2022 Annual Report for Childhood Blood Lead Testing in Alabama

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A special thanks to the staff of the Alabama Department of Public Health (ADPH), local health departments, clinical laboratories, and healthcare providers for their continued efforts in collecting, reporting, and analyzing blood lead testing data. Your dedication to protecting the health and well-being of Alabama's children is deeply valued and commendable.

We also acknowledge the families who have participated in blood lead testing and prevention programs. Thank you for your cooperation and trust. Your participation helps create a safer, healthier future for all children in Alabama.

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Introduction

The Purpose of ACLPPP

The ACLPPP was implemented to identify and provide support services and resources to lead-exposed children. The ACLPPP partners with the Alabama Medicaid Agency, the Centers for Disease Control and Prevention (CDC), and healthcare providers throughout Alabama to meet the following goals:

- Decrease the occurrence of lead poisoning in children less than 6 years old.
- Increase blood lead testing rates among children less than 6 years old.
- Increase awareness of the adverse health effects of lead poisoning in children.
- Provide educational materials throughout Alabama through clinic visits, conferences, presentations, and community events.
- Link lead-exposed children to additional health, developmental, and financial resources as needed.
- Ensure data quality for the data collected in the Healthy Homes and Lead Poisoning Surveillance System (HHLPSS).

Lead Health Hazards

According to the CDC, children less than 6 years old are more at risk of developing serious health conditions due to lead exposure. The ACLPPP recommends children receive a blood lead test at 1 and 2 years old. In addition, if a child has been exposed to lead, the CDC recommends scheduling an appointment with the healthcare provider to be screened for lead.[1]

Some of the health effects of lead exposure are:

- Learning and behavioral problems.
- Hearing loss.
- Issues with growth and development.
- Damage to the central nervous system.

Sources for Lead

Various sources can expose a child to lead. The following are examples of the four main potential sources.

- Homes built before 1978 are more likely to have lead paint. Exposure to lead may occur when the paint starts to peel and crack. If there is lead in the paint, a risk assessment can be completed to assess whether it is a risk to the child.[2]
- Exterior lead paint, leaded gasoline deposits, and living near industrial factories can increase lead levels in the soil. Per CDC recommendations, children should avoid contact with the soil and not eat vegetables and fruits grown in this environment.[3]
- Before 1986, the pipes used for homes contained lead. For homes built after 1986, continued use of older service lines can lead to corrosion in the pipes causing lead to enter the drinking water.[4]
- Certain jobs and hobbies involve working with lead-based products. According to the CDC, examples of job-related lead exposure would include working on stained glass, metal equipment parts, batteries, bullets, and circuits. Parents may unknowingly expose their children to lead after coming home from their jobs.[5]

Blood Test Monitoring

Testing for lead poisoning can be completed by either a capillary or a venous test. A capillary test involves a finger prick to determine if the blood lead level exceeds the recommended blood lead reference value. Even though capillary tests provide quicker results, the CDC recommends a venous test following a positive capillary blood lead result to confirm it is not a false positive.[6]

Target Population

Lead testing is focused on Alabama residents less than 6 years old. Per the recommendations by the ACLPPP, at least 2 lead screenings are recommended for children less than 2 years old, the first at the 12-month (1-year) check-up and the second at the 24-month (2-year) check-up. To meet this goal, the ACLPPP provides education, outreach, and technical assistance to improve provider practice and test reporting.

Elevated Blood Lead Levels (EBLL)

In 2018, the ACLPPP changed the lead standards for EBLL from 10 ug/dL to 5 ug/dL based on CDC recommendations. On October 28, 2021, the CDC updated the blood lead reference value (BLRV) from 5 ug/dL to 3.5 ug/dL. During this timeframe, there may be an excess number of false positives reported due to the following:

- Faulty point-of-care equipment.
- Incorrect specimen collection procedures.
- Beginning with year 2022 data, the ACLPPP aligned its guidance with the CDC's updated BLRV of 3.5 ug/dL. This change means that children with a blood lead test result of 3.5 ug/dL or greater now qualify for public health interventions. Consequently, the numbers in this report may not be comparable to historical data. Presumptive cases do not include children who only had a venous test at or above the BLRV. Referrals are made for both presumptive and confirmed cases.

Methods

Topics for Data Analysis

Lead data was extracted from the HHLPSS on November 26, 2025. The numbers in this report refer to children less than 6 years old. Any child less than age 6 who resided out of state or had a missing county of residence was excluded from the maps presented. The topics discussed in this report include the following:

- Characteristics of the children being tested for lead.
- Characteristics of the children who have met the standards for EBLL.
- Potential impact of housing on EBLL.
- Venous confirmation within 3 months of the first capillary positive test result.

Selected Years

In the year-to-year comparison graphs, the ACLPPP looked specifically at children less than 6 years old who completed a lead test between 2013 and 2022. The ACLPPP developed maps based on 2022 lead data and 2022 American Community Survey (ACS) 5-Year population estimates from the United States (US) Census. Using these data sources will showcase the areas within Alabama with the highest and lowest lead testing rates.

Data Disclaimer

Based on CDC reports, the ACLPPP has noted that fewer than 6 lead cases may yield unreliable percentages. Even though the percentages are provided in the maps, it is worth noting that any changes in the case numbers for lead moving forward can significantly impact the percentages. Under-reporting lead testing results could impact the results shown in the following maps and tables.

Blood Testing Overview

Alabama

Year-by-Year Comparisons

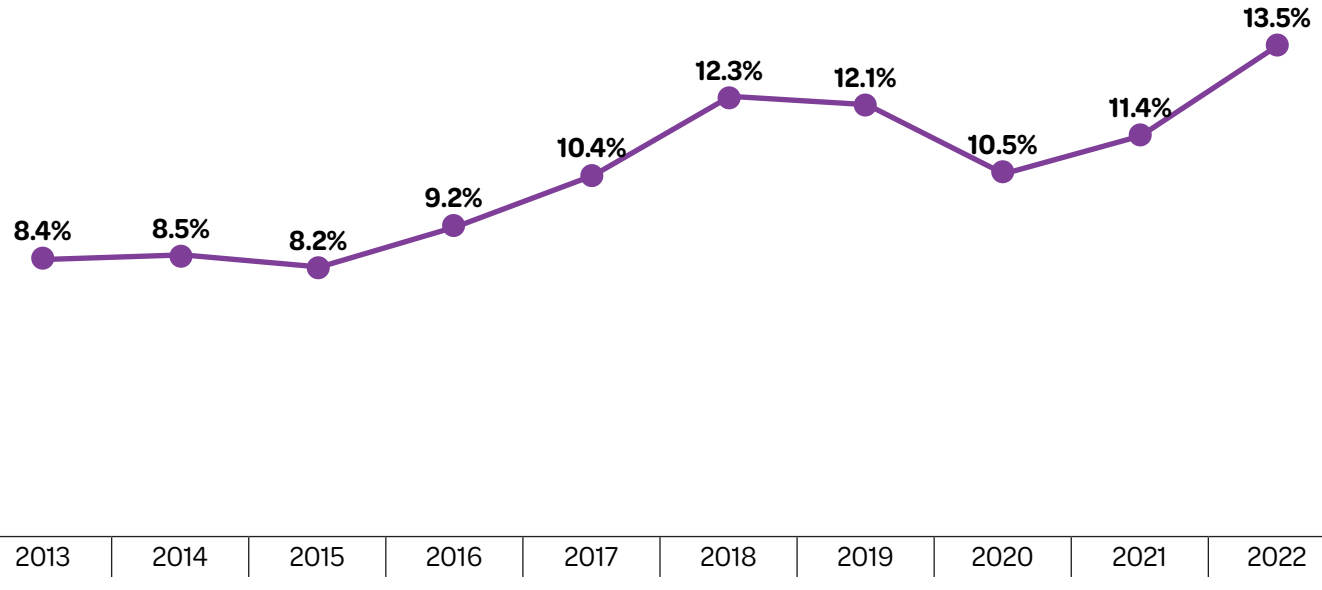
Looking at lead testing year-to-year in Table 1 and Figure 1, there was an increase starting in 2017. The 2020 testing percentage slightly decreased, possibly due to the COVID-19 pandemic. The lead testing percentage increased from **11.4 percent (n=40,226/353,923)** in 2021 to **13.5 percent (n=47,528/350,945)** in 2022.

Table 1. Yearly Blood Lead Testing for Alabama Children Less than 6 Years Old (2013 - 2022)[1]

Year	Population[2]	Tested[1]	%Tested
2013	361,676	30,489	8.4
2014	358,751	30,629	8.5
2015	354,387	29,236	8.2
2016	352,320	32,454	9.2
2017	350,394	36,544	10.4
2018	349,199	42,974	12.3
2019	350,820	42,478	12.1
2020	351,064	36,739	10.5
2021	353,923	40,226	11.4
2022	350,945	47,528	13.5

Sources: 1 Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program
2 American Community Survey 5-Year Population Estimates 2013 – 2022, Table B09001

Figure 1. Annual Percentage of Alabama Children Less than 6 Years Old Tested for Lead (2013 - 2022)



Sources: 1 Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program
2 American Community Survey 5-Year Population Estimates 2013 – 2022, Table B09001

Comparisons by Child Characteristics

- Table 2 highlights the characteristics of children less than 6 years old who received a lead screening. Following the protocol set by the ACLPPP, at least 2 lead screenings should be completed among children who are aged 2 or older. Cumulatively, **23.9 percent (n=41,401/173,027)** of the children who were 2 years old or younger and known to be Alabama residents completed a lead screening.
- Lead testing was completed at relatively the same rate between male and female children.

Table 2. Characteristics of Alabama Children Less than 6 Years Old Being Tested for Lead, 2022[1]

Characteristic		Population[2]	Tested[1]	%Tested
Child Age	Age <1	57,666	7,063	12.2
	Age 1	57,244	18,482	32.3
	Age 2	58,117	15,856	27.3
	Age 3	59,125	2,971	5.0
	Age 4	60,899	2,242	3.7
	Age 5	61,437	914	1.5
Child Sex	Female	173,600	22,785	13.1
	Male	180,888	23,580	13.0
	Unknown	N/A	1,163	N/A
Total Children <6		**354,488**	**47,528**	**13.4**

Sources: 1 Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program
2 2022 US Census Population Estimates, Table SC-EST2022-SYASEX-01
Note: Due to different methodologies, the estimates reported above will be slightly different than what was reported in Table 1

Alabama Counties

Of those tested, over **80 percent (81.5 percent; n=38,717/47,528)** had a known current county of residence. Maps 1-3 highlight which counties had the largest areas of reach and those with the highest lead testing percentages. Table 5 presents a detailed breakdown of lead testing for each county.

Counties with the Largest Areas of Reach

As shown in Map 1, 8 counties had 10,000 or more children less than 6 years old. In Table 3, the HHLPSS data estimated how many children less than 6 years old were screened for lead testing in these 6 counties.

Table 3. Counties with the Largest Areas of Reach Among Children Less than 6 Years Old, 2022[1]

County	Tested[1]	Total[2]	%Tested
Jefferson	4,598	50,519	9.1
Mobile	4,568	30,965	14.8
Montgomery	2,398	18,106	13.2
Madison	1,540	26,708	5.8
Lee	1,438	11,181	12.9
Tuscaloosa	1,282	15,367	8.3
Baldwin	937	14,972	6.3
Shelby	842	14,546	5.8

Sources: 1 Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program
2 2022 US Census Population Estimates, Table B09001

Counties with the Highest Lead Testing Percentages

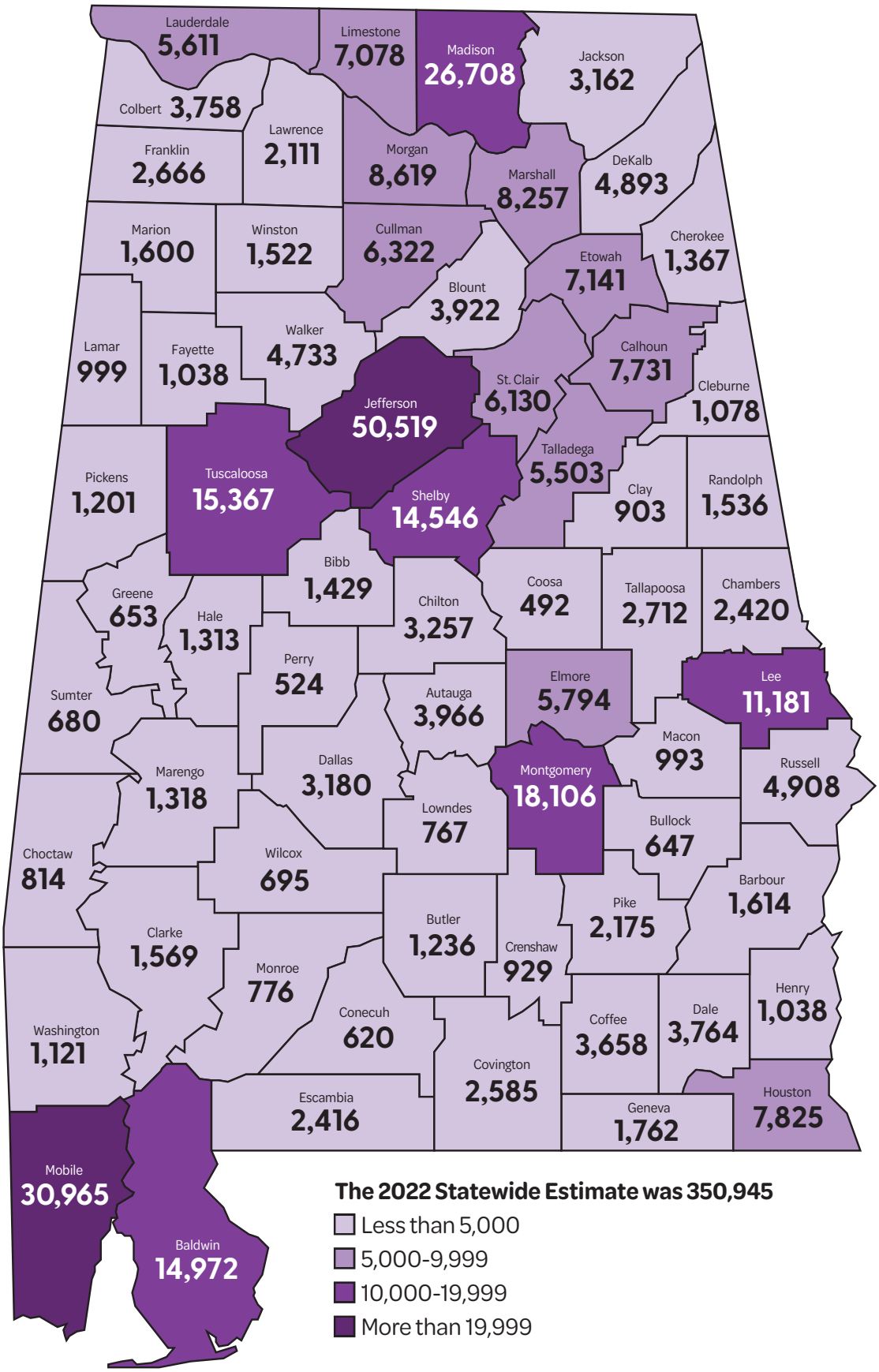
As shown in Maps 2-3, 17 counties had lead testing percentages higher than 15 percent. Table 4 shows the breakdown.

Table 4. Counties with the Highest Lead Testing Percentages Among Children Less than 6 Years Old, 2022[1]

County	Tested[1]	Total[2]	%Tested
Bullock	187	647	28.9
Macon	254	993	25.6
Barbour	378	1,614	23.4
Pike	500	2,175	23.0
Geneva	393	1,762	22.3
Houston	1,694	7,825	21.6
Dale	787	3,764	20.9
Coffee	759	3,658	20.7
Jackson	628	3,162	19.9
Henry	203	1,038	19.6
DeKalb	923	4,893	18.9
Randolph	283	1,536	18.4
Clarke	265	1,569	16.9
Washington	185	1,121	16.5
Colbert	582	3,758	15.5
Chambers	373	2,420	15.4
Franklin	402	2,666	15.1

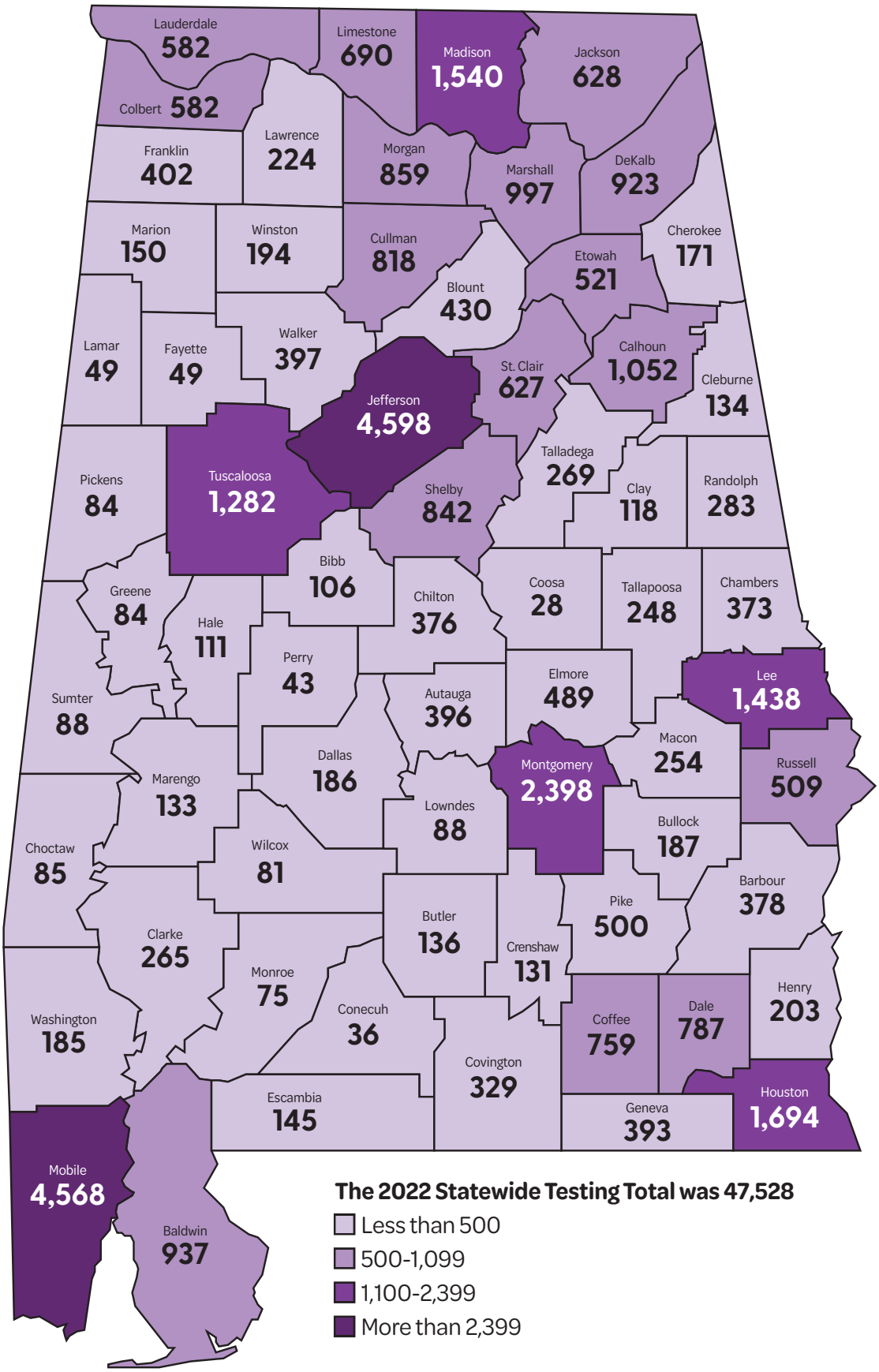
Sources: 1 Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program
2 2022 US Census Population Estimates, Table B09001

Map 1. Population of Alabama Children Less than 6 Years Old by County of Residence, 2022



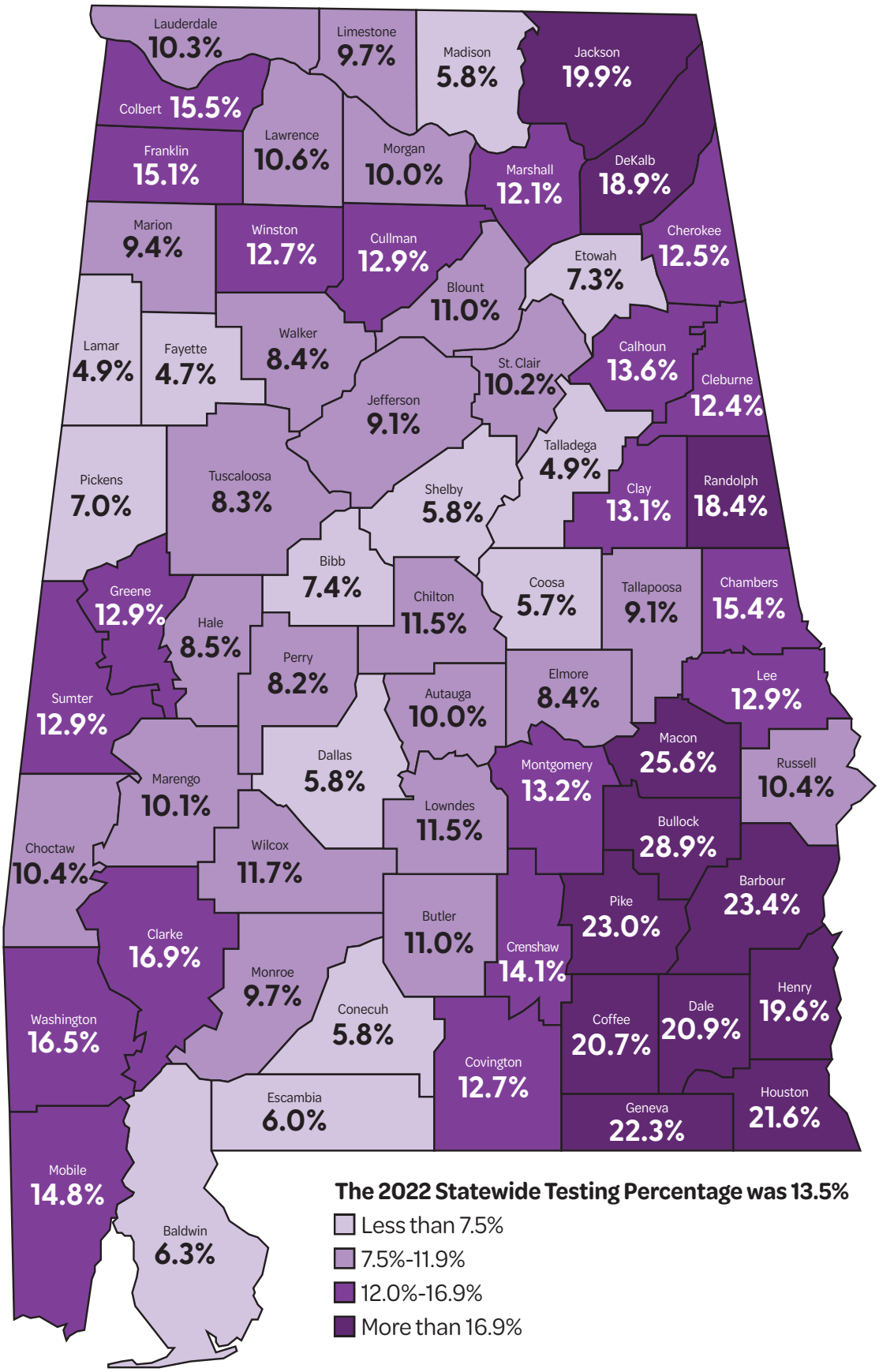
Source: 2022 US Census Population Estimates, Table B09001

Map 2. Number of Alabama Children Less than 6 Years Old Tested for Lead, by County of Residence, 2022



Source: Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program

Map 3. Percentage of Alabama Children Less than 6 Years Old Tested for Lead by County of Residence, 2022



Sources: 1 Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program
2 2022 US Census Population Estimates, Table B09001

Table 5. County Blood Lead Testing for Children Less than 6 Years Old, 2022[1]							
County	**Population[2]**	**Tested[1]**	**% Tested**	**County**	**Population[2]**	**Tested[1]**	**% Tested**
Alabama	**350,945**	**47,528**	**13.5**	Henry	1,038	203	19.6
Autauga	3,966	396	10.0	Houston	7,825	1,694	21.6
Baldwin	14,972	937	6.3	Jackson	3,162	628	19.9
Barbour	1,614	378	23.4	Jefferson	50,519	4,598	9.1
Bibb	1,429	106	7.4	Lamar	999	49	4.9
Blount	3,922	430	11.0	Lauderdale	5,661	582	10.3
Bullock	647	187	28.9	Lawrence	2,111	224	10.6
Butler	1,236	136	11.0	Lee	11,181	1,438	12.9
Calhoun	7,731	1,052	13.6	Limestone	7,078	690	9.7
Chambers	2,420	373	15.4	Lowndes	767	88	11.5
Cherokee	1,367	171	12.5	Macon	993	254	25.6
Chilton	3,257	376	11.5	Madison	26,708	1,540	5.8
Choctaw	814	85	10.4	Marengo	1,318	133	10.1
Clarke	1,569	265	16.9	Marion	1,600	150	9.4
Clay	903	118	13.1	Marshall	8,257	997	12.1
Cleburne	1,078	134	12.4	Mobile	30,965	4,568	14.8
Coffee	3,658	759	20.7	Monroe	776	75	9.7
Colbert	3,758	582	15.5	Montgomery	18,106	2,398	13.2
Conecuh	620	36	5.8	Morgan	8,619	859	10.0
Coosa	492	28	5.7	Perry	524	43	8.2
Covington	2,585	329	12.7	Pickens	1,201	84	7.0
Crenshaw	929	131	14.1	Pike	2,175	500	23.0
Cullman	6,322	818	12.9	Randolph	1,536	283	18.4
Dale	3,764	787	20.9	Russell	4,908	509	10.4
Dallas	3,180	186	5.8	St. Clair	6,130	627	10.2
DeKalb	4,893	923	18.9	Shelby	14,546	842	5.8
Elmore	5,794	489	8.4	Sumter	680	88	12.9
Escambia	2,416	145	6.0	Talladega	5,503	269	4.9
Etowah	7,141	521	7.3	Tallapoosa	2,712	248	9.1
Fayette	1,038	49	4.7	Tuscaloosa	15,367	1,282	8.3
Franklin	2,666	402	15.1	Walker	4,733	397	8.4
Geneva	1,762	393	22.3	Washington	1,121	185	16.5
Greene	653	84	12.9	Wilcox	695	81	11.7
Hale	1,313	111	8.5	Winston	1,522	194	12.7

Sources: 1 Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program
2 2022 US Census Population Estimates, Table B09001

Note: Of the statewide lead testing total, 8,811 children less than 6 years old did not have a known current county of residence.

Elevated Blood Lead Levels (EBLL)

Lead Standard Comparisons

Through CDC guidance, the ACLPPP revised its EBLL reference value twice: from 10 ug/dL to 5 ug/dL in 2018, and from 5 ug/dL to 3.5 ug/dL in 2022. Due to the changes in EBLL standards, EBLL percentages among children less than 6 years old increased gradually from 2013 to 2022. During this timeframe, the ACLPPP also observed an increase in statewide lead testing for children less than 6 years old. This upward trend can be linked to increased community outreach and care coordination services. The sections below highlight the impact of EBLL detection with the standard changes as shown in Table 6 and Figure 2.

Initial Reference Value (2013 – 2017)

Between 2013 and 2017, the ACLPPP set the EBLL reference value to 10 ug/dL or more. Cumulatively, the EBLL percent was **0.6 percent (n=956/159,352)**. Annually, the percentage of children less than 6 years old meeting this standard decreased from **0.8 percent (n=231/30,489)** in 2013 to **0.5 percent (n=165/36,544)** in 2017.

First Reference Value Change (2018 – 2021)

The ACLPPP modified its protocol for the EBLL reference value to 5 ug/dL or greater. Cumulatively, the EBLL percent was **1.8 percent (n=2,925/162,417)**. EBLL detection for children less than 6 years old fluctuated annually starting at **1.8 percent (n=777/42,974)** in 2018 and ending at **1.6 percent (n=642/40,226)** in 2021. Lowering the EBLL detection threshold to ≥5 ug/dL during 2018 – 2021 resulted in a threefold increase compared with ≥10 ug/dL used from 2013 – 2017.

Second Reference Value Change (2022)

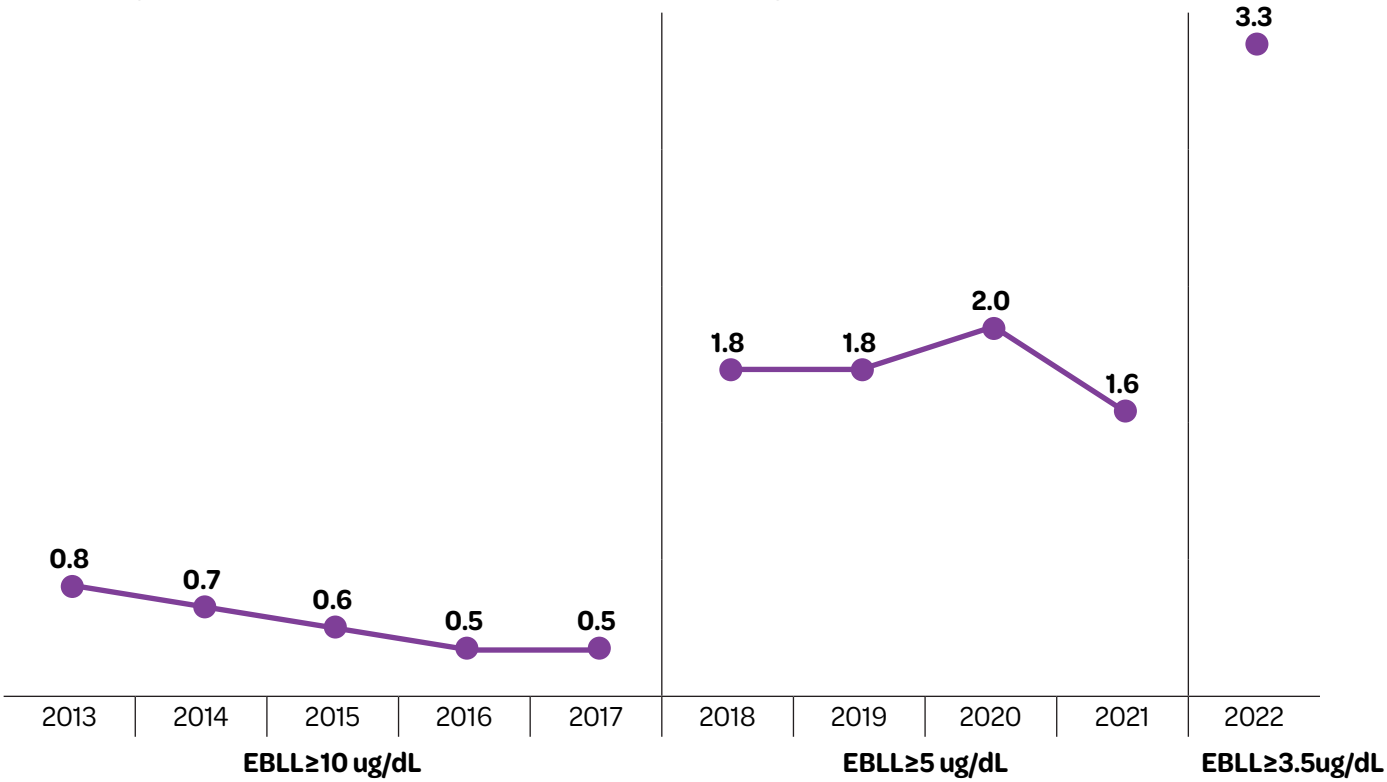
The ACLPPP modified its EBLL reference value again to 3.5 ug/dL or greater. Similar to what was observed during the first standard change, there was also an increase in children less than 6 years old having an EBLL, with **3.3 percent (n=1,583/47,528**) meeting the new threshold of ≥3.5 ug/dL.

Table 6. Annual EBLL Among Children Less than 6 Years Old, (2013-2022)[1]

EBLL Standard	Year	Tested	EBLL	EBLL
≥10 ug/dL	2013	30,489	231	0.8
	2014	30,629	215	0.7
	2015	29,236	175	0.6
	2016	32,454	170	0.5
	2017	36,544	165	0.5
≥5 ug/dL	2018	42,974	777	1.8
	2019	42,478	766	1.8
	2020	36,739	740	2.0
	2021	40,226	642	1.6
≥3.5 ug/dL	2022	47,528	1,583	3.3

Source: 1 Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program

Figure 2. Trend of Children Less than 6 Years Old Meeting EBLL Standards in Alabama, 2013 - 2022



Source: 1 Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program

Impact of Older Housing on Potential Lead Exposure

The 2022 ACS 5-Year population estimates captured the county distribution of houses constructed prior to 1970. As shown in Map 4, approximately **27.3 percent (n=626,640/2,296,920)** of housing units statewide were constructed prior to 1970. Close to half **(49.2 percent; n=33/67)** of Alabama counties had a higher percentage of homes constructed prior to 1970 than the statewide average. Houses of this age typically would use lead-based paint, which can increase the likelihood of childhood lead exposure when it either peels or cracks.

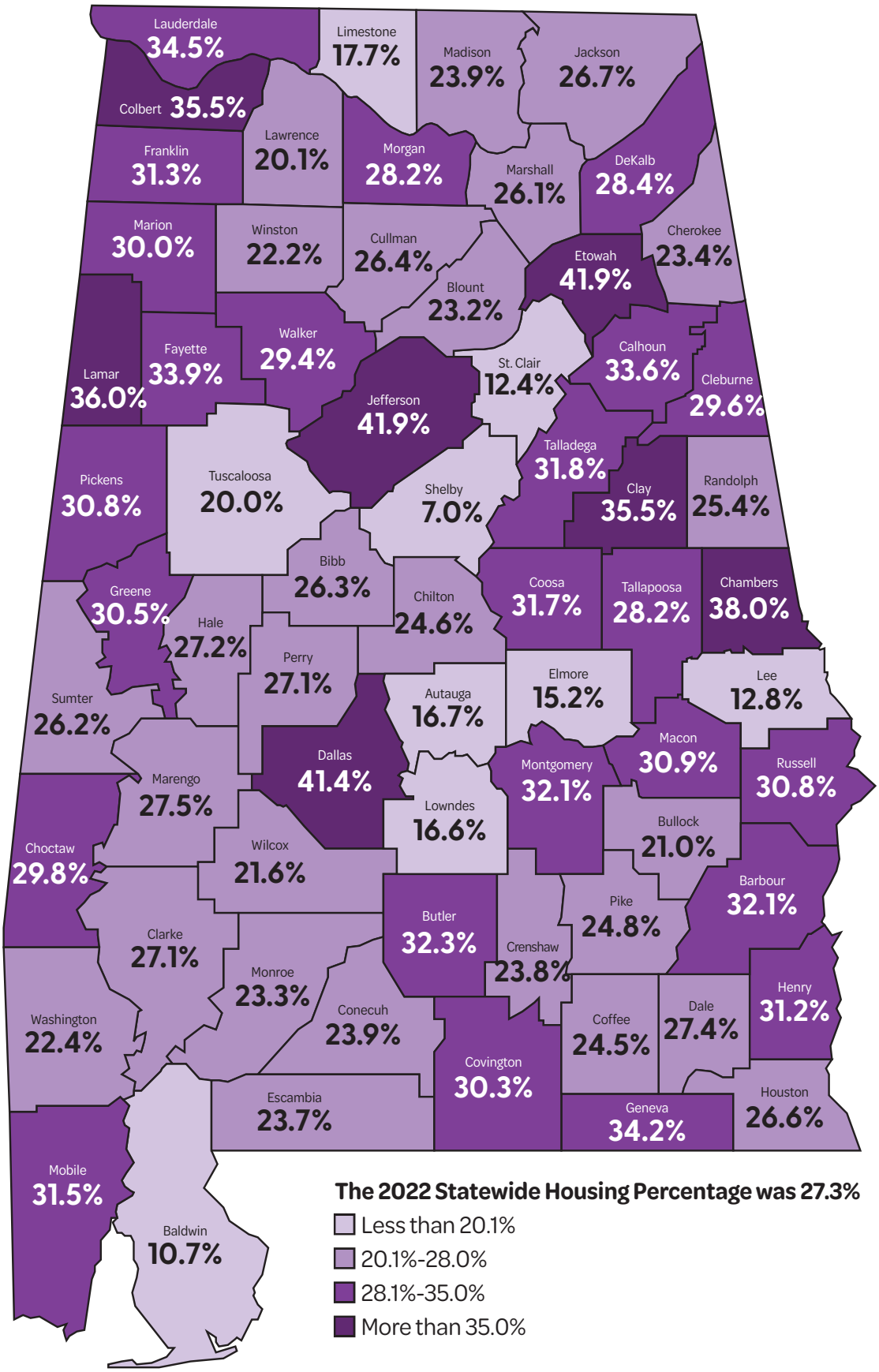
With this data source, the ACLPPP can assess the impact of counties having a higher distribution of older homes by comparing to the occurrence of EBLL among children less than 6 years old. Table 7 highlighted the five counties with the highest percentages of older homes. At least a third of households in the top five counties were built prior to 1970. From these counties, at least 5 percent of children less than 6 years old either met or exceeded the EBLL threshold of 3.5 ug/dL. Dallas County had the highest occurrence of EBLL confirmed for children less than 6 years old. The ACLPPP also includes Table 8, which presents a detailed breakdown of the county distribution of homes constructed before 1970.

Table 7. Potential Impact of Houses Constructed Before 1970 on EBLL for Children Less than 6 Years Old

Counties	% Older housing[2]	% EBLL[1]
Etowah	41.9	5.8
Jefferson	41.9	5.9
Dallas	41.4	8.6
Chambers	38.0	5.1
Lamar	36.0	6.1

Sources: 1 Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program
2 2022 Selected Housing Characteristics Estimates, Table DP04

Map 4. Percentage Distribution of Alabama Houses Constructed Before 1970 by County, 2022



Source: 2022 Selected Housing Characteristics Estimates, Table DP04

Table 8. Percent of Houses Constructed Before 1970 by County of Residence, 2022[1]							
County	**Older Houses**	**Total Households**	**% Older Houses**	**County**	**Older Houses**	**Total Households**	**% Older Houses**
Alabama	**626,640**	**2,296,920**	**27.3**	Henry	2,842	9,110	31.2
Autauga	4,087	24,457	16.7	Houston	13,133	49,339	26.6
Baldwin	13,403	125,113	10.7	Jackson	6,606	24,706	26.7
Barbour	3,752	11,673	32.1	Jefferson	129,112	308,428	41.9
Bibb	2,375	9,046	26.3	Lamar	2,557	7,104	36.0
Blount	5,715	24,677	23.2	Lauderdale	15,438	44,705	34.5
Bullock	954	4,541	21.0	Lawrence	3,069	15,270	20.1
Butler	3,176	9,835	32.3	Lee	9,663	75,473	12.8
Calhoun	17,854	53,167	33.6	Limestone	7,543	42,616	17.7
Chambers	6,243	16,427	38.0	Lowndes	799	4,823	16.6
Cherokee	3,436	14,687	23.4	Macon	2,987	9,662	30.9
Chilton	4,811	19,546	24.6	Madison	40,923	171,313	23.9
Choctaw	2,127	7,138	29.8	Marengo	2,705	9,834	27.5
Clarke	3,180	11,733	27.1	Marion	4,245	14,143	30.0
Clay	2,498	7,040	35.5	Marshall	10,769	41,328	26.1
Cleburne	2,016	6,818	29.6	Mobile	58,208	184,845	31.5
Coffee	5,926	24,155	24.5	Monroe	2,381	10,214	23.3
Colbert	9,844	27,709	35.5	Montgomery	33,900	105,488	32.1
Conecuh	1,540	6,451	23.9	Morgan	15,040	53,324	28.2
Coosa	1,918	6,045	31.7	Perry	1,080	3,985	27.1
Covington	5,653	18,644	30.3	Pickens	2,686	8,714	30.8
Crenshaw	1,559	6,553	23.8	Pike	3,978	16,049	24.8
Cullman	10,336	39,182	26.4	Randolph	3,156	12,412	25.4
Dale	6,263	22,829	27.4	Russell	8,428	27,382	30.8
Dallas	7,859	18,992	41.4	St. Clair	4,728	38,133	12.4
DeKalb	8,708	30,716	28.4	Shelby	6,312	89,612	7.0
Elmore	5,592	36,787	15.2	Sumter	1,656	6,329	26.2
Escambia	3,960	16,715	23.7	Talladega	12,102	38,088	31.8
Etowah	19,861	47,412	41.9	Tallapoosa	6,426	22,777	28.2
Fayette	2,647	7,816	33.9	Tuscaloosa	20,228	101,330	20.0
Franklin	4,368	13,940	31.3	Walker	8,867	30,127	29.4
Geneva	4,279	12,494	34.2	Washington	1,744	7,779	22.4
Greene	1,304	4,271	30.5	Wilcox	1,146	5,314	21.6
Hale	2,030	7,464	27.2	Winston	2,909	13,091	22.2

Source: 1 2022 Selected Housing Characteristics Estimates, Table DP04

Comparisons by Child Characteristics for EBLL

- Table 9 highlights the characteristics of children less than 6 years old who tested positive for EBLL. With younger children being susceptible to adverse health outcomes from lead exposure, the ACLPPP recommends lead screening for children within the 1-to-2-year age group. Cumulatively, this age group contributed **72.2 percent (n=34,338/47,528)** of the 2022 lead screenings completed for children less than 6 years old. Within the 1-to-2-year age group, **3.3 percent (n=1,143/34,338)** had either met or exceeded the EBLL threshold of 3.5 ug/dL. Lead screenings gradually declined with increasing age.
- There was no significant difference in EBLL across genders.

Table 9. Characteristics of Alabama Children Less than 6 Years Old Being Tested for Lead, 2022[1]

Characteristic		Tested	EBLL	% EBLL
Child Age	Age <1	7,063	137	1.9
	Age 1	18,482	511	2.8
	Age 2	15,856	632	4.0
	Age 3	2,971	147	4.9
	Age 4	2,242	109	4.9
	Age 5	914	47	5.1
Child Sex	Female	22,785	685	3.0
	Male	23,580	893	3.8
	Unknown	1,163	5	0.4
Total Children <6		**47,528**	**1,583**	**3.3**

Source: 1 Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program

Alabama Counties for EBLL

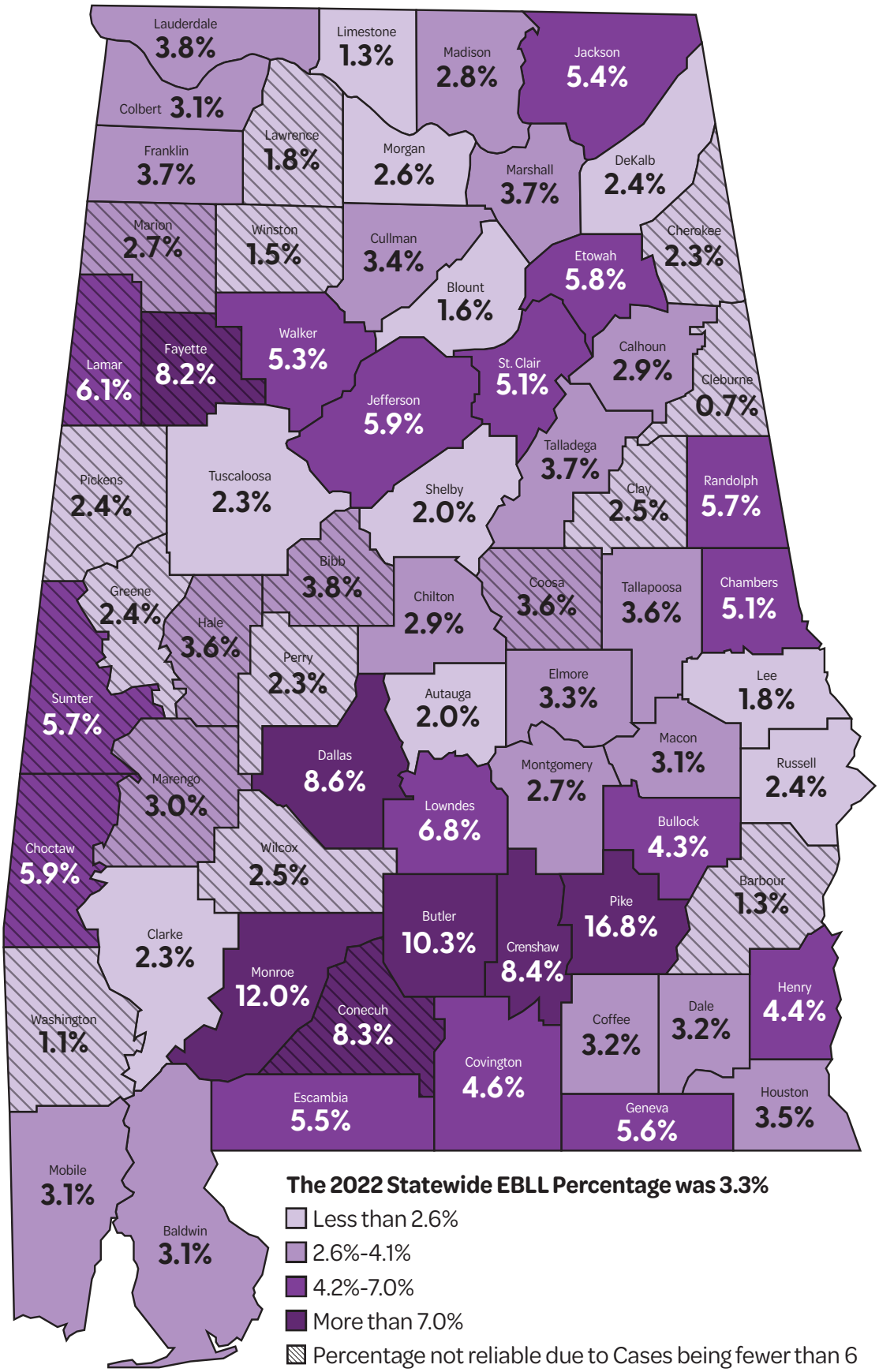
The following section shows the EBLL county distribution for children less than 6 years old. Of those who tested positive for EBLL, **90.9 percent (n=1,439/1,583)** had a known current county of residence. As shown in Map 4, 21 counties had to be censored because the total number of EBLL cases was fewer than 6. Of those not censored, over half **(54.3 percent; n=25/46)** had an EBLL percentage above the statewide percentage. Among the counties not censored, the top five counties with the highest EBLL percentages are shown in Table 10. Table 11 was included to show how many children less than 6 years old were tested and how many children under 6 years had an EBLL for each county.

Table 10. Counties with the Highest EBLL Percentage Rates Among Children Less than 6 Years Old, 2022[1]

County	Tested	EBLL	% EBLL
Pike	500	84	16.8
Monroe	75	9	12.0
Butler	136	14	10.3
Dallas	186	16	8.6
Crenshaw	131	11	8.4

Source: 1 Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program

Map 5. Percent of Tested Alabama Children Less than 6 Years Old with EBLL by County, 2022



Source: Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program

Table 11. Percent of Tested Alabama Children Less than 6 Years Old with EBLL by County of Residence, 2022[1]

County	Tested	EBLL	% EBLL	County	Tested	EBLL	% EBLL
Alabama	**47,528**	**1,583**	**3.3**	Henry	203	9	4.4
Autauga	396	8	2.0	Houston	1,694	60	3.5
Baldwin	937	29	3.1	Jackson	628	34	5.4
Barbour	378	5	1.3	Jefferson	4,598	271	5.9
Bibb	106	4	3.8	Lamar	49	3	6.1
Blount	430	7	1.6	Lauderdale	582	22	3.8
Bullock	187	8	4.3	Lawrence	224	4	1.8
Butler	136	14	10.3	Lee	1,438	26	1.8
Calhoun	1,052	30	2.9	Limestone	690	9	1.3
Chambers	373	19	5.1	Lowndes	88	6	6.8
Cherokee	171	4	2.3	Macon	254	8	3.1
Chilton	376	11	2.9	Madison	1,540	43	2.8
Choctaw	85	5	5.9	Marengo	133	4	3.0
Clarke	265	6	2.3	Marion	150	4	2.7
Clay	118	3	2.5	Marshall	997	37	3.7
Cleburne	134	1	0.7	Mobile	4,568	141	3.1
Coffee	759	24	3.2	Monroe	75	9	12.0
Colbert	582	18	3.1	Montgomery	2,398	64	2.7
Conecuh	36	3	8.3	Morgan	859	22	2.6
Coosa	28	1	3.6	Perry	43	1	2.3
Covington	329	15	4.6	Pickens	84	2	2.4
Crenshaw	131	11	8.4	Pike	500	84	16.8
Cullman	818	28	3.4	Randolph	283	16	5.7
Dale	787	25	3.2	Russell	509	12	2.4
Dallas	186	16	8.6	Shelby	842	17	2.0
DeKalb	923	22	2.4	St. Clair	627	32	5.1
Elmore	489	16	3.3	Sumter	88	5	5.7
Escambia	145	8	5.5	Talladega	269	10	3.7
Etowah	521	30	5.8	Tallapoosa	248	9	3.6
Fayette	49	4	8.2	Tuscaloosa	1,282	29	2.3
Franklin	402	15	3.7	Walker	397	21	5.3
Geneva	393	22	5.6	Washington	185	2	1.1
Greene	84	2	2.4	Wilcox	81	2	2.5
Hale	111	4	3.6	Winston	194	3	1.5

Source: 1 Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program
Note: Percentage may not be reliable among those counties with fewer than 6 EBLL cases
Of the statewide EBLL total, 144 children less than 6 years old did not have a known current county of residence.

Venous Confirmatory Testing

Overall

As recommended by the CDC and the ACLPPP, a child should receive a venous test as confirmation due to its accuracy following a positive capillary test. Between 2013 and 2022, 3,405 children received their first positive capillary test result. The ACLPPP continues to aim for a venous confirmatory test to be completed within 3 months of a positive capillary test. Of these, **61.4 percent (n=2,089/3,405)** had a confirmatory venous test within 3 months of their first positive capillary test. As mentioned in the EBLL data section, the ACLPPP revised its EBLL reference value twice: from ≥10 ug/dL to ≥5 ug/dL in 2018, and from ≥5 ug/dL to ≥3.5 ug/dL in 2022. The sections below highlight how this impacted venous confirmatory testing as shown in Table 12 and Figure 3.

Initial Reference Value (2013 – 2017)

Between 2013 and 2017, the ACLPPP observed fluctuations annually in the proportion of children less than 6 years old receiving a venous test as additional confirmation for EBLL. Compared to the later changes in the reference values, the ACLPPP observed a much smaller number of children meeting the initial reference value. Cumulatively, **52.8 percent (n=266/504)** of children less than 6 years old had an additional venous test within 3 months to confirm their EBLL status. Annually, the percentage of children less than 6 years old meeting this standard improved slightly from **45.6 percent (n=62/136)** in 2013 to **48.0 percent (n=36/75)** in 2017.

First Reference Value Change (2018 – 2021)

With the BLRV lowered to ≥5 ug/dL, the ACLPPP observed a notable increase in the number of children less than 6 years old meeting the EBLL definition during the first capillary test. Cumulatively, **57.9 percent (n=1,001/1,729)** of children less than 6 years old had an additional venous test within 3 months to confirm their EBLL status. Annually, the percentage of children less than 6 years old meeting this standard notably improved from **37.0 percent (n=171/462)** in 2018 to **70.9 percent (n=266/375)** in 2021.

Second Reference Value Change (2022)

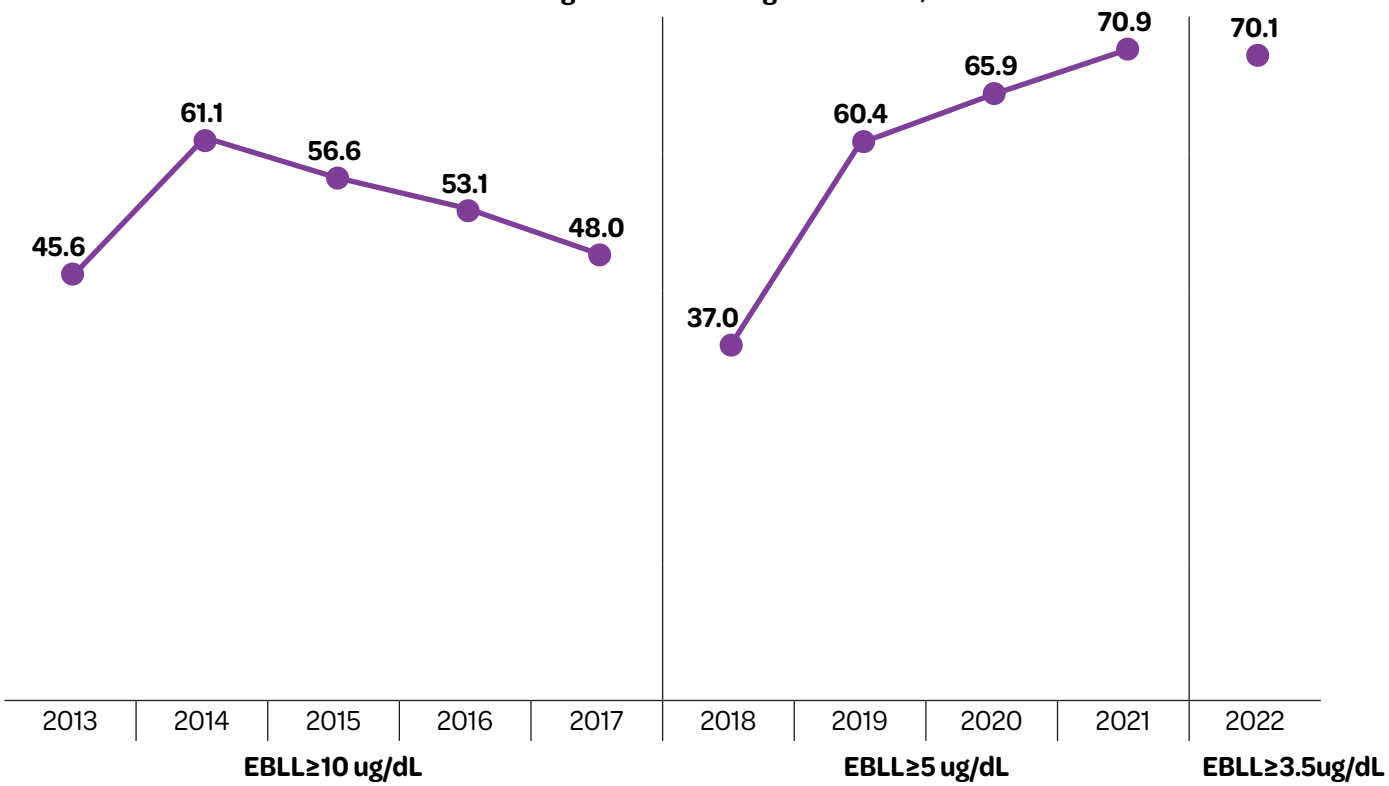
Similar to what was observed during the first standard change, there was also a notable increase in children less than 6 years old where the first capillary test met the revised lead standard of ≥3.5 ug/dL. Through the efforts made by the ACLPPP and its partners, **70.1 percent (n=822/1,172)** received a confirmatory venous test within the first 3 months after the first positive capillary test.

Table 12. Number of Confirmations through Venous Testing within 3 Months for Alabama Children Less than 6 Years Old, (2013-2022)[1]

EBLL Standard	Year	First Capillary EBLL	Venous Confirmatory Test	% Venous
≥10 ug/dL	2013	136	62	45.6
	2014	113	69	61.1
	2015	99	56	56.6
	2016	81	43	53.1
	2017	75	36	48.0
≥5 ug/dL	2018	462	171	37.0
	2019	437	264	60.4
	2020	455	300	65.9
	2021	375	266	70.9
≥3.5 ug/dL	2022	1,172	822	70.1

Source: 1 Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program

Figure 3. Trend of Children Less than 6 Years Old Meeting CDC EBLL Standards Confirmation through Venous Testing in Alabama, 2013 - 2022



Alabama Counties with Venous Confirmatory Testing

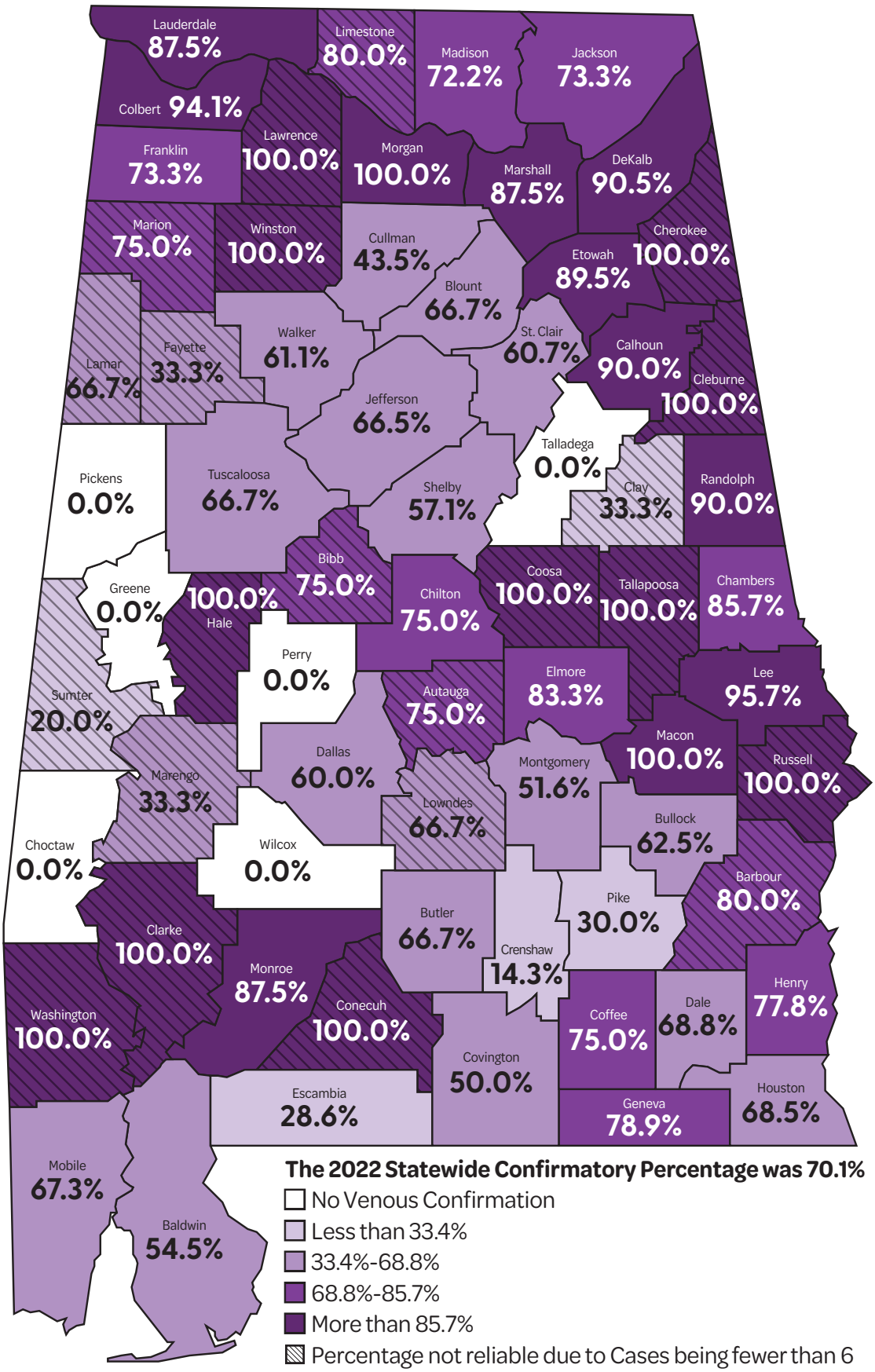
In 2022, 39 counties had at least 6 children less than 6 years old with at least one positive capillary test. Of these, Table 13 highlighted the counties with venous confirmatory testing of the first positive capillary result being either 60 percent or below. Map 6 and Table 14 highlighted the progress each county made in 2022 through confirmatory venous testing within 3 months after the first positive capillary test.

Table 13. Counties with Venous Confirmatory Percent (≤ 60%) within 3 Months for Children Less than 6 Years Old, 2022[1]

County	First Capillary EBLL	Venous Confirmatory Test	% Venous
Crenshaw	7	1	14.3
Escambia	7	2	28.6
Pike	60	18	30.0
Cullman	23	10	43.5
Covington	8	4	50.0
Montgomery	31	16	51.6
Baldwin	22	12	54.5
Shelby	14	8	57.1
Dallas	10	6	60.0

Source: 1 Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program

Map 6. Percent of Venous Confirmatory Testing of First Capillary Positive EBLL within 3 Months for Children Less than 6 Years Old by County, 2022



Source: Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program

Table 14. Percent of Venous Confirmatory Testing of First Capillary Positive EBLL within 3 Months for Children Less than 6 Years Old by County, 2022[1]

County	First Capillary EBLL	Venous Test	% Venous	County	First Capillary EBLL	Venous Test	% Venous
Alabama	**1,172**	**822**	**70.1**	Henry	9	7	77.8
Autauga	4	3	75.0	Houston	54	37	68.5
Baldwin	22	12	54.5	Jackson	30	22	73.3
Barbour	5	4	80.0	Jefferson	218	145	66.5
Bibb	4	3	75.0	Lamar	3	2	66.7
Blount	6	4	66.7	Lauderdale	16	14	87.5
Bullock	8	5	62.5	Lawrence	2	2	100.0
Butler	12	8	66.7	Lee	23	22	95.7
Calhoun	20	18	90.0	Limestone	5	4	80.0
Chambers	14	12	85.7	Lowndes	3	2	66.7
Cherokee	3	3	100.0	Macon	8	8	100.0
Chilton	8	6	75.0	Madison	36	26	72.2
Choctaw	1	0	-	Marengo	3	1	33.3
Clarke	2	2	100.0	Marion	4	3	75.0
Clay	3	1	33.3	Marshall	32	28	87.5
Cleburne	1	1	100.0	Mobile	52	35	67.3
Coffee	20	15	75.0	Monroe	8	7	87.5
Colbert	17	16	94.1	Montgomery	31	16	51.6
Conecuh	3	3	100.0	Morgan	17	17	100.0
Coosa	1	1	100.0	Perry	0	0	-
Covington	8	4	50.0	Pickens	0	0	-
Crenshaw	7	1	14.3	Pike	60	18	30.0
Cullman	23	10	43.5	Randolph	10	9	90.0
Dale	16	11	68.8	Russell	5	5	100.0
Dallas	10	6	60.0	Shelby	14	8	57.1
DeKalb	21	19	90.5	St. Clair	28	17	60.7
Elmore	12	10	83.3	Sumter	5	1	20.0
Escambia	7	2	28.6	Talladega	2	0	-
Etowah	19	17	89.5	Tallapoosa	5	5	100.0
Fayette	3	1	33.3	Tuscaloosa	21	14	66.7
Franklin	15	11	73.3	Walker	18	11	61.1
Geneva	19	15	78.9	Washington	2	2	100.0
Greene	0	0	-	Wilcox	0	0	-
Hale	4	4	100.0	Winston	2	2	100.0

Source: 1 Alabama Department of Public Health, Alabama Childhood Lead Poisoning Prevention Program
Note: There were 128 unknown current address counties for children less than 6 years old having a positive capillary test and 104 with a follow-up venous test completed within 3 months.

Data Limitations

Residence County
In 2022, an estimated 47,528 unique children less than 6 years old were tested for lead. Of these, **81.5 percent (n=38,717/47,528)** of their initial lead screening had a valid county of residence. To reduce the number of missing records in future reports, the ACLPPP will review the current address information to determine whether the residence county information can be completed.

Errors occurred when the child's address did not match the correct county. The data team has reviewed each occurrence to ensure data accuracy.

Underreporting
There is a possibility of underreporting lead screening results, which may not accurately portray the burden of lead poisoning within Alabama. In response to this potential problem, the ACLPPP has completed outreach and education to over 2,000 providers throughout Alabama. These providers include pediatric clinics, family clinics, and occupational health practices.

Medicaid Status
The data has shown that Medicaid insurance status has not been consistently entered into the HHLPSS system. From the first lead screening, only **35.0 percent (n=16,655/47,528)** of children less than 6 years old had Medicaid information available. Lead screenings with missing Medicaid information may be due to labs or doctor's offices not reporting this information. Moving forward, the ACLPPP continues its collaboration with the case management data source as an alternative to identify how many lead-affected Medicaid children are being served.

Duplicate Entries
The ACLPPP used the Statistical Analysis System Program to identify duplicate records based on patient identifiers. Since a child may have more than one patient identifier, some records reflect the same child being associated with different counties. The data science team sends monthly reports for data cleanup of duplicate entries.

Submission of Data
The data science team extracted this data from the HHLPSS on November 26, 2025. The data in this report may differ from that reported by other organizations because the deduplication process might have been completed differently. During the deduplication process, the ACLPPP used the first blood lead test completed within each calendar year.

False Positives
Faulty point-of-care equipment and incorrect specimen collection procedures may increase false positives within this time frame. The ACLPPP will not be able to identify the number of potential false positives that occurred between 2013 and 2022.

The protocol set by the ACLPPP involves using a confirmatory venous test to eliminate potential false positives from a capillary test. Encouraging the doctor offices to adopt this protocol remains a challenge. The ACLPPP is moving in the correct direction, with approximately **70.1 percent (n=822/1,172)** of children less than 6 years old having a confirmatory venous test within 3 months of the initial positive capillary test result.

The ACLPPP observed the above issues concerning the 2022 data.

Moving Forward

The programmatic activities to improve lead testing protocol, increase awareness, and reduce childhood lead poisoning within Alabama include:

- Ongoing education and outreach to medical providers.
- Participation in community health events and professional conferences.
- Utilization of case management to educate and assist lead-affected families.
- Referral to environmental services to identify specific lead hazards.
- Partnership with the Center for Health Statistics to utilize the race information captured on birth certificates for children being screened for lead.

References

[1] Centers for Disease Control and Prevention: Lead Exposure Symptoms and Complications.
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