



The City of Benton Harbor Blood Lead Testing Report, 2010-2022

March 2024

Executive Summary

Blood lead test results were analyzed for children under 6 years old living in the City of Benton Harbor during the period of 2010 to 2022:

- The percentage of children who received a blood lead test in the City of Benton Harbor ranged from a high of 34.5 percent in 2010 to a low of 14.7 percent in 2022. A higher percentage of children in the City of Benton Harbor received a blood lead test compared to both Berrien County and Michigan across nearly all years. The percentage of children who received a blood lead test decreased across all three geographies in 2020 and 2021 during the COVID-19 pandemic.
- In the City of Benton Harbor, the percentage of children with an elevated blood lead level (EBLL ≥ 3.5 $\mu\text{g}/\text{dL}$) among tested children dropped from 30.0 percent in 2010 (N=134 children with an EBLL) to 9.2 percent in 2015 (N=23 children with an EBLL). Over the next seven years, the percentage of children with an elevated blood lead level (EBLL ≥ 3.5 $\mu\text{g}/\text{dL}$) among tested children fluctuated between roughly 5 percent and 13 percent. The percentage of children with an elevated blood lead level (EBLL ≥ 3.5 $\mu\text{g}/\text{dL}$) among tested children in 2022 (12.1 percent, 15 children) was the highest since 2016 (12.6 percent, 42 children with an EBLL). In the same period the corresponding percentages of children with EBLLs in Berrