

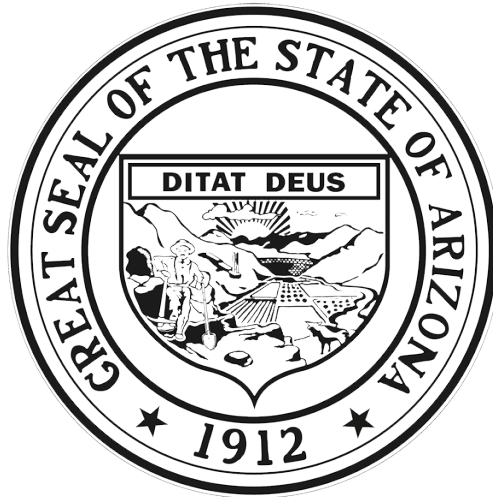
ARIZONA

2019

ANNUAL REPORT BLOOD LEAD SURVEILLANCE CHILDHOOD LEAD POISONING PREVENTION PROGRAM



ARIZONA DEPARTMENT
OF HEALTH SERVICES



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REPORT OVERVIEW

Per Arizona Administrative Code R9-4-302, all blood lead results are reportable to the Arizona Department of Health Services (ADHS). The 2019 Blood Lead Surveillance Annual Report describes childhood blood lead data maintained and analyzed by the Childhood Lead Poisoning Prevention Program (CLPPP) for the 2019 calendar year.

The report contains an analysis of statewide and county level data, including a breakdown of elevated blood lead levels (EBLLs) and screening rates in high-risk zip codes. The high-risk zip codes used for analyses in this report came from the 2018 Targeted Lead Screening Plan for the Prevention of Childhood Lead Poisoning. An analysis of statewide screening rates in high-risk census tracts is also included in this report. The intent of this report is to provide information for stakeholders to identify areas across Arizona to target interventions.

Data displayed are for children less than 6 years of age at the time of first reported EBLL or first reported test. A child was considered to have had an EBLL when a venous test was reported greater than or equal to (\geq) 5 $\mu\text{g}/\text{dL}$.

Screening rates were calculated using venous and capillary blood lead test results reported to ADHS. These rates do not include verbal assessments or questionnaires administered by health care providers.



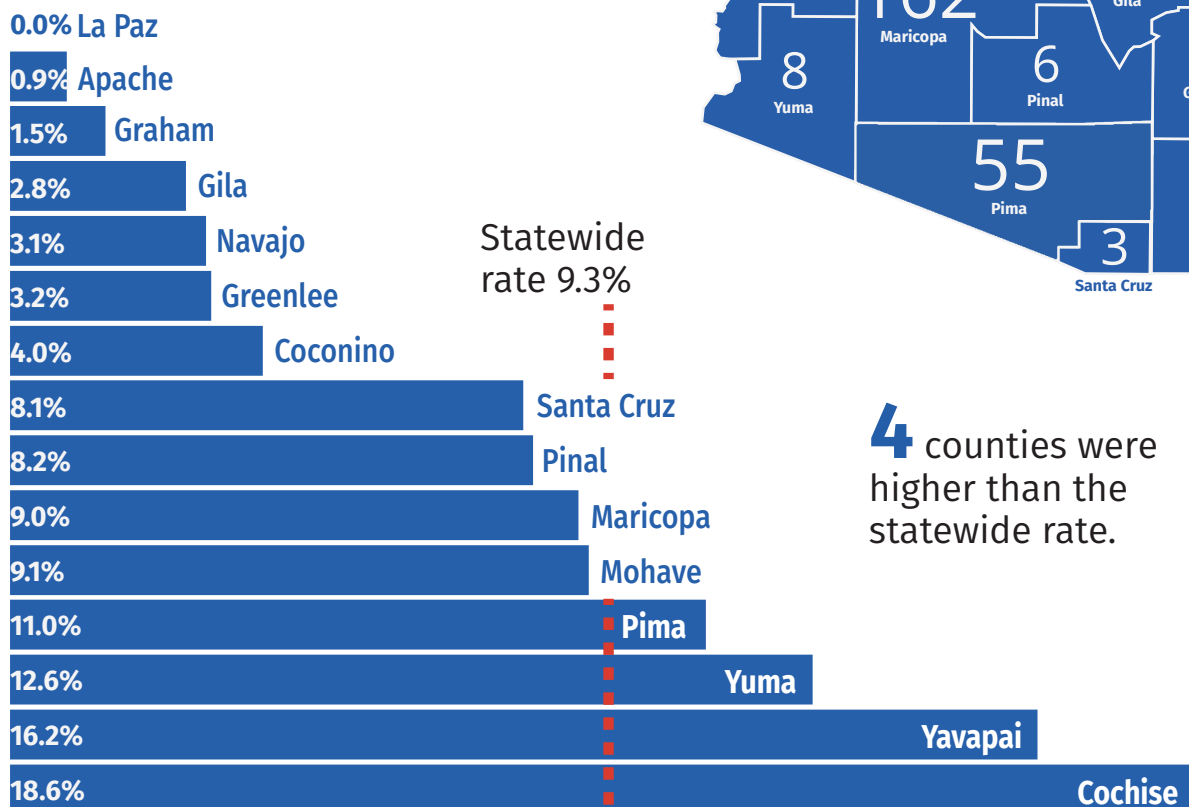
2019 ANNUAL SURVEILLANCE REPORT HIGHLIGHTS

298 total children had elevated blood lead levels in 2019.

85% of EBLI cases in 2019 lived in high-risk zip codes.

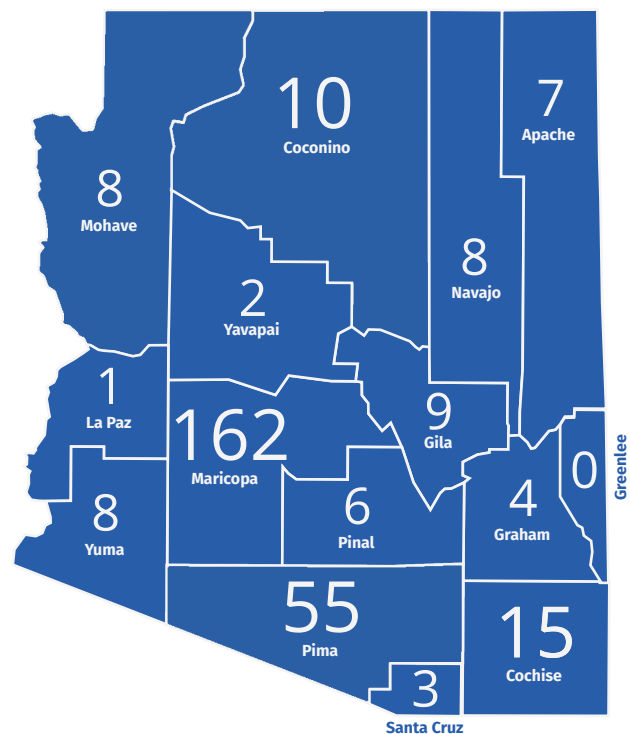
61,391 unique children under the age of 6 had a blood lead test in 2019.

12 & 24 Month Screening Rates in High-Risk Zip Codes*



EBLL Case Distribution Across the State

This map shows the distribution of unique children under the age of 6 years reported with a venous blood lead level ≥ 5 $\mu\text{g}/\text{dL}$ in 2019.



4 counties were higher than the statewide rate.

*Children living in high-risk zip codes were recommended a blood lead test at both 12 and 24 months of age. For current high-risk areas, visit www.azhealth.gov/leadmap.



Statewide Data

61,391 unique children under the age of 6 had a venous or capillary blood lead test in 2019. Of those children tested, there were 298 who had a venous elevated blood lead level (EBLL) greater than or equal to 5 µg/dL. 230 children had EBLLs between 5 and 9.9 µg/dL, and 68 children had levels greater than or equal to 10 µg/dL. The highest venous blood lead level identified in a child was 31.7 µg/dL.

Of the children with an EBLL in 2019, over 79% had their first reported EBLL in 2019.

2019 EBLL Prevalent Cases

298 total children had an elevated blood lead level in 2019.



