, and their brains and nervous systems are more sensitive to the damaging effects of lead. Even low levels of lead in blood have been shown to affect IQ scores, the ability to pay attention and academic achievement. Childhood BLL data was analyzed to generate state and county level information on the number and percentage of children tested (Table 7) and the number and percentages of children tested with confirmed BLLs ≥ 10 μg/dL, by BLL categories (Table 8).

The age of housing and the level of childhood poverty are other indicators included in the NCDM standards. One major cause of lead poisoning among children is the inhalation or ingestion of dust from lead-based paint, which was used in many homes until 1978. The likelihood of exposure to lead paint dust increases when homes were built prior to 1978. Analysis of the data on housing (Table 9) and poverty (Table 10) generated state and county level information on the number and percentage of homes built before 1950 and the number and percentage of children younger than 5 years living in poverty.

Table 1: Number of days and person-days with maximum 8-hour average ozone concentration over the National Ambient Air Quality Standard (NAAQS), 2017

County	Number of days with ozone level over the NAAQS (0.070 ppm)	Number of person-days with ozone levels over the NAAQS
Adams	0	0
Allegheny	2	2,446,096
Armstrong	0	0
Beaver	0	0
Bedford	0	0
Berks	1	417,854
Blair	0	0
Bradford	0	0
Bucks	7	4,398,387
Butler	0	0
Cambria	0	0
Cameron	0	0
Carbon	0	0
Centre	0	0
Chester	3	1,557,879
Clarion	0	0
Clearfield	0	0
Clinton	0	0
Columbia	0	0
Crawford	0	0
Cumberland	0	0
Dauphin	0	0
Delaware	1	564,696
Elk	0	0
Erie	1	274,541
Fayette	0	0
Forest	0	0
Franklin	0	0
Fulton	0	0
Greene	0	0
Huntingdon	0	0
Indiana	0	0
Jefferson	0	0
Juniata	0	0
Lackawanna	0	0
Lancaster	0	0
Lawrence	0	0
Lebanon	0	0
Lehigh	0	0
Luzerne	0	0
Lycoming	0	0
McKean	0	0
Mercer	0	0
Mifflin	0	0
Monroe	0	0
Montgomery	4	3,304,300
Montour	0	0
Northampton	1	303,405
Northumberland	0	0
Perry	0	0
Philadelphia	5	7,904,315
Pike	0	0
Potter	0	0
Schuylkill	0	0
Snyder	0	0
Somerset	0	0
Sullivan	0	0
Susquehanna	0	0
Tioga	0	0
Union	0	0
Venango	0	0
Warren	0	0
Washington	0	0
Wayne	0	0
Westmoreland	0	0
Wyoming	0	0
York	0	0

Source: Pennsylvania DEP

Table 2: Annual Average Ambient Concentration of $PM_{2.5}$ in micrograms/cubic meter (based on seasonal averages and daily measurement), 2017

County/State	$PM_{2.5}$ monitored days	Ambient Concentrations of $PM_{2.5}$
Adams	353	7.6
Allegheny	365	13.43
Armstrong	345	9.64
Beaver	365	9.29
Berks	363	8.57
Blair	340	8.45
Bradford	347	6.46
Cambria	351	11.77
Centre	340	8.51
Chester	348	11.36
Cumberland	359	7.99
Dauphin	365	8.91
Delaware	364	9.13
Erie	346	7.88
Greene	316	7.64
Lackawanna	336	8.56
Lancaster	365	9.74
Lebanon	364	9.32
Lehigh	298	7.7
Mercer	356	11.79
Monroe	335	7.34
Montgomery	304	9.22
Northampton	364	8.82
Philadelphia	365	10.09
Tioga	331	10.25
Washington	365	8.57
Westmoreland	349	11.37
York	341	8.97

Note: Counties not listed are unmonitored. Source: Pennsylvania DEP

Table 3: Number and percent of days and number of person days with $PM_{2.5}$ levels over the 24-hour National Ambient Air Quality Standard (NAAQS) of 35 µg/m³, 2017

County	$PM_{2.5}$ monitored days	Number of days with $PM_{2.5}$ levels over the 24-h NAAQS (35 µg/m³)	Annual percent of days with $PM_{2.5}$ levels over the 24-h NAAQS (35 µg/m³)	Population estimate	Number of person-days with $PM_{2.5}$ levels over 24-h NAAQS (35 µg/m³)
Adams	353	1	0.28	102,336	105,815
Allegheny	365	10	2.74	1,223,048	12,230,480
Armstrong	345	0	0.00	65,642	0
Beaver	365	0	0.00	166,140	0
Berks	363	2	0.55	417,854	840,312
Blair	340	0	0.00	123,457	0
Bradford	347	0	0.00	60,853	0
Cambria	351	0	0.00	133,054	0
Centre	340	0	0.00	162,660	0
Chester	348	0	0.00	519,293	0
Cumberland	359	1	0.28	250,066	254,245
Dauphin	365	0	0.00	275,710	0
Delaware	364	0	0.00	564,696	0
Erie	346	0	0.00	274,541	0
Greene	316	0	0.00	36,770	0
Lackawanna	336	0	0.00	210,761	0
Lancaster	365	2	0.55	542,903	1,085,806
Lebanon	364	1	0.27	139,754	140,138
Lehigh	298	0	0.00	366,494	0
Mercer	356	0	0.00	111,750	0
Monroe	335	0	0.00	168,046	0
Montgomery	304	0	0.00	826,075	0
Northampton	364	0	0.00	303,405	0
Philadelphia	365	0	0.00	1,580,863	0
Tioga	331	0	0.00	40,793	0
Washington	365	0	0.00	207,298	0
Westmoreland	349	0	0.00	352,627	0
York	341	0	0.00	446,078	0

Note: Counties not listed are unmonitored. Source: Pennsylvania DEP

Table 4: Annual Average Ambient Concentration of $PM_{2.5}$ in µg/m³ (based on seasonal averages and daily measurement), 2017

Counties with Monitors	Counties without monitors	Annual percent of population living in counties meeting the NAAQS (12.0 µg/m³)	Annual percent of population living in counties not meeting the NAAQS (12.0 µg/m³)	Annual percent of population living in counties without PM 2.5 monitoring
28	39	66.0	9.6	24.5

Source: Pennsylvania DEP

Table 5: Adult BLLs (prevalence), by demographic characteristics, 2017

Characteristic	<5 mcg/dL	5-<10 mcg/dL	10-<25 mcg/dL	25-<40 mcg/dL	40+ mcg/dL	Total
Age group						
16-24 years	1,454	88	98	98	7	1,745
25-34 years	2,285	291	262	248	12	3,098
35-44 years	1,950	268	254	143	10	2,625
45-54 years	2,162	281	292	166	20	2,921
55-64 years	1,930	258	232	135	9	2,564
65-74 years	888	64	59	15	6	1,032
75-84 years	397	23	17	2	2	441
85+ years	109	6	3	0	1	119
Gender						
Female	3,501	118	63	41	3	3,726
Male	7,616	1,156	1,152	766	64	10,754
Other	1	0	0	0	0	1
Unknown	57	5	2	0	0	64
Region						
NW	899	67	83	34	8	1,091
NC	537	63	35	1	1	637
NE	1,677	105	94	95	5	1,976
SW	3,111	377	434	65	18	4,005
SC	857	90	66	23	3	1,039
SE	3,815	525	480	569	31	5,420
Unknown	279	52	25	20	1	377
Total	11,175	1,279	1,217	807	67	14,545

Source: PA-NEDSS

Table 6: Adult BLLs (incidence), by demographic characteristics, 2017

Characteristic	GE 5 mcg/dL	GE 10 mcg/dL	GE 25 mcg/dL	GE 40 mcg/dL
Age group				
16-24 years	198	129	59	7
25-34 years	405	245	98	11
35-44 years	347	189	52	9
45-54 years	339	186	70	19
55-64 years	272	150	45	6
65-74 years	86	43	8	3
75-84 years	33	15	2	1
85+ years	9	3	0	0
Gender				
Female	163	62	16	2
Male	1,519	896	318	54
Other	0	0	0	0
Unknown	7	2	0	0
Region				
North West	100	61	8	1
North Central	52	17	19	5
North East	181	106	1	1
South West	454	275	31	2
South Central	92	47	54	16
South East	766	437	18	2
Unknown	44	17	203	29
Total	1,689	960	334	56

Source: PA-NEDSS

Table 7: Childhood BLLs: Number and percentage of children tested by age group and location, 2015

Geography	Age group	Total tested	% tested	Population
Pennsylvania	0-2 years	116,964	27.4	426,111
	3-6 years	25,569	4.4	577,172
	7-15 years	5,646	0.4	1,363,274
Adams	0-2 years	897	29.1	3,081
	3-6 years	89	2.0	4,376
	7-15 years	20	0.2	10,983
Allegheny	0-2 years	11,921	29.6	40,314
	3-6 years	1,849	3.7	49,985
	7-15 years	251	0.2	116,017
Armstrong	0-2 years	766	39.8	1,926
	3-6 years	71	2.6	2,747
	7-15 years	10	0.1	6,706
Beaver	0-2 years	1,317	25.7	5,120
	3-6 years	229	3.2	7,145
	7-15 years	38	0.2	16,799
Bedford	0-2 years	453	31.5	1,440
	3-6 years	58	2.8	2,036
	7-15 years	8	0.2	5,121
Berks	0-2 years	3,372	23.1	14,571
	3-6 years	1,567	7.9	19,792
	7-15 years	917	1.9	48,484
Blair	0-2 years	1,107	27.0	4,099
	3-6 years	146	2.5	5,819
	7-15 years	14	0.1	13,020
Bradford	0-2 years	481	23.6	2,038
	3-6 years	65	2.2	2,966
	7-15 years	11	0.2	6,807
Bucks	0-2 years	3,164	17.6	18,014
	3-6 years	453	1.7	26,428
	7-15 years	131	0.2	70,431
Butler	0-2 years	1,078	19.5	5,523
	3-6 years	93	1.2	7,850
	7-15 years	96	0.5	20,037
Cambria	0-2 years	1,207	31.5	3,831
	3-6 years	237	4.2	5,674
	7-15 years	28	0.2	13,631
Cameron	0-2 years	73	51.8	141
	3-6 years	10	6.4	157
	7-15 years	*	*	410
Carbon	0-2 years	402	22.5	1,787
	3-6 years	178	7.0	2,545
	7-15 years	42	0.6	6,636
Centre	0-2 years	787	20.8	3,787
	3-6 years	40	0.8	5,321
	7-15 years	35	0.3	12,378
Chester	0-2 years	3,804	22.1	17,190
	3-6 years	570	2.3	24,850
	7-15 years	92	0.1	63,752

Geography	Age group	Total tested	% tested	Population
Clarion	0-2 years	293	24.9	1,176
	3-6 years	54	3.4	1,602
	7-15 years	*	*	3,656
Clearfield	0-2 years	802	34.8	2,307
	3-6 years	60	2.0	3,061
	7-15 years	11	0.1	7,655
Clinton	0-2 years	290	21.6	1,341
	3-6 years	62	3.4	1,810
	7-15 years	15	0.4	4,017
Columbia	0-2 years	327	18.5	1,768
	3-6 years	53	2.1	2,511
	7-15 years	11	0.2	6,185
Crawford	0-2 years	611	21.6	2,831
	3-6 years	149	3.9	3,813
	7-15 years	51	0.5	9,414
Cumberland	0-2 years	889	11.3	7,857
	3-6 years	114	1.1	10,508
	7-15 years	52	0.2	25,847
Dauphin	0-2 years	2,422	23.3	10,378
	3-6 years	610	4.7	13,090
	7-15 years	141	0.5	30,569
Delaware	0-2 years	6,321	31.7	19,926
	3-6 years	1,096	4.0	27,256
	7-15 years	177	0.3	63,032
Elk	0-2 years	270	31.0	872
	3-6 years	56	4.7	1,203
	7-15 years	*	*	3,163
Erie	0-2 years	3,076	32.3	9,528
	3-6 years	646	4.9	13,088
	7-15 years	250	0.8	30,661
Fayette	0-2 years	1,089	26.1	4,169
	3-6 years	244	4.5	5,393
	7-15 years	26	0.2	13,153
Forest	0-2 years	20	28.6	70
	3-6 years	*	*	56
	7-15 years	*	*	151
Franklin	0-2 years	1,286	24.2	5,323
	3-6 years	175	2.2	7,903
	7-15 years	76	0.4	17,422
Fulton	0-2 years	129	29.5	437
	3-6 years	22	3.4	640
	7-15 years	6	0.4	1,613
Greene	0-2 years	216	19.1	1,128
	3-6 years	44	2.9	1,513
	7-15 years	*	*	3,685
Huntingdon	0-2 years	363	27.8	1,304
	3-6 years	82	4.7	1,732
	7-15 years	14	0.3	4,522

Geography	Age group	Total tested	% tested	Population
Indiana	0-2 years	666	26.3	2,532
	3-6 years	91	2.6	3,473
	7-15 years	13	0.2	7,955
Jefferson	0-2 years	390	26.1	1,495
	3-6 years	83	4.0	2,056
	7-15 years	*	*	4,721
Juniata	0-2 years	175	21.8	802
	3-6 years	18	1.5	1,166
	7-15 years	*	*	2,893
Lackawanna	0-2 years	1,507	22.7	6,634
	3-6 years	460	5.0	9,199
	7-15 years	139	0.6	21,657
Lancaster	0-2 years	3,018	14.1	21,446
	3-6 years	746	2.7	28,055
	7-15 years	207	0.3	64,704
Lawrence	0-2 years	466	17.2	2,706
	3-6 years	80	2.1	3,769
	7-15 years	21	0.2	9,028
Lebanon	0-2 years	861	17.6	4,891
	3-6 years	220	3.1	6,994
	7-15 years	33	0.2	15,907
Lehigh	0-2 years	3,008	23.4	12,837
	3-6 years	392	2.3	17,235
	7-15 years	86	0.2	42,154
Luzerne	0-2 years	2,724	28.4	9,594
	3-6 years	474	3.6	13,051
	7-15 years	147	0.5	31,904
Lycoming	0-2 years	985	25.1	3,917
	3-6 years	145	2.8	5,268
	7-15 years	29	0.2	11,924
McKean	0-2 years	610	48.8	1,250
	3-6 years	60	3.3	1,837
	7-15 years	24	0.5	4,378
Mercer	0-2 years	1,068	31.7	3,369
	3-6 years	149	3.2	4,632
	7-15 years	64	0.5	11,713
Mifflin	0-2 years	397	23.6	1,680
	3-6 years	62	2.8	2,204
	7-15 years	12	0.2	5,342
Monroe	0-2 years	731	16.4	4,453
	3-6 years	156	2.5	6,364
	7-15 years	51	0.3	18,474
Montgomery	0-2 years	6,918	25.6	26,997
	3-6 years	894	2.4	37,341
	7-15 years	244	0.3	92,631
Montour	0-2 years	140	23.2	604
	3-6 years	407	48.3	842
	7-15 years	14	0.7	1,878

Geography	Age group	Total tested	% tested	Population
Northampton	0-2 years	1,829	21.1	8,658
	3-6 years	241	2.0	12,346
	7-15 years	65	0.2	32,716
Northumberland	0-2 years	728	25.4	2,868
	3-6 years	204	5.0	4,047
	7-15 years	21	0.2	9,280
Perry	0-2 years	351	23.0	1,525
	3-6 years	32	1.5	2,152
	7-15 years	9	0.2	4,944
Philadelphia	0-2 years	29,321	44.3	66,136
	3-6 years	9,216	11.1	82,985
	7-15 years	1,568	1.0	161,377
Pike	0-2 years	385	31.7	1,215
	3-6 years	152	7.6	2,011
	7-15 years	20	0.3	5,905
Potter	0-2 years	296	51.8	571
	3-6 years	14	1.8	784
	7-15 years	*	*	1,829
Schuylkill	0-2 years	1,436	36.0	3,993
	3-6 years	81	1.4	5,865
	7-15 years	23	0.2	14,981
Snyder	0-2 years	246	17.4	1,413
	3-6 years	48	2.9	1,670
	7-15 years	0	0.0	4,705
Somerset	0-2 years	527	26.3	2,005
	3-6 years	80	2.9	2,754
	7-15 years	8	0.1	7,174
Sullivan	0-2 years	24	21.8	110
	3-6 years	8	4.2	190
	7-15 years	0	0.0	334
Susquehanna	0-2 years	186	17.1	1,087
	3-6 years	67	3.6	1,858
	7-15 years	11	0.3	4,118
Tioga	0-2 years	312	24.5	1,274
	3-6 years	71	3.6	1,957
	7-15 years	23	0.6	4,127
Union	0-2 years	312	25.2	1,240
	3-6 years	70	4.5	1,549
	7-15 years	11	0.3	4,366
Venango	0-2 years	356	21.4	1,663
	3-6 years	49	2.1	2,301
	7-15 years	16	0.3	5,342
Warren	0-2 years	360	29.5	1,220
	3-6 years	64	3.9	1,648
	7-15 years	10	0.2	4,069
Washington	0-2 years	1,484	24.3	6,119
	3-6 years	212	2.4	8,791
	7-15 years	33	0.2	21,102
Wayne	0-2 years	326	26.6	1,226
	3-6 years	106	6.1	1,737
	7-15 years	11	0.2	4,695
Westmoreland	0-2 years	2,509	26.2	9,582
	3-6 years	375	2.7	14,000
	7-15 years	86	0.2	34,685
Wyoming	0-2 years	111	13.9	796
	3-6 years	11	1.0	1,150
	7-15 years	*	*	2,951
York	0-2 years	2,954	19.8	14,926
	3-6 years	900	4.3	21,021
	7-15 years	94	0.2	51,354

Source: PA-NEDSS. Note: PA total numbers include 20 records without county information.
* Numbers and percentages not shown.

Table 8: Number and percentage of children tested with confirmed blood lead levels ≥ 10 µg/dL, by age group and location, 2015

Geography	Age group	Total tested	Total BLL >= 10	% >= 10	BLL 10-24	% 10-24	BLL 25-39	% 25-39	BLL >= 40	% >= 40
Pennsylvania	0-2 years	116,964	1,156	1.0	1,020	0.9	109	0.1	27	0.0
	3-6 years	25,569	417	1.6	369	1.4	42	0.2	6	0.0
	7-15 years	5,646	68	1.2	56	1.0	9	0.2	*	*
Adams	0-2 years	897	6	0.7	6	0.7	0	0.0	0	0.0
	3-6 years	89	*	*	*	*	0	0.0	0	0.0
	7-15 years	20	0	0.0	0	0.0	0	0.0	0	0.0
Allegheny	0-2 years	11,921	78	0.7	73	0.6	5	0.0	0	0.0
	3-6 years	1,849	18	1.0	17	0.9	*	*	0	0.0
	7-15 years	251	*	*	*	*	0	0.0	0	0.0
Armstrong	0-2 years	766	7	0.9	7	0.9	0	0.0	0	0.0
	3-6 years	71	*	*	*	*	0	0.0	0	0.0
	7-15 years	10	0	0.0	0	0.0	0	0.0	0	0.0
Beaver	0-2 years	1,317	5	0.4	5	0.4	0	0.0	0	0.0
	3-6 years	229	*	*	*	*	0	0.0	0	0.0
	7-15 years	38	*	*	*	*	0	0.0	*	*
Bedford	0-2 years	453	5	1.1	5	1.1	0	0.0	0	0.0
	3-6 years	58	0	0.0	0	0.0	0	0.0	0	0.0
	7-15 years	8	0	0.0	0	0.0	0	0.0	0	0.0
Berks	0-2 years	3,372	63	1.9	54	1.6	8	0.2	*	*
	3-6 years	1,567	31	2.0	27	1.7	*	*	*	*
	7-15 years	917	7	0.8	6	0.7	0	0.0	*	*
Blair	0-2 years	1,107	16	1.4	14	1.3	*	*	0	0.0
	3-6 years	146	*	*	*	*	0	0.0	0	0.0
	7-15 years	14	0	0.0	0	0.0	0	0.0	0	0.0
Bradford	0-2 years	481	*	*	*	*	0	0.0	0	0.0
	3-6 years	65	*	*	*	*	0	0.0	0	0.0
	7-15 years	11	0	0.0	0	0.0	0	0.0	0	0.0
Bucks	0-2 years	3,164	7	0.2	5	0.2	*	*	0	0.0
	3-6 years	453	*	*	*	*	0	0.0	0	0.0
	7-15 years	131	0	0.0	0	0.0	0	0.0	0	0.0
Butler	0-2 years	1,078	*	*	*	*	*	*	0	0.0
	3-6 years	93	*	*	*	*	0	0.0	0	0.0
	7-15 years	96	0	0.0	0	0.0	0	0.0	0	0.0
Cambria	0-2 years	1,207	13	1.1	11	0.9	*	*	*	*
	3-6 years	237	11	4.6	9	3.8	*	*	0	0.0
	7-15 years	28	0	0.0	0	0.0	0	0.0	0	0.0
Cameron	0-2 years	73	*	*	*	*	0	0.0	0	0.0
	3-6 years	10	0	0.0	0	0.0	0	0.0	0	0.0
	7-15 years	2	*	*	0	0.0	0	0.0	0	0.0
Carbon	0-2 years	402	5	1.2	*	*	*	*	*	*
	3-6 years	178	*	*	*	*	0	0.0	0	0.0
	7-15 years	42	0	0.0	0	0.0	0	0.0	0	0.0
Centre	0-2 years	787	*	*	*	*	0	0.0	0	0.0
	3-6 years	40	0	0.0	0	0.0	0	0.0	0	0.0
	7-15 years	35	0	0.0	0	0.0	0	0.0	0	0.0
Chester	0-2 years	3,804	29	0.8	20	0.5	9	0.2	0	0.0
	3-6 years	570	8	1.4	8	1.4	0	0.0	0	0.0
	7-15 years	92	*	*	*	*	0	0.0	0	0.0
Clarion	0-2 years	293	*	*	0	0.0	0	0.0	*	*
	3-6 years	54	0	0.0	0	0.0	0	0.0	0	0.0
	7-15 years	4	*	*	0	0.0	0	0.0	0	0.0
Clearfield	0-2 years	802	*	*	*	*	0	0.0	0	0.0
	3-6 years	60	*	*	*	*	0	0.0	0	0.0
	7-15 years	11	0	0.0	0	0.0	0	0.0	0	0.0

Geography	Age group	Total tested	Total BLL >= 10	% >= 10	BLL 10-24	% 10-24	BLL 25-39	% 25-39	BLL >= 40	% >= 40
Clinton	0-2 years	290	9	3.1	8	2.8	*	*	0	0.0
	3-6 years	62	*	*	*	*	0	0.0	0	0.0
	7-15 years	15	0	0.0	0	0.0	0	0.0	0	0.0
Columbia	0-2 years	327	*	*	*	*	0	0.0	0	0.0
	3-6 years	53	0	0.0	0	0.0	0	0.0	0	0.0
	7-15 years	11	0	0.0	0	0.0	0	0.0	0	0.0
Crawford	0-2 years	611	*	*	*	*	0	0.0	0	0.0
	3-6 years	149	*	*	*	*	0	0.0	0	0.0
	7-15 years	51	0	0.0	0	0.0	0	0.0	0	0.0
Cumberland	0-2 years	889	*	*	*	*	0	0.0	0	0.0
	3-6 years	114	0	0.0	0	0.0	0	0.0	0	0.0
	7-15 years	52	0	0.0	0	0.0	0	0.0	0	0.0
Dauphin	0-2 years	2,422	23	0.9	20	0.8	*	*	*	*
	3-6 years	610	9	1.5	*	*	*	*	*	*
	7-15 years	141	*	*	*	*	0	0.0	0	0.0
Delaware	0-2 years	6,321	37	0.6	30	0.5	5	0.1	*	*
	3-6 years	1,096	21	1.9	17	1.6	*	*	0	0.0
	7-15 years	177	*	*	*	*	*	*	0	0.0
Elk	0-2 years	270	*	*	*	*	0	0.0	*	*
	3-6 years	56	*	*	*	*	*	*	0	0.0
	7-15 years	4	*	*	0	0.0	0	0.0	0	0.0
Erie	0-2 years	3,076	42	1.4	36	1.2	*	*	*	*
	3-6 years	646	16	2.5	14	2.2	*	*	0	0.0
	7-15 years	250	*	*	*	*	0	0.0	0	0.0
Fayette	0-2 years	1,089	*	*	*	*	0	0.0	0	0.0
	3-6 years	244	*	*	*	*	0	0.0	0	0.0
	7-15 years	26	0	0.0	0	0.0	0	0.0	0	0.0
Forest	0-2 years	20	0	0.0	0	0.0	0	0.0	0	0.0
	3-6 years	3	*	*	0	0.0	0	0.0	0	0.0
	7-15 years	3	*	*	0	0.0	0	0.0	0	0.0
Franklin	0-2 years	1,286	9	0.7	9	0.7	0	0.0	0	0.0
	3-6 years	175	*	*	*	*	0	0.0	0	0.0
	7-15 years	76	0	0.0	0	0.0	0	0.0	0	0.0
Fulton	0-2 years	129	0	0.0	0	0.0	0	0.0	0	0.0
	3-6 years	22	0	0.0	0	0.0	0	0.0	0	0.0
	7-15 years	6	0	0.0	0	0.0	0	0.0	0	0.0
Greene	0-2 years	216	*	*	*	*	0	0.0	0	0.0
	3-6 years	44	0	0.0	0	0.0	0	0.0	0	0.0
	7-15 years	4	*	*	0	0.0	0	0.0	0	0.0
Huntingdon	0-2 years	363	*	*	*	*	0	0.0	0	0.0
	3-6 years	82	*	*	*	*	0	0.0	0	0.0
	7-15 years	14	0	0.0	0	0.0	0	0.0	0	0.0
Indiana	0-2 years	666	0	0.0	0	0.0	0	0.0	0	0.0
	3-6 years	91	*	*	*	*	0	0.0	0	0.0
	7-15 years	13	0	0.0	0	0.0	0	0.0	0	0.0
Jefferson	0-2 years	390	*	*	*	*	0	0.0	0	0.0
	3-6 years	83	*	*	*	*	0	0.0	0	0.0
	7-15 years	4	*	*	0	0.0	0	0.0	0	0.0
Juniata	0-2 years	175	*	*	*	*	0	0.0	0	0.0
	3-6 years	18	*	*	*	*	0	0.0	0	0.0
	7-15 years	3	*	*	0	0.0	0	0.0	0	0.0
Lackawanna	0-2 years	1,507	13	0.9	10	0.7	*	*	0	0.0
	3-6 years	460	5	1.1	*	*	*	*	0	0.0
	7-15 years	139	0	0.0	0	0.0	0	0.0	0	0.0

Geography	Age group	Total tested	Total BLL >= 10	% >= 10	BLL 10-24	% 10-24	BLL 25-39	% 25-39	BLL >= 40	% >= 40
Lancaster	0-2 years	3,018	48	1.6	46	1.5	*	*	*	*
	3-6 years	746	19	2.5	17	2.3	*	*	0	0.0
	7-15 years	207	5	2.4	*	*	*	*	0	0.0
Lawrence	0-2 years	466	7	1.5	7	1.5	0	0.0	0	0.0
	3-6 years	80	*	*	*	*	0	0.0	0	0.0
	7-15 years	21	0	0.0	0	0.0	0	0.0	0	0.0
Lebanon	0-2 years	861	6	0.7	*	*	*	*	0	0.0
	3-6 years	220	*	*	*	*	0	0.0	0	0.0
	7-15 years	33	*	*	*	*	0	0.0	0	0.0
Lehigh	0-2 years	3,008	29	1.0	25	0.8	*	*	*	*
	3-6 years	392	5	1.3	5	1.3	0	0.0	0	0.0
	7-15 years	86	*	*	0	0.0	0	0.0	*	*
Luzerne	0-2 years	2,724	16	0.6	14	0.5	*	*	0	0.0
	3-6 years	474	8	1.7	7	1.5	0	0.0	*	*
	7-15 years	147	0	0.0	0	0.0	0	0.0	0	0.0
Lycoming	0-2 years	985	5	0.5	*	*	*	*	0	0.0
	3-6 years	145	6	4.1	6	4.1	0	0.0	0	0.0
	7-15 years	29	*	*	*	*	0	0.0	0	0.0
McKean	0-2 years	610	8	1.3	6	1.0	*	*	0	0.0
	3-6 years	60	*	*	*	*	0	0.0	0	0.0
	7-15 years	24	0	0.0	0	0.0	0	0.0	0	0.0
Mercer	0-2 years	1,068	12	1.1	11	1.0	0	0.0	*	*
	3-6 years	149	*	*	*	*	0	0.0	0	0.0
	7-15 years	64	*	*	0	0.0	*	*	0	0.0
Mifflin	0-2 years	397	*	*	*	*	0	0.0	0	0.0
	3-6 years	62	*	*	0	0.0	*	*	0	0.0
	7-15 years	12	0	0.0	0	0.0	0	0.0	0	0.0
Monroe	0-2 years	731	*	*	0	0.0	*	*	0	0.0
	3-6 years	156	*	*	*	*	*	*	0	0.0
	7-15 years	51	0	0.0	0	0.0	0	0.0	0	0.0
Montgomery	0-2 years	6,918	53	0.8	44	0.6	5	0.1	*	*
	3-6 years	894	14	1.6	12	1.3	*	*	0	0.0
	7-15 years	244	8	3.3	8	3.3	0	0.0	0	0.0
Montour	0-2 years	140	0	0.0	0	0.0	0	0.0	0	0.0
	3-6 years	407	*	*	*	*	0	0.0	0	0.0
	7-15 years	14	0	0.0	0	0.0	0	0.0	0	0.0
Northampton	0-2 years	1,829	7	0.4	7	0.4	0	0.0	0	0.0
	3-6 years	241	8	3.3	7	2.9	*	*	0	0.0
	7-15 years	65	*	*	*	*	0	0.0	0	0.0
Northumberland	0-2 years	728	12	1.6	10	1.4	*	*	0	0.0
	3-6 years	204	*	*	*	*	*	*	0	0.0
	7-15 years	21	*	*	*	*	0	0.0	0	0.0
Perry	0-2 years	351	*	*	*	*	0	0.0	0	0.0
	3-6 years	32	0	0.0	0	0.0	0	0.0	0	0.0
	7-15 years	9	0	0.0	0	0.0	0	0.0	0	0.0
Philadelphia	0-2 years	29,321	427	1.5	388	1.3	31	0.1	8	0.0
	3-6 years	9,216	153	1.7	141	1.5	9	0.1	*	*
	7-15 years	1,568	25	1.6	21	1.3	*	*	0	0.0
Pike	0-2 years	385	0	0.0	0	0.0	0	0.0	0	0.0
	3-6 years	152	0	0.0	0	0.0	0	0.0	0	0.0
	7-15 years	20	0	0.0	0	0.0	0	0.0	0	0.0
Potter	0-2 years	296	*	*	*	*	0	0.0	0	0.0
	3-6 years	14	0	0.0	0	0.0	0	0.0	0	0.0
	7-15 years	3	*	*	0	0.0	0	0.0	0	0.0

Geography	Age group	Total tested	Total BLL >= 10	% >= 10	BLL 10-24	% 10-24	BLL 25-39	% 25-39	BLL >= 40	% >= 40
Schuylkill	0-2 years	1,436	14	1.0	12	0.8	*	*	0	0.0
	3-6 years	81	*	*	*	*	0	0.0	0	0.0
	7-15 years	23	*	*	*	*	*	*	0	0.0
Snyder	0-2 years	246	*	*	0	0.0	*	*	0	0.0
	3-6 years	48	0	0.0	0	0.0	0	0.0	0	0.0
	7-15 years	0	-		-		-		-	
Somerset	0-2 years	527	*	*	*	*	*	*	0	0.0
	3-6 years	80	*	*	0	0.0	*	*	0	0.0
	7-15 years	8	*	*	*	*	0	0.0	0	0.0
Sullivan	0-2 years	24	0	0.0	0	0.0	0	0.0	0	0.0
	3-6 years	8	0	0.0	0	0.0	0	0.0	0	0.0
	7-15 years	0	-		-		-		-	
Susquehanna	0-2 years	186	*	*	*	*	0	0.0	0	0.0
	3-6 years	67	*	*	*	*	0	0.0	0	0.0
	7-15 years	11	0	0.0	0	0.0	0	0.0	0	0.0
Tioga	0-2 years	312	*	*	*	*	0	0.0	0	0.0
	3-6 years	71	0	0.0	0	0.0	0	0.0	0	0.0
	7-15 years	23	0	0.0	0	0.0	0	0.0	0	0.0
Union	0-2 years	312	*	*	*	*	0	0.0	0	0.0
	3-6 years	70	*	*	*	*	0	0.0	0	0.0
	7-15 years	11	0	0.0	0	0.0	0	0.0	0	0.0
Venango	0-2 years	356	9	2.5	9	2.5	0	0.0	0	0.0
	3-6 years	49	*	*	*	*	0	0.0	0	0.0
	7-15 years	16	0	0.0	0	0.0	0	0.0	0	0.0
Warren	0-2 years	360	6	1.7	6	1.7	0	0.0	0	0.0
	3-6 years	64	*	*	*	*	0	0.0	0	0.0
	7-15 years	10	0	0.0	0	0.0	0	0.0	0	0.0
Washington	0-2 years	1,484	8	0.5	8	0.5	0	0.0	0	0.0
	3-6 years	212	*	*	*	*	0	0.0	0	0.0
	7-15 years	33	0	0.0	0	0.0	0	0.0	0	0.0
Wayne	0-2 years	326	*	*	*	*	0	0.0	0	0.0
	3-6 years	106	0	0.0	0	0.0	0	0.0	0	0.0
	7-15 years	11	0	0.0	0	0.0	0	0.0	0	0.0
Westmoreland	0-2 years	2,509	17	0.7	14	0.6	*	*	0	0.0
	3-6 years	375	5	1.3	*	*	*	*	0	0.0
	7-15 years	86	0	0.0	0	0.0	0	0.0	0	0.0
Wyoming	0-2 years	111	0	0.0	0	0.0	0	0.0	0	0.0
	3-6 years	11	0	0.0	0	0.0	0	0.0	0	0.0
	7-15 years	3	*	*	0	0.0	0	0.0	0	0.0
York	0-2 years	2,954	41	1.4	35	1.2	5	0.2	*	*
	3-6 years	900	15	1.7	12	1.3	*	*	0	0.0
	7-15 years	94	*	*	*	*	0	0.0	0	0.0

Source: PA-NEDSS. Note: PA total numbers with confirmed BLL ≥ 10 μg/dL include 12 records without county information. * Numbers and percentages not shown.

Table 9: Housing by year built (ACS years 2012-2016)

State/County	Total Houses (2016)	Houses built before 1950	% of houses built before 1950	Houses built 1950-1977	% of houses built 1950-1977	Houses built before 1978	% of houses built before 1978
Pennsylvania	5,592,175	1,924,485	34.41	1,906,528	34.09	3,831,013	68.51
Adams	41,344	9,835	23.79	10,668	25.80	20,503	49.59
Allegheny	590,150	237,421	40.23	231,249	39.18	468,670	79.42
Armstrong	32,427	13,431	41.42	10,491	32.35	23,922	73.77
Beaver	78,304	28,802	36.78	32,587	41.62	61,389	78.40
Bedford	24,029	7,536	31.36	7,360	30.63	14,896	61.99
Berks	164,853	56,132	34.05	48,511	29.43	104,643	63.48
Blair	56,059	22,396	39.95	19,254	34.35	41,650	74.30
Bradford	30,107	11,556	38.38	8,185	27.19	19,741	65.57
Bucks	246,869	34,273	13.88	108,625	44.00	142,898	57.88
Butler	80,168	16,560	20.66	24,465	30.52	41,025	51.17
Cambria	65,215	29,521	45.27	22,919	35.14	52,440	80.41
Cameron	4,403	1,675	38.04	1,519	34.49	3,194	72.53
Carbon	34,387	13,418	39.02	7,497	21.80	20,915	60.82
Centre	64,938	12,773	19.67	21,641	33.33	34,414	52.99
Chester	195,720	33,828	17.28	59,256	30.28	93,084	47.56
Clarion	20,034	6,627	33.08	6,160	30.75	12,787	63.83
Clearfield	38,627	14,670	37.98	10,682	27.66	25,352	65.63
Clinton	18,985	6,026	31.74	6,790	35.77	12,816	67.51
Columbia	29,596	11,934	40.32	7,692	25.99	19,626	66.31
Crawford	44,386	16,048	36.16	14,305	32.23	30,353	68.38
Cumberland	102,772	22,284	21.68	34,990	34.05	57,274	55.73
Dauphin	121,889	34,448	28.26	45,065	36.97	79,513	65.23
Delaware	221,969	77,904	35.10	101,483	45.72	179,387	80.82
Elk	17,536	6,607	37.68	5,662	32.29	12,269	69.97
Erie	119,931	41,388	34.51	42,290	35.26	83,678	69.77
Fayette	62,798	25,462	40.55	20,377	32.45	45,839	72.99
Forest	8,473	1,385	16.35	4,287	50.60	5,672	66.95
Franklin	64,178	14,421	22.47	19,532	30.43	33,953	52.90
Fulton	7,112	1,753	24.65	2,251	31.65	4,004	56.30
Greene	16,469	6,483	39.36	4,830	29.33	11,313	68.69
Huntingdon	22,391	7,449	33.27	6,561	29.30	14,010	62.57
Indiana	38,450	12,166	31.64	12,145	31.59	24,311	63.23
Jefferson	22,392	9,177	40.98	6,411	28.63	15,588	69.62
Juniata	10,987	3,552	32.33	3,295	29.99	6,847	62.32
Lackawanna	97,449	46,448	47.66	27,080	27.79	73,528	75.45
Lancaster	206,308	53,904	26.13	58,511	28.36	112,415	54.49
Lawrence	40,723	16,103	39.54	14,577	35.80	30,680	75.34
Lebanon	56,176	17,168	30.56	17,325	30.84	34,493	61.40
Lehigh	143,538	42,392	29.53	50,147	34.94	92,539	64.47
Luzerne	148,154	66,960	45.20	44,718	30.18	111,678	75.38
Lycoming	52,644	20,712	39.34	17,217	32.70	37,929	72.05
McKean	21,021	10,822	51.48	6,268	29.82	17,090	81.30
Mercer	51,604	18,637	36.12	19,292	37.39	37,929	73.50
Mifflin	21,537	7,910	36.73	7,149	33.19	15,059	69.92
Monroe	80,675	10,604	13.14	20,443	25.34	31,047	38.48
Montgomery	327,785	80,561	24.58	128,475	39.19	209,036	63.77
Montour	8,048	2,669	33.16	2,288	28.43	4,957	61.60
Northampton	121,207	39,387	32.50	36,954	30.49	76,341	62.98
Northumberland	44,930	23,338	51.94	11,071	24.64	34,409	76.58
Perry	20,486	6,023	29.40	5,647	27.57	11,670	56.97
Philadelphia	671,125	366,299	54.58	218,087	32.50	584,386	87.08
Pike	38,506	3,530	9.17	10,556	27.41	14,086	36.58
Potter	12,832	4,250	33.12	3,617	28.19	7,867	61.31
Schuylkill	68,954	38,229	55.44	15,607	22.63	53,836	78.07
Snyder	16,141	4,499	27.87	5,200	32.21	9,699	60.09
Somerset	37,953	13,901	36.63	11,829	31.17	25,730	67.79
Sullivan	6,297	2,016	32.02	1,692	26.87	3,708	58.88
Susquehanna	23,001	7,634	33.19	5,698	24.77	13,332	57.96
Tioga	21,447	7,548	35.19	5,401	25.18	12,949	60.38
Union	17,089	4,858	28.43	5,305	31.04	10,163	59.47
Venango	27,300	11,270	41.28	8,556	31.34	19,826	72.62
Warren	23,357	8,991	38.49	8,446	36.16	17,437	74.66
Washington	93,897	32,183	34.27	31,812	33.88	63,995	68.15
Wayne	31,874	7,375	23.14	8,068	25.31	15,443	48.45
Westmoreland	168,225	50,752	30.17	69,861	41.53	120,613	71.70
Wyoming	13,326	4,397	33.00	3,668	27.52	8,065	60.52
York	180,618	44,174	24.46	56,927	31.52	101,101	55.98

Source: ACS, 2012-2016 Five-year estimates

Table 10: Children less than 5 years old living in poverty (ACS years 2012-2016)

State/County	Total population under 5 years	Children under 5 living in poverty last 12 months	% of children under 5 living in poverty- last 12 months
Pennsylvania	714,598	152,537	21.3
Adams	5,143	929	18.1
Allegheny	64,807	12,016	18.5
Armstrong	3,429	818	23.9
Beaver	8,821	1,458	16.5
Bedford	2,460	589	23.9
Berks	24,535	5,438	22.2
Blair	6,829	1,861	27.3
Bradford	3,640	763	21.0
Bucks	31,007	2,626	8.5
Butler	9,494	1,041	11.0
Cambria	6,731	1,954	29.0
Cameron	222	50	22.5
Carbon	2,998	711	23.7
Centre	6,566	1,050	16.0
Chester	29,243	3,210	11.0
Clarion	1,939	507	26.1
Clearfield	3,758	1,131	30.1
Clinton	2,093	739	35.3
Columbia	3,075	634	20.6
Crawford	4,774	1,234	25.8
Cumberland	13,134	1,910	14.5
Dauphin	17,063	4,198	24.6
Delaware	33,832	5,523	16.3
Elk	1,526	261	17.1
Erie	16,022	4,600	28.7
Fayette	6,693	2,098	31.3
Forest	38	13	34.2
Franklin	9,153	2,130	23.3
Fulton	784	142	18.1
Greene	1,876	517	27.6
Huntingdon	2,226	499	22.4
Indiana	4,199	1,196	28.5
Jefferson	2,499	720	28.8
Juniata	1,378	235	17.1
Lackawanna	11,206	2,549	22.7
Lancaster	35,519	6,283	17.7
Lawrence	4,564	1,143	25.0
Lebanon	8,512	1,383	16.2
Lehigh	21,339	4,623	21.7
Luzerne	16,059	5,084	31.7
Lycoming	6,523	1,713	26.3
McKean	2,132	643	30.2
Mercer	5,637	1,476	26.2
Mifflin	2,830	842	29.8
Monroe	7,587	1,311	17.3
Montgomery	46,004	3,608	7.8
Montour	1,044	154	14.8
Northampton	15,200	2,400	15.8
Northumberland	4,932	1,362	27.6
Perry	2,643	407	15.4
Philadelphia	107,874	39,436	36.6
Pike	2,072	401	19.4
Potter	907	243	26.8
Schuylkill	7,049	1,576	22.4
Snyder	2,244	429	19.1
Somerset	3,486	744	21.3
Sullivan	204	20	9.8
Susquehanna	1,930	475	24.6
Tioga	2,267	585	25.8
Union	2,048	276	13.5
Venango	2,830	778	27.5
Warren	2,004	486	24.3
Washington	10,499	1,570	15.0
Wayne	2,109	364	17.3
Westmoreland	16,625	3,045	18.3
Wyoming	1,409	245	17.4
York	25,323	4,082	16.1

Source: ACS, 2012-2016 Five-year estimates

Limitations

PADOH received water quality data for 2017 from DEP just a few days before the deadline for submitting this report. DEP is experiencing challenges in processing/retrieving the water quality data due to a key staff retirement. Currently, PADOH is working with DEP to better understand the water data to complete the analysis per NCDM standards. Though results from the water quality data analysis could not be included in this report, the data will be uploaded to the EDDIE/PADOH website once analyses are completed. Childhood BLL data for 2016 and 2017 were not yet available for analysis. PADOH is currently recruiting a full-time childhood lead epidemiologist. It is expected that once hired, and annual data have been prepared for 2016 and 2017 the data will be analyzed, and summary will be published on the EDDIE/PADOH website. Not all childhood BLL sub-categories are included in this report.

Future Plans

PADOH has contacted the EPHT program at CDC to obtain necessary guidance for preparation and submission of data and metadata. With a staff member trained, PADOH aims to keep the important environmental tracking datasets (air quality, water quality, adult and childhood BLLs, housing and poverty) updated in subsequent years. PADOH plans to have discussions with DEP to better understand the environmental data and to ensure timely availability of data. PADOH will continue to work with BIIT for updating tracking datasets on its website. BIIT has confirmed that EDDIE would be able to host the analyses results without significant financial implications if PADOH provides information in the EDDIE format. PADOH is committed to cross-train additional staff and to maintain partnerships necessary to procure and analyze environmental public health data and to be prepared to be competitive for future EPHT funding opportunities.