2019 EBLL Incident Cases

236 of the 298 children had their first reported elevated blood lead level in 2019.



Screening Rates

Children living in high-risk zip codes* in Arizona should receive a blood lead test at 12 and 24 months of age through their health care provider. 26.6% of children living in a high-risk zip code had a blood lead test at 12 months of age. Even fewer, 16.8%, had a blood lead test at 24 months of age. Even fewer still, 9.3%, had received both recommended blood lead tests at 12 and 24 months of age.

*A list of high-risk zip codes by county can be found in Appendix D.

Screening Age	Statewide
12 & 24 months	9.3% [†]
12 months	26.6% [†]
24 months	16.8% [†]

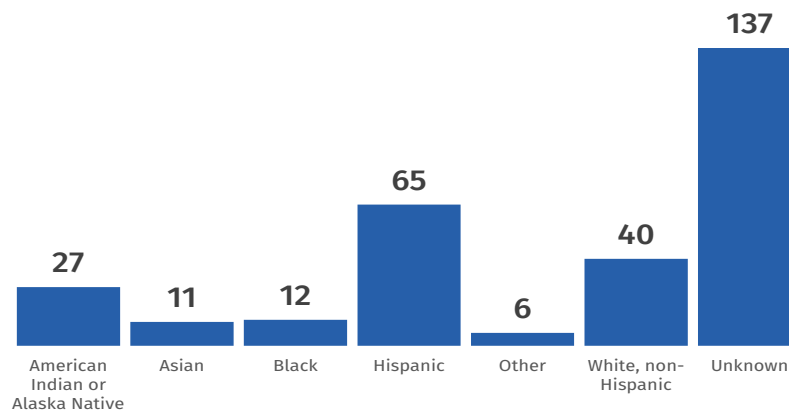


Statewide Case Demographics

Lead poisoning can disproportionately affect young children based on risk factors such as race or ethnicity, household income, immigrant or refugee status, and age of housing.

Race/Ethnicity

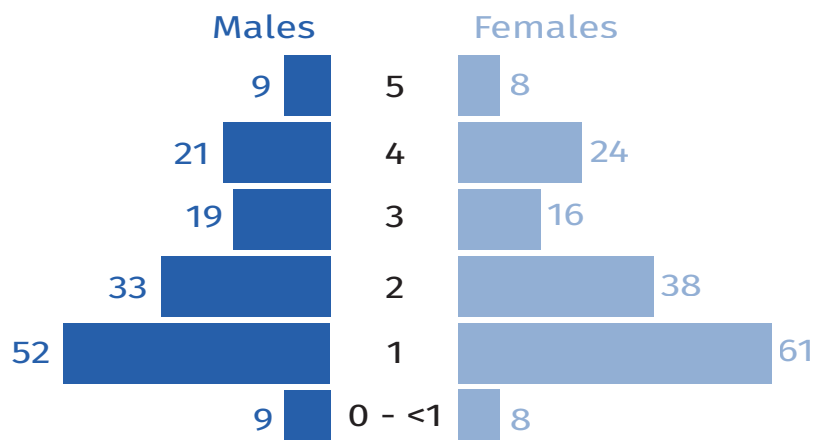
Lead poisoning can disproportionately affect young children, including Hispanic, Black, and Tribal families. In 2019, 21.8% of the children under the age of 6 with a confirmed EBLL were Hispanic, followed by 13.4% and 9.1% white, non-Hispanic and American Indian or Alaska Native, respectively. Children who identified as Asian, Black, or Other were less than 10% of cases. Of the children with an EBLL, 137 (45.9%) had an unknown race or ethnicity.



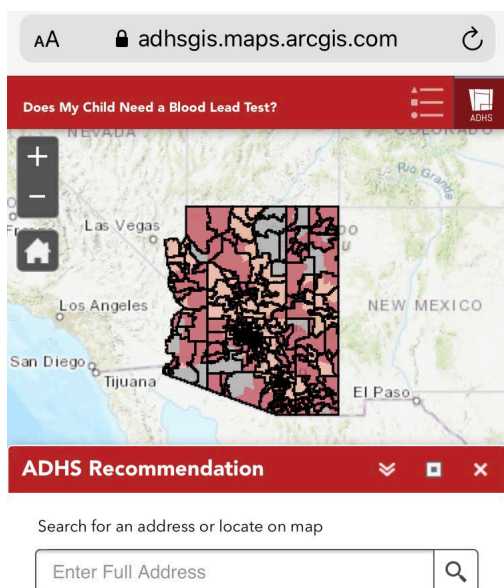
Sex and Age

Children less than 6 years of age are at higher risk of lead exposure and are vulnerable to the irreversible effects of lead because they are still developing and they exhibit increased hand-to-mouth activity. Children aged 1 year old made up 37.9% of cases, followed by children aged 2 years and 4 years old (23.8% and 15.1% of cases, respectively).

Of the 298 cases, 52.0% (155 cases) were female while 48.0% (143 cases) were male.



Screening in High-Risk Neighborhoods



In 2018, the Childhood Lead Poisoning Prevention Program created a new web-based interactive map (www.azhealth.gov/leadmap) for families and health care providers to easily identify children living in high-risk areas around the state who need blood lead testing. The goal of this map is to provide screening recommendations at a smaller geographical scale.

An analysis was performed for 2019 blood lead data, to identify the number of children living in high-risk neighborhoods who received a blood lead test at the recommended ages of 12 months and 24 months.

Screening Rates

Of the 61,391 children <6 years of age screened in 2019, 40,773 (66.4%) were children living in high-risk census tract areas. 23,722 of these children were either 12 or 24 months of age when they were screened, as recommended.

In 2019, there were 14,208 children 12 months of age and 9,514 children 24 months of age tested. The 12 months screening rate increased from 25.1% in 2018 to 29.2% in 2019. A similar increase was seen in the 24 months screening rate, which raised from 15.9% in 2018 to 19.0% in 2019.

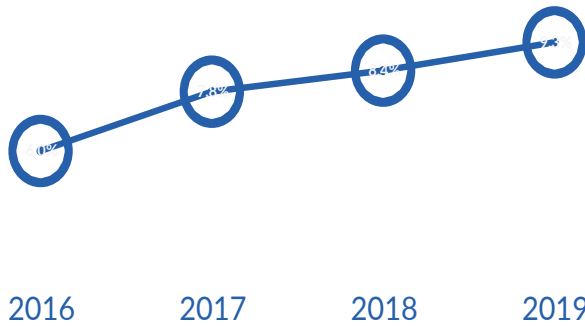
4,974 children received both recommended tests by the end of 2019. Only 9.9% of children living in high-risk areas received blood tests at the recommended ages of 12 and 24 months. The goal is to have all children living in high-risk areas to receive blood lead tests at these two ages.

Screening Age	Statewide
12 & 24 months	9.9% [†]
12 months	29.2% [†]
24 months	19.0% [†]

[†] Significantly different from 2018 rate ($p < 0.05$)



Statewide Screening Rate Trends

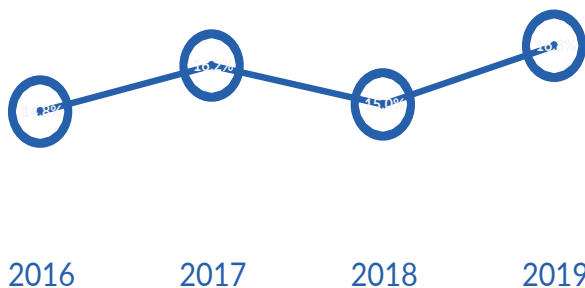
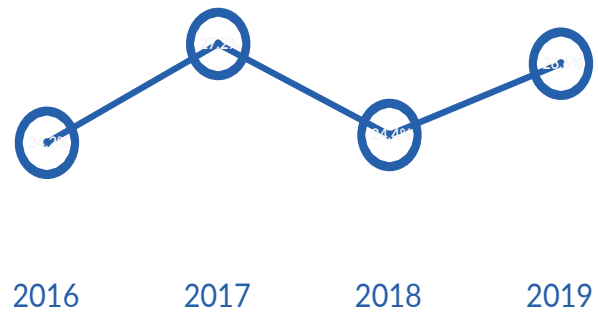


12 & 24 Month Screening Rate

The statewide rate for children in high-risk zip codes receiving a blood lead test at both 12 and 24 months of age in 2019 has increased by 0.9% from 2018.

12 Month Screening Rate

The statewide rate for children in high-risk zip codes receiving a blood lead test at 12 months of age in 2019 has increased by 2.2% from 2018.



24 Month Screening Rate

The statewide rate for children in high-risk zip codes receiving a blood lead test at 24 months of age in 2019 has increased by 1.8% from 2018.

See [appendix L](#) for a full list of screening rates for the state and counties.



Statewide Sources

In order to gather more information about a child's environment and behavior, CLPPP makes efforts to complete a questionnaire regarding potential sources of lead exposure with the families. When a potential source is identified, CLPPP provides guidance to families on ways to reduce exposure. The information summarized below has been reported by parents and guardians for children identified with an EBLI in 2019. Not all sources can be or have been confirmed as the source of lead exposure for each child, but this summary may give a better understanding of the possible sources of lead that impact Arizona children.

130 children had a history of living in pre-1978 housing in Arizona.

41 children were reported to have mouthed or eaten soil and/or non-food items.

39 children were reported to have products from another country in their home, such as candy, spices, or makeup.

11 children were reported to have imported or handmade glazed ceramics, pewter, crystal, or porcelain in their home.

33 children were reported to live with someone who has an occupation or hobby with a potential lead exposure.

22 children were reported to have lived or visited outside of the U.S. in the past year.

Among the environmental samples collected in 2019 for children identified with an EBLI in the same year, CLPPP identified the following lead sources: pre-1978 paint, soil, household member hobbies, pottery, makeup, and spices brought from another country.



Apache County



229 unique children under the age of 6 had a venous or capillary blood lead test in 2019. Of those children tested, there were 7 who had a venous elevated blood lead level (EBLL) greater than or equal to 5 µg/dL, compared to 0 children in 2018.

Unique children with an EBLL

7 total children had an elevated blood lead level in 2019. All of these children had their first reported EBLL in 2019.

5

5-9 µg/dL
First EBLL

2

≥10 µg/dL
First EBLL

Screening Rates

Children living in high-risk zip codes* in Arizona should receive a blood lead test at 12 and 24 months of age through their health care provider. 3.7% of children living in a high-risk zip code in Apache County had a blood lead test at 12 months of age. 2.6% of children had a blood lead test at 24 months of age and 0.9% of children had received both recommended blood lead tests at 12 and 24 months of age.

Screening Age	Apache	Statewide
12 & 24 months	0.9%	9.3% [†]
12 months	3.7%	26.6% [†]
24 months	2.6%	16.8% [†]

Screening Rate Trends, 2016-2019



* A list of high-risk zip codes by county can be found in Appendix D.

† Significantly different from 2018 rate ($p < 0.05$)



Cochise County



1,625 unique children under the age of 6 had a venous or capillary blood lead test in 2019. Of those children tested, there were 15 who had a venous elevated blood lead level (EBLL) greater than or equal to 5 µg/dL, compared to 10 children in 2018.

Unique children with an EBLL

15 total children had an elevated blood lead level in 2019. 12 of these children had their first reported EBLL in 2019.

12

5-9 µg/dL
First EBLL

3

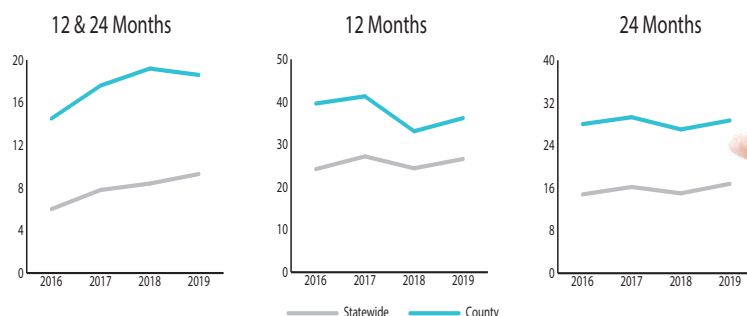
≥10 µg/dL
First EBLL

Screening Rates

Children living in high-risk zip codes* in Arizona should receive a blood lead test at 12 and 24 months of age through their health care provider. 36.2% of children living in a high-risk zip code in Cochise County had a blood lead test at 12 months of age. 28.7% of children had a blood lead test at 24 months of age and 18.6% of children had received both recommended blood lead tests at 12 and 24 months of age.

Screening Age	Cochise	Statewide
12 & 24 months	18.6%	9.3% [†]
12 months	36.2%	26.6% [†]
24 months	28.7%	16.8% [†]

Screening Rate Trends, 2016-2019



* A list of high-risk zip codes by county can be found in Appendix D.

† Significantly different from 2018 rate ($p < 0.05$)



Coconino County



984 unique children under the age of 6 had a venous or capillary blood lead test in 2019. Of those children tested, there were 10 who had a venous elevated blood lead level (EBLL) greater than or equal to 5 µg/dL, compared to 5 children in 2018.

Unique children with an EBLL

10 total children had an elevated blood lead level in 2019. All 10 children had their first reported EBLL in 2019.

5

5-9 µg/dL
First EBLL

5

≥10 µg/dL
First EBLL

Screening Rates

Children living in high-risk zip codes* in Arizona should receive a blood lead test at 12 and 24 months of age through their health care provider. 12.7% of children living in a high-risk zip code in Coconino County had a blood lead test at 12 months of age. 7.1% of children had a blood lead test at 24 months of age and 4.0% of children had received both recommended blood lead tests at 12 and 24 months of age.

Screening Age	Coconino	Statewide
12 & 24 months	4.0%	9.3% [†]
12 months	12.7%	26.6% [†]
24 months	7.1%	16.8% [†]

Screening Rate Trends, 2016-2019



* A list of high-risk zip codes by county can be found in Appendix D.

† Significantly different from 2018 rate ($p < 0.05$)



Gila County



529 unique children under the age of 6 had a venous or capillary blood lead test in 2019. Of those children tested, there were 9 who had a venous elevated blood lead level (EBLL) greater than or equal to 5 µg/dL, compared to 9 children in 2018.

Unique children with an EBLL

9 total children had an elevated blood lead level in 2019. 5 of these children had their first reported EBLL in 2019.

6

5-9 µg/dL
First EBLL

3

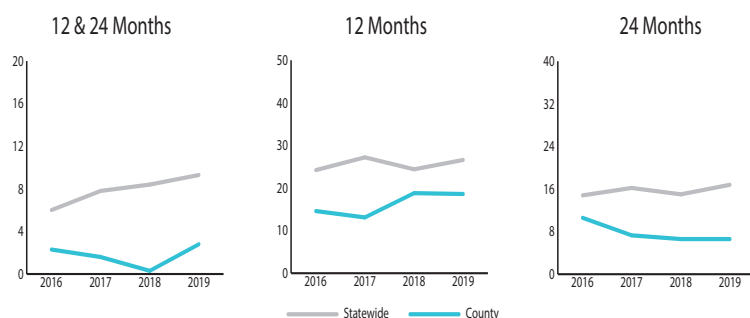
≥10 µg/dL
First EBLL

Screening Rates

Children living in high-risk zip codes* in Arizona should receive a blood lead test at 12 and 24 months of age through their health care provider. 18.6% of children living in a high-risk zip code in Gila County had a blood lead test at 12 months of age. 6.6% of children had a blood lead test at 24 months of age and 2.8% of children had received both recommended blood lead tests at 12 and 24 months of age.

Screening Age	Gila	Statewide
12 & 24 months	2.8%	9.3% [†]
12 months	18.6%	26.6% [†]
24 months	6.6%	16.8% [†]

Screening Rate Trends, 2016-2019

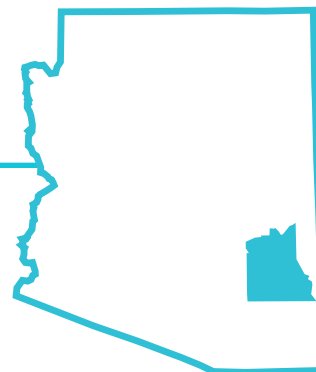


* A list of high-risk zip codes by county can be found in Appendix D.

† Significantly different from 2018 rate ($p < 0.05$)



Graham County



272 unique children under the age of 6 had a venous or capillary blood lead test in 2019. Of those children tested, there were 4 who had a venous elevated blood lead level (EBLL) greater than or equal to 5 µg/dL, compared to 5 children in 2018.

Unique children with an EBLL

4 total children had an elevated blood lead level in 2019. 3 of these children had their first reported EBLL in 2019.

3

5-9 µg/dL
First EBLL

1

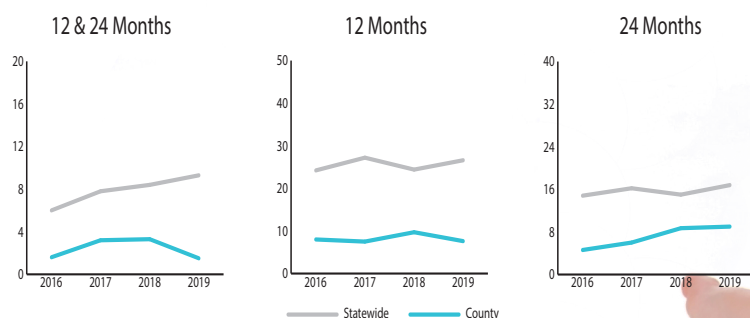
≥10 µg/dL
First EBLL

Screening Rates

Children living in high-risk zip codes* in Arizona should receive a blood lead test at 12 and 24 months of age through their health care provider. 7.6% of children living in a high-risk zip code in Graham County had a blood lead test at 12 months of age. 9.0% of children had a blood lead test at 24 months of age and 1.5% of children had received both recommended blood lead tests at 12 and 24 months of age.

Screening Age	Graham	Statewide
12 & 24 months	1.5%	9.3% [†]
12 months	7.6%	26.6% [†]
24 months	9.0%	16.8% [†]

Screening Rate Trends, 2016-2019



* A list of high-risk zip codes by county can be found in Appendix D.

† Significantly different from 2018 rate ($p < 0.05$)



Greenlee County



69 unique children under the age of 6 had a venous or capillary blood lead test in 2019. Of those children tested, there was none who had a venous elevated blood lead level (EBLL) greater than or equal to 5 µg/dL, compared to 0 children in 2018.

Unique children with an EBLL

0 children had an elevated blood lead level in 2019.

0

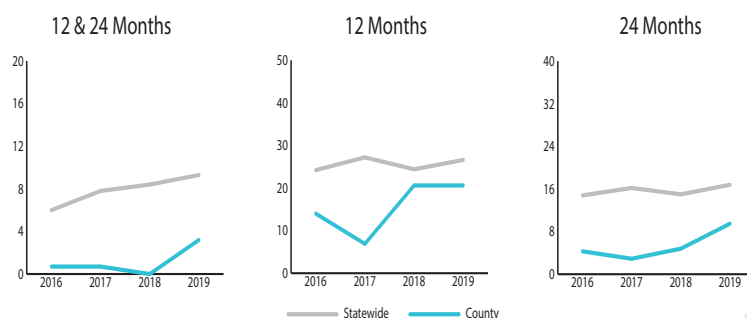
≥10 µg/dL
First EBLL

Screening Rates

Children living in high-risk zip codes* in Arizona should receive a blood lead test at 12 and 24 months of age through their health care provider. 20.6% of children living in a high-risk zip code in Greenlee County had a blood lead test at 12 months of age. 9.5% of children had a blood lead test at 24 months of age and 3.2% of children had received both recommended blood lead tests at 12 and 24 months of age.

Screening Age	Greenlee	Statewide
12 & 24 months	3.2%	9.3% [†]
12 months	20.6%	26.6% [†]
24 months	9.5%	16.8% [†]

Screening Rate Trends, 2016-2019



* A list of high-risk zip codes by county can be found in Appendix D.

† Significantly different from 2018 rate ($p < 0.05$)



La Paz County



93 unique children under the age of 6 had a venous or capillary blood lead test in 2019. Of those children tested, there was 1 who had a venous elevated blood lead level (EBLL) greater than or equal to 5 µg/dL, compared to 3 children in 2018.

Unique children with an EBLL

1 child had an elevated blood lead level in 2019. This child had their first reported EBLL in 2019.

1

5-9 µg/dL
First EBLL

Screening Rates

Children living in high-risk zip codes* in Arizona should receive a blood lead test at 12 and 24 months of age through their health care provider. 28.6% of children living in a high-risk zip code in La Paz County had a blood lead test at 12 months of age. 0.0% of children had a blood lead test at 24 months of age and 0.0% of children had received both recommended blood lead tests at 12 and 24 months of age.

Screening Age	La Paz	Statewide
12 & 24 months	0.0%	9.3% [†]
12 months	28.6% [†]	26.6% [†]
24 months	0.0%	16.8% [†]

Screening Rate Trends, 2016-2019



* A list of high-risk zip codes by county can be found in Appendix D.

† Significantly different from 2018 rate ($p < 0.05$)



Maricopa County



35,751 unique children under the age of 6 had a venous or capillary blood lead test in 2019. Of those children tested, there were 162 who had a venous elevated blood lead level (EBLL) greater than or equal to 5 µg/dL, compared to 165 children in 2018.

Unique children with an EBLL

162 total children had an elevated blood lead level in 2019. 119 of these children had their first reported EBLL in 2019.

126

5-9 µg/dL
First EBLL

36

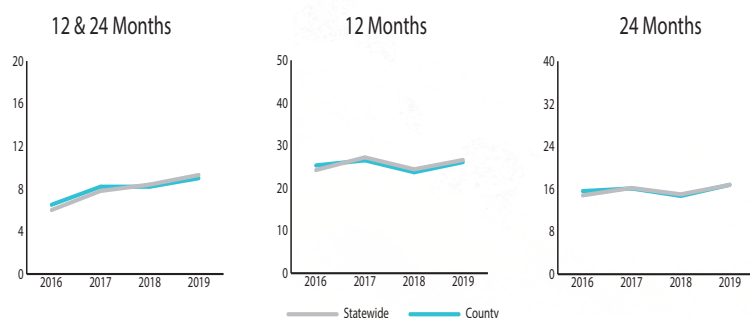
≥10 µg/dL
First EBLL

Screening Rates

Children living in high-risk zip codes* in Arizona should receive a blood lead test at 12 and 24 months of age through their health care provider. 26.1% of children living in a high-risk zip code in Maricopa County had a blood lead test at 12 months of age. 16.8% of children had a blood lead test at 24 months of age and 9.0% of children had received both recommended blood lead tests at 12 and 24 months of age.

Screening Age	Maricopa	Statewide
12 & 24 months	9.0% [†]	9.3% [†]
12 months	26.1% [†]	26.6% [†]
24 months	16.8% [†]	16.8% [†]

Screening Rate Trends, 2016-2019



* A list of high-risk zip codes by county can be found in Appendix D.

† Significantly different from 2018 rate ($p < 0.05$)



Mohave County



1,576 unique children under the age of 6 had a venous or capillary blood lead test in 2019. Of those children tested, there were 8 who had a venous elevated blood lead level (EBLL) greater than or equal to 5 µg/dL, compared to 10 children in 2018.

Unique children with an EBLL

8 total children had an elevated blood lead level in 2019. 5 of these children had their first reported EBLL in 2019.

7

5-9 µg/dL
First EBLL

1

≥10 µg/dL
First EBLL

Screening Rates

Children living in high-risk zip codes* in Arizona should receive a blood lead test at 12 and 24 months of age through their health care provider. 32.2% of children living in a high-risk zip code in Mohave County had a blood lead test at 12 months of age. 20.6% of children had a blood lead test at 24 months of age and 9.1% of children had received both recommended blood lead tests at 12 and 24 months of age.

Screening Age	Mohave	Statewide
12 & 24 months	9.1%	9.3% [†]
12 months	32.2% [†]	26.6% [†]
24 months	20.6% [†]	16.8% [†]

Screening Rate Trends, 2016-2019



* A list of high-risk zip codes by county can be found in Appendix D.

† Significantly different from 2018 rate ($p < 0.05$)



Navajo County



849 unique children under the age of 6 had a venous or capillary blood lead test in 2019. Of those children tested, there were 8 who had a venous elevated blood lead level (EBLL) greater than or equal to 5 µg/dL, compared to 18 children in 2018.

Unique children with an EBLL

8 total children had an elevated blood lead level in 2019. 7 of these children had their first reported EBLL in 2019.

7

5-9 µg/dL
First EBLL

1

≥10 µg/dL
First EBLL

Screening Rates

Children living in high-risk zip codes* in Arizona should receive a blood lead test at 12 and 24 months of age through their health care provider. 12.2% of children living in a high-risk zip code in Navajo County had a blood lead test at 12 months of age. 7.0% of children had a blood lead test at 24 months of age and 3.1% of children had received both recommended blood lead tests at 12 and 24 months of age.

Screening Age	Navajo	Statewide
12 & 24 months	3.1%	9.3% [†]
12 months	12.2%	26.6% [†]
24 months	7.0%	16.8% [†]

Screening Rate Trends, 2016-2019



* A list of high-risk zip codes by county can be found in Appendix D.

† Significantly different from 2018 rate (p < 0.05)



Pima County



8,282 unique children under the age of 6 had a venous or capillary blood lead test in 2019. Of those children tested, there were 55 who had a venous elevated blood lead level (EBLL) greater than or equal to 5 µg/dL, compared to 36 children in 2018.

Unique children with an EBLL

55 total children had an elevated blood lead level in 2019. 50 of these children had their first reported EBLL in 2019.

42

5-9 µg/dL
First EBLL

13

≥10 µg/dL
First EBLL

Screening Rates

Children living in high-risk zip codes* in Arizona should receive a blood lead test at 12 and 24 months of age through their health care provider. 32.6% of children living in a high-risk zip code in Pima County had a blood lead test at 12 months of age. 19.2% of children had a blood lead test at 24 months of age and 11.0% of children had received both recommended blood lead tests at 12 and 24 months of age.

Screening Age	Pima	Statewide
12 & 24 months	11.0% [†]	9.3% [†]
12 months	32.6% [†]	26.6% [†]
24 months	19.2%	16.8% [†]

Screening Rate Trends, 2016-2019

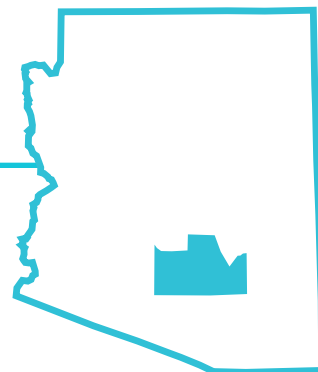


* A list of high-risk zip codes by county can be found in Appendix D.

† Significantly different from 2018 rate ($p < 0.05$)



Pinal County



3,495 unique children under the age of 6 had a venous or capillary blood lead test in 2019. Of those children tested, there were 6 who had a venous elevated blood lead level (EBLL) greater than or equal to 5 µg/dL, compared to 7 children in 2018.

Unique children with an EBLL

6 total children had an elevated blood lead level in 2019. All of these children had their first reported EBLL in 2019.

6

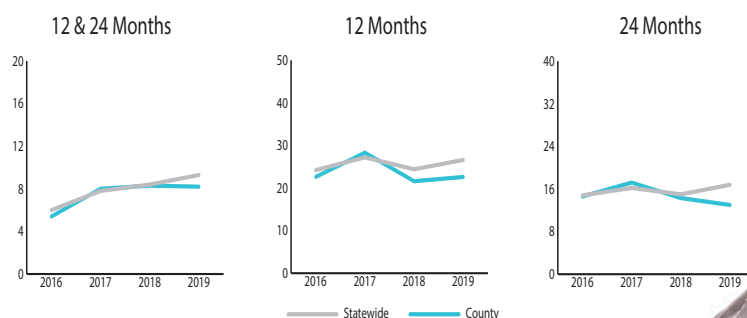
5-9 µg/dL
First EBLL

Screening Rates

Children living in high-risk zip codes* in Arizona should receive a blood lead test at 12 and 24 months of age through their health care provider. 22.6% of children living in a high-risk zip code in Pinal County had a blood lead test at 12 months of age. 13.0% of children had a blood lead test at 24 months of age and 8.2% of children had received both recommended blood lead tests at 12 and 24 months of age.

Screening Age	Pinal	Statewide
12 & 24 months	8.2%	9.3% [†]
12 months	22.6%	26.6% [†]
24 months	13.0%	16.8% [†]

Screening Rate Trends, 2016-2019

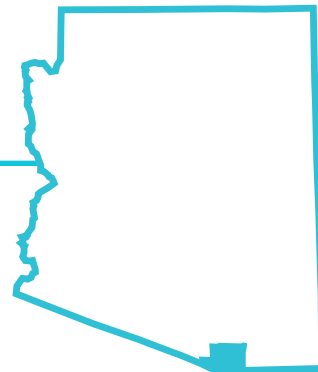


* A list of high-risk zip codes by county can be found in Appendix D.

† Significantly different from 2018 rate ($p < 0.05$)



Santa Cruz County



948 unique children under the age of 6 had a venous or capillary blood lead test in 2019. Of those children tested, there were 3 who had a venous elevated blood lead level (EBLL) greater than or equal to 5 µg/dL, compared to 2 children in 2018.

Unique children with an EBLL

3 total children had an elevated blood lead level in 2019. All of these children had their first reported EBLL in 2019.

3

5-9 µg/dL
First EBLL

Screening Rates

Children living in high-risk zip codes* in Arizona should receive a blood lead test at 12 and 24 months of age through their health care provider. 44.5% of children living in a high-risk zip code in Santa Cruz County had a blood lead test at 12 months of age. 26.1% of children had a blood lead test at 24 months of age and 8.1% of children had received both recommended blood lead tests at 12 and 24 months of age.

Screening Age	Santa Cruz	Statewide
12 & 24 months	8.1%	9.3% [†]
12 months	44.5% [†]	26.6% [†]
24 months	26.1% [†]	16.8% [†]

Screening Rate Trends, 2016-2019

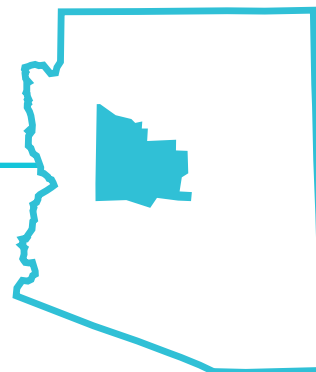


* A list of high-risk zip codes by county can be found in Appendix D.

† Significantly different from 2018 rate ($p < 0.05$)



Yavapai County



1,369 unique children under the age of 6 had a venous or capillary blood lead test in 2019. Of those children tested, there were 2 who had a venous elevated blood lead level (EBLL) greater than or equal to 5 µg/dL, compared to 3 children in 2018.

Unique children with an EBLL

2 total children had an elevated blood lead level in 2019. One of these children had their first reported EBLL in 2019.

2

5-9 µg/dL
First EBLL

Screening Rates

Children living in high-risk zip codes* in Arizona should receive a blood lead test at 12 and 24 months of age through their health care provider. 35.4% of children living in a high-risk zip code in Yavapai County had a blood lead test at 12 months of age. 23.9% of children had a blood lead test at 24 months of age and 16.2% of children had received both recommended blood lead tests at 12 and 24 months of age.

Screening Age	Yavapai	Statewide
12 & 24 months	16.2% [†]	9.3% [†]
12 months	35.4%	26.6% [†]
24 months	23.9% [†]	16.8% [†]

Screening Rate Trends, 2016-2019



* A list of high-risk zip codes by county can be found in Appendix D.

† Significantly different from 2018 rate ($p < 0.05$)



Yuma County

2,994 unique children under the age of 6 had a venous or capillary blood lead test in 2019. Of those children tested, there were 8 who had a venous elevated blood lead level (EBLL) greater than or equal to 5 µg/dL, compared to 9 children in 2018.

Unique children with an EBLL

8 total children had an elevated blood lead level in 2019. 7 of these children had their first reported EBLL in 2019.

5

5-9 µg/dL
First EBLL

3

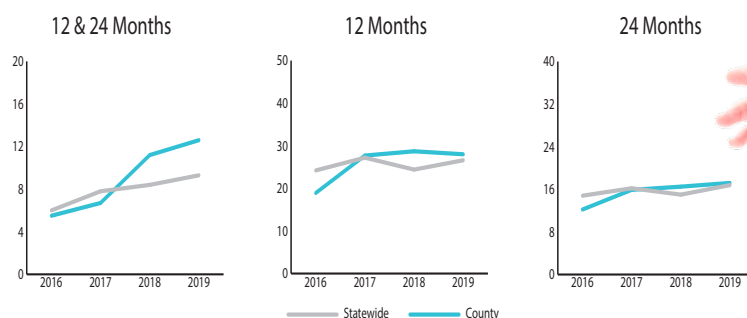
≥10 µg/dL
First EBLL

Screening Rates

Children living in high-risk zip codes* in Arizona should receive a blood lead test at 12 and 24 months of age through their health care provider. 28.0% of children living in a high-risk zip code in Yuma County had a blood lead test at 12 months of age. 17.2% of children had a blood lead test at 24 months of age and 12.6% of children had received both recommended blood lead tests at 12 and 24 months of age.

Screening Age	Yuma	Statewide
12 & 24 months	12.6%	9.3% [†]
12 months	28.0%	26.6% [†]
24 months	17.2%	16.8% [†]

Screening Rate Trends, 2016-2019



* A list of high-risk zip codes by county can be found in Appendix D.

† Significantly different from 2018 rate ($p < 0.05$)



APPENDIX A: DEFINITIONS

Capillary	Test where a blood sample is taken from the finger or heel of a child, used for screening purposes
Claritas® Data	Demographic data sets and population projections produced annually at the Block Group and Zip Code level by Claritas, LLC
EBLL	An elevated blood lead level (EBLL) is a blood lead level greater than or equal to 5 µg/dL
MEDSIS	The Medical Electronic Disease Surveillance Intelligence System (MEDSIS) is the secure, web-based surveillance system used to manage blood lead data
STELLAR	The Systematic Tracking of Elevated Lead Levels and Remediation was a Centers for Disease Control and Prevention (CDC) database previously used to maintain blood lead data
Unique Child	An individual child who had at least one blood lead test result within the dataset within the calendar year
µg/dL	The amount of lead in micrograms per deciliter of blood
Venous	Test where a blood sample is taken from a vein; typically used for diagnostic purposes and to confirm an initial elevated capillary test
Verbal Assessment	Screening questions asked by the health care provider to determine the risk level of a child for lead exposure



APPENDIX B: DESCRIPTION OF DATA

Per Arizona Administrative Code R9-4-302, all blood lead results are reportable to the Arizona Department of Health Services (ADHS). 2011-2016 data were maintained in the Arizona lead registry database, Systematic Tracking of Elevated Lead Levels and Remediation (STELLAR), and 2017-2019 data were maintained in the Arizona Medical Electronic Disease Surveillance Intelligence System (MEDSIS). Data were combined and managed in SAS (statistical analysis system) version 9.4. Prior to analyses, efforts were taken to de-duplicate test results and children based on demographic and test result data. Analyses were performed on first reported blood lead result or elevated venous blood lead level (EBLL) result per child in 2019 whose age was less than 72 months. Test results were excluded when the child's address was outside of Arizona. Children with a blank address were assumed to have resided in Arizona at the time of the test. Claritas 2019 population estimates were used to calculate screening rates. Results are not representative of all children living in Arizona because blood lead testing is not universal. Please note that there is a potential underestimation of counts and rates presented in this report due to ADHS' reliance on provider and laboratory reporting of blood lead test results. Rates based on counts less than 20 may be unstable and should be interpreted with caution. Children with missing address information were not included in screening rate calculations. Test results reported for the zip code 85334 were excluded from screening rate calculations due to lack of population estimate data for this zip code.



APPENDIX C: BACKGROUND

Lead is a naturally occurring heavy metal, but most high levels in the environment that people are exposed to come from human activities. Lead has properties that make it easy to work with and has been widely used in a variety of products and materials such as pipes, paints, ceramics, and gasoline. When ingested or inhaled, lead can have adverse effects on nearly all organ systems in the body. Children under the age of six years are especially at risk because they are still developing, have a tendency to put objects and their hands in their mouth, and absorb lead easily. Lead exposure often occurs with no obvious signs and symptoms. In children, lead poisoning can cause slowed development, reading and other learning problems, behavioral problems, as well as brain, liver, and kidney damage. Pregnant women can also pass lead to their unborn babies. For these reasons, major public health campaigns have focused on eliminating childhood lead poisoning.

Childhood lead poisoning is entirely preventable; however, it remains one of the most common environmental health dangers to children. In 2012, the Centers for Disease Control and Prevention (CDC) adopted the reference level of 5µg/dL for an elevated blood lead level (EBLL). This reference level was determined as the 97.5th percentile of the blood lead distribution in children one to five years of age from the National Health and Nutrition Examination Survey (NHANES). Children with blood lead levels at the reference level or higher are considered to have been exposed to more lead than most other children.



APPENDIX D: SUMMARY OF ADHS SCREENING RECOMMENDATIONS

The Arizona Department of Health Services developed and used the following recommendations in 2019 to identify children with elevated blood lead levels in order to eliminate exposure and reduce the effects of lead on Arizona children.

A more in-depth discussion of our current screening recommendations can be found in Arizona's Targeted Lead Screening Plan for the Prevention of Childhood Lead Poisoning. For current high-risk areas, visit www.azhealth.gov/leadmap.

- 1. Children living in high-risk zip codes:** All children living in high-risk zip codes should have had a blood lead test at 12 and 24 months of age. Children aged 36 to 72 months should be tested if they have not been previously tested.
- 2. Children living outside of high-risk zip codes:** Children living in Arizona, but not in a high-risk zip code, should have received an individual risk assessment questionnaire at 12 and 24 months of age.



APPENDIX E: RESOURCES - EDUCATIONAL MATERIALS

Educational handouts are provided to the public and to health care professionals. Every family that has a child with an EBLL will receive the primary educational handout (right) that details various sources of lead, cleaning techniques, and nutritional tips to increase awareness on preventative techniques for lead poisoning. Several of the educational handouts are available in both English and Spanish.

Each of these handouts and are available on the [AZDHS website](https://www.azdhs.gov).

Childhood Lead Poisoning

Children can get lead poisoning by breathing in or swallowing dust that contains lead.

Even at low levels, lead can cause irreversible damage to hearing, growth, and development.

For more information contact our Childhood Lead Poisoning Prevention Program at 602-364-3118 azhealth.gov/lead

Sources of Lead

Identify and remove sources of lead from your home.

Home

Lead can be in paint in old homes built before 1978.

- Chipped paint
- Old furniture and toys
- Dirt
- Play or costume jewelry
- Pewter
- Crystal glassware

Imported Goods

Items brought back from other countries may contain lead.

- Glazed pottery
- Asian, Hispanic, Indian spices
- Mexican candy (tamarindo and chili)

Home Remedies

Some home remedies may contain lead. These remedies are typically red or orange powders.

- Traditional folk remedies (Greta, Azarcon, Pay-loo-ah)

Beauty Products

Imported beauty products from Asia, India, and Africa may contain lead.

- Sindoor, Kohl, Kajal, Surma

Jobs

Jobs such as car repair, mining, construction, and plumbing may increase your exposure to lead. Lead dust can be brought into the home on your skin, clothes, shoes, or other items you bring home from work.

- Car batteries
- Scrap metal/parts
- Ammunition

Hobbies

Certain hobbies increase your risk of coming in contact with lead.

- Hunting (lead bullets)
- Fishing (lead sinkers)
- Artist paints
- Refinished furniture

Travel

Traveling outside the U.S. may increase your risk of coming in contact with lead-based items.

- Souvenirs
- Spices or food
- Toys
- Jewelry

Cleaning

Keep lead dirt and dust out of your home with these helpful tips.

- Wash hands
- Keep shoes outside
- Mop & wet wipe
- Use a vacuum with a HEPA filter
- Wash toys

Avoid: Sweeping, Dry dusting, Beating rugs

Nutrition

These foods can help lower your child's lead level.

- Vitamin C: Tomatoes, Strawberries, Oranges, Potatoes
- Calcium: Milk, Cheese, Yogurt
- Iron: Chicken, Steak, Fish, Peas, Eggs

ADHS 6-DEH-160 Rev. 05/18

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Additional Educational Handouts

LEAD A SILENT POISON

GRETA AZARCON

Where To Find Lead Lead paint is the most common source of lead poisoning. Dust from peeling paint or remodeling can get on a child's hands, toys, and clothing. Lead can also be found in old paint, leaded glass, and leaded crystal. Lead can also be found in old paint, leaded glass, and leaded crystal. Lead can also be found in old paint, leaded glass, and leaded crystal.

Health Risks Even a small amount of lead can be harmful. Low levels of lead can cause problems with learning, hearing, growth, and behavior. High levels of lead can cause serious brain damage, convulsions, coma, and even death.

Lead Poisoning

Don't Take Lead Home from Your Job!

You can bring lead dust into your home and vehicle on your clothes, boots, skin, hair, and tools. Lead dust can get on furniture, floors, and carpets. Your child can get lead poisoning by swallowing this dust.

Lead poisoning can harm your child by causing:

- 1 Learning problems
- 2 Behavioral problems
- 3 Developmental problems

You may be exposed to lead on the job if you:

- Work at a shooting range
- Do construction or remodel houses and buildings
- Work at a mine/smelter
- Make/fix batteries or radiators
- Repair cars
- Solder/work with scrap metal
- Fish with lead sinkers
- Hunt or reload bullets
- Refinish old or antique furniture
- Make stained glass

To protect your family from lead from your hobby/job:

- 1 Wash your hands well with soap and water after working with lead and before eating.
- 2 Wear specific clothes for work or hobbies.
- 3 Wash work/hobby clothes separately from the rest of the family's clothes.
- 4 Shower and wash your hair at work if possible. (If no showers are available, wash face & hands and shower as soon as you get home.)
- 5 Never wear lead-contaminated work clothes in your home or in your vehicle.
- 6 Put on clean clothes & shoes before leaving work or as soon as you get home.
- 7 Keep work shoes outside or in the garage.

There are many other jobs and hobbies that may have lead exposure. If you are unsure whether you work with lead, ask your employer.

Questions? Call (602) 364-3118 or visit www.azhealth.gov/lead

ARIZONA DEPARTMENT OF HEALTH SERVICES

Are you expecting a child or have a young toddler at home?

Is your home LEAD safe?

Lead can be harmful when it gets into the body, especially for young children and pregnant women.

Lead poisoning can cause permanent developmental, hearing, behavioral, and learning problems.

We can be exposed to lead through a wide range of sources.

Young children are most at risk because they are still developing, put everything in their mouths, and absorb lead easily.

Complete this checklist to find sources of lead in your home.

Was your home built before 1978? If yes, then it is likely to contain lead-based paint.

Complete these actions to prevent exposure to lead-based paint:

- Have an EPA-certified professional check home for lead.
- Have an EPA-certified professional repair, repaint, or fix lead-based paint.
- Have an EPA-certified professional perform necessary renovations on home.
- Cover bare lead-contaminated soil with vegetation or pavement.
- Establish a cleaning routine.

For more information visit our website at www.azhealth.gov/lead or call 602-364-3118.

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APPENDIX F: RESOURCES - CLPPP COALITION

In 2018, the Childhood Lead Poisoning Prevention Coalition was created with the purpose of establishing a network of partners to address lead poisoning prevention among various sectors and to provide a range of perspectives and expertise to address challenges encountered. The coalition aims to identify, prioritize, and address community and partner needs regarding lead poisoning prevention efforts and to achieve a widespread reach within our communities, connecting families to vital resources.

Current Priorities

- Increasing blood lead testing in high-risk areas
- Increasing education and awareness of lead poisoning in Arizona provided to health care providers and families
- Implementing new lead poisoning prevention activities

If you would like to participate in the CLPPP coalition, please send an email to HealthyHomes@azdhs.gov.



APPENDIX G: 2018 HIGH-RISK LEAD POISONING ZIP CODES

COUNTY	Zip Codes	COCONINO			
City	PO Box Zip	Bellemont	86015	Chandler Heights	85286
City		Flagstaff	86001		85127
			86002	El Mirage	85335
			86003	Fort McDowell	
APACHE			86004		85264
Blue Gap, Low Mountain			86005	Fountain Hills	85268
	86520	Gray Mountain	86016		85269
Chambers	86502	Page	86040	Gila Bend	85337
	86512	Parks	86018	Gilbert	85236
Chinle	86503	Sedona	86339		85296
Dennehotso	86535				85299
Eagar	85925	GILA		Glendale	85301
Fort Defiance	86504	Claypool	85532		85302
Ganado	86505	Globe	85501		85303
Greer	85927		85502		85304
Hawley Lake	85930	Miami	85539		85306
Houck	86506	Peridot	85542		85307
Lupton	86508	Winkelman	85192		85311
Nazlini	86540	Young	85554		85312
Nutriso	85932				85318
Red Rock	86544	GRAHAM		Goodyear	85338
Rock Point	86545	Bylas	85530		85395
St. Johns	85936	Safford	85546	Laveen	85339
Teec Nos Pos	86514		85548	Litchfield Park	
Tsaile	86556	Solomon	85551		85340
Window Rock	86515			Mesa	85201
		GREENLEE			85202
COCHISE		Clifton	85533		85203
Benson	85602	Duncan	85534		85204
Bisbee	85603				85205
Douglas	85607	LA PAZ			85206
	85608	Parker	85334		85207
	85655	Poston	85371		85208
Hereford	85615	Salome	85348		85209
Huachuca City		Wenden	85357		85210
	85616				85211
Mc Neal	85617	MARICOPA			85212
Naco	85620	Aguila	85320		85213
Pirtleville	85626	Avondale	85323		85214
Pomerene	85627		85329		85216
San Simon	85632		85392		85274
Sierra Vista	85635	Buckeye	85326		85275
	85636		85396	Peoria	85345
	85650	Chandler	85224		85380
	85670		85225		85385
Tombstone	85638		85226	Phoenix	85003
Willcox	85643		85244		85005
	85644		85246		85006
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					85070



APPENDIX G: 2018 HIGH-RISK LEAD POISONING ZIP CODES

85071		86405	85721	
85072	Mohave Valley		85724	YAVAPAI
85074		86440	85725	Camp Verde 86322
85075		86446	85726	Chino Valley 86323
85078	Yucca	86438	85730	Cornville 86325
85079			85731	Cottonwood 86326
85080	NAVAJO		85732	Lake Montezuma
85082	Cibecue	85911	85733	
85086	Clay Springs	85923	85734	Paulden 86334
Queen Creek 85142	Fort Apache	85926	85735	Prescott 86301
Scottsdale 85250	Holbrook	86025	85736	
85251	Hotevilla	86030	85745	
85252	Indian Wells	86031	85746	
85256	Pinedale	85934	85754	
85257	Pinon	86510	85756	
85260	Polacca	86042	85757	
85261	Shonto	86054		Prescott Valley
85267	Show Low	85901		
85271		85902	PINAL	
Sun City 85351	Sun Valley	86029	Apache Junction	
85372	White Mountain Lake			
85373		85912		
Surprise 85378	Whiteriver	85941		
85379	Winslow	86047		
85387	Woodruff	85942	Arizona City	
Tempe 85280			Casa Grande	
85281	PIMA			
85282	Ajo	85321		
85283	Catalina Foothills			
85285		85751	Coolidge	
Tolleson 85353	Marana	85658	Eloy	
Tonopah 85354	Sahuarita	85629	Florence	
Tortilla Flat 85190	Sasabe	85633	Gold Canyon	
Wickenburg 85358	Sells	85634	Hayden	
85390	Topawa	85639	Maricopa	
Wittmann 85361	Tucson	85701	Oracle	
Youngtown 85363		85702	Picacho	
		85703	San Manuel	
MOHAVE		85705	San Tan Valley	
Bullhead City 86442		85706		
		85710	Superior	
Chloride 86431		85711	Valley Farms	
Colorado City 86021		85712		
Golden Valley 86413		85713	SANTA CRUZ	
Kingman 86401		85714	Nogales	85621
		85715	Patagonia	85624
		85716	Rio Rico	85628
Lake Havasu City		85717		85648
86403		85719		85662
86404			Tubac	85646



APPENDIX H: NUMBER OF CHILDREN <6 YEARS WHO HAD A VENOUS OR CAPILLARY TEST, 2019

County	Total Children Screened
Arizona	61,391*
Apache	229
Cochise	1,625
Coconino	984
Gila	529
Graham	272
Greenlee	69
La Paz	93
Maricopa	35,751
Mohave	1,576
Navajo	849
Pima	8,282
Pinal	3,495
Santa Cruz	948
Yavapai	1,369
Yuma	2,994

*2,326 screened children from 2019 were missing address information and were not counted at the county level.



APPENDIX I: PREVALENT CASES OF CHILDREN <6 YEARS OLD IDENTIFIED WITH AN EBL, 2019

County	Total children with EBL	Children with 5-9 µg/dL EBL	Children with ≥10 µg/dL EBL
Arizona	298	230	68
Apache	7	5	2
Cochise	15	12	3
Coconino	10	5	5
Gila	9	6	3
Graham	4	3	1
Greenlee	0	0	0
La Paz	1	1	0
Maricopa	162	126	36
Mohave	8	7	1
Navajo	8	7	1
Pima	55	42	13
Pinal	6	6	0
Santa Cruz	3	3	0
Yavapai	2	2	0
Yuma	8	5	3



APPENDIX J: PERCENT OF CHILDREN <6 YEARS SCREENED WHO HAD AN EBL, 2019

County	Percent Positivity
Arizona	0.5*
Apache	3.1
Cochise	0.9
Coconino	1.0
Gila	1.7
Graham	1.5
Greenlee	0.0
La Paz	1.1
Maricopa	0.5
Mohave	0.5
Navajo	0.9
Pima	0.7
Pinal	0.2
Santa Cruz	0.3
Yavapai	0.1
Yuma	0.3

*2,326 screened children from 2019 were missing address information and were not counted at the county level.



APPENDIX L: SCREENING RATES OF CHILDREN <6 YEARS OLD IN HIGH-RISK CENSUS TRACTS (%), 2019

County	At both 12 & 24 months*	At 12 months only*	At 24 months only*
Arizona	9.9[†]	29.2[†]	19.0[†]
Apache	2.1 [†]	7.2 [†]	5.1 [†]
Cochise	17.2	33.0	27.6
Coconino	0.2	12.8 [†]	6.7 [†]
Gila	4.7 [†]	33.1 [†]	15.3 [†]
Graham	0.9	4.0	4.4
Greenlee	2.2	13.6	6.7
La Paz	4.2	12.9	9.2
Maricopa	10.5 [†]	29.3 [†]	19.5 [†]
Mohave	8.5	29.7 [†]	19.6 [†]
Navajo	4.7	20.6 [†]	11.2 [†]
Pima	11.0	33.0	19.8
Pinal	9.5	27.6 [†]	17.6 [†]
Santa Cruz	8.3	44.4 [†]	26.2 [†]
Yavapai	12.5 [†]	29.8	20.5 [†]
Yuma	7.3	32.0 [†]	19.2 [†]

* Children living in a high-risk zip code were recommended a blood lead test at both 12 & 24 months of age. Screening rates for 12 & 24 month and 24 months only indicators were calculated for children who were 24 months old in 2019. Screening rates for the 12 months only indicator was calculated for children who were 12 months old in 2019.

† Significantly different from 2018 rate ($p < 0.05$)



APPENDIX K: SCREENING RATES OF CHILDREN <6 YEARS OLD IN HIGH-RISK ZIP CODES (%), 2019

County	At both 12 & 24 months*	At 12 months only*	At 24 months only*
Arizona	9.3[†]	26.6[†]	16.8[†]
Apache	0.9	3.7	2.6
Cochise	18.6	36.2	28.7
Coconino	4.0	12.7	7.1
Gila	2.8	18.6	6.6
Graham	1.5	7.6	9.0
Greenlee	3.2	20.6	9.5
La Paz	0.0	28.6 [†]	0.0
Maricopa	9.0 [†]	26.1 [†]	16.8 [†]
Mohave	9.1	32.2 [†]	20.6 [†]
Navajo	3.1	12.2	7.0
Pima	11.0 [†]	32.6 [†]	19.2
Pinal	8.2	22.6	13.0
Santa Cruz	8.1	44.5 [†]	26.1 [†]
Yavapai	16.2 [†]	35.4	23.9 [†]
Yuma	12.6	28.0	17.2

* Children living in a high-risk zip code were recommended a blood lead test at both 12 & 24 months of age. Screening rates for 12 & 24 month and 24 months only indicators were calculated for children who were 24 months old in 2019. Screening rates for the 12 months only indicator was calculated for children who were 12 months old in 2019.

† Significantly different from 2018 rate ($p < 0.05$)



APPENDIX M: INCIDENT CASES AND RATES OF CHILDREN <6 YEARS OLD IDENTIFIED WITH AN EBLL ≥ 5 $\mu\text{g/dL}$, 2019

County	Newly identified cases*	Case rates per 10,000
Arizona	236	4.4
Apache	7	10.6 [†]
Cochise	12	12.5
Coconino	10	10.1
Gila	5	14.4
Graham	3	8.2
Greenlee	0	0.0
La Paz	1	8.8
Maricopa	119	3.5
Mohave	5	4.4
Navajo	7	7.0
Pima	50	7.0
Pinal	6	2.0
Santa Cruz	3	7.7
Yavapai	1	0.9
Yuma	7	3.9

† Significantly different from 2018 rate ($p < 0.05$)



APPENDIX M: INCIDENT CASES AND RATES OF CHILDREN <6 YEARS OLD IDENTIFIED WITH AN EBLL 5-9.9 µg/dL, 2019

County	Newly identified cases*	Case rates per 10,000
Arizona	180	3.4
Apache	5	7.6 [†]
Cochise	9	9.3
Coconino	5	5.1
Gila	3	8.6
Graham	2	5.5
Greenlee	0	0.0
La Paz	1	8.8
Maricopa	93	2.7
Mohave	4	3.6
Navajo	6	6.0
Pima	38	5.3
Pinal	6	2.0
Santa Cruz	3	7.7
Yavapai	1	0.9 [†]
Yuma	4	2.2

† Significantly different from 2018 rate ($p < 0.05$)



APPENDIX M: INCIDENT CASES AND RATES OF CHILDREN <6 YEARS OLD IDENTIFIED WITH AN EBLL ≥ 10 $\mu\text{g/dL}$, 2019

County	Newly identified cases*	Case rates per 10,000
Arizona	56	1.1
Apache	2	3.0 [†]
Cochise	3	3.1 [†]
Coconino	5	5.1 [†]
Gila	2	5.8 [†]
Graham	1	2.7 [†]
Greenlee	0	0.0
La Paz	0	0.0
Maricopa	26	0.8
Mohave	1	0.9
Navajo	1	1.0 [†]
Pima	12	1.7
Pinal	0	0.0 [†]
Santa Cruz	0	0.0
Yavapai	0	0.0 [†]
Yuma	3	1.7

† Significantly different from 2018 rate ($p < 0.05$)



APPENDIX N: DEMOGRAPHICS OF CASES, 2019

Race/Ethnicity	Count	Percent
American Indian or Alaska Native	27	9.1
Asian	11	3.7
Black	12	4.0
Hispanic	65	21.8
Other	6	2.0
White, non-Hispanic	40	13.4
Unknown	137	46.0

Age (in Years)	Male		Female	
	Count	Percent	Count	Percent
0 - <1	9	3.0	8	2.7
1	52	17.5	61	20.5
2	33	11.1	38	12.7
3	19	6.4	16	5.4
4	21	4.1	24	8.0
5	9	3.0	8	2.7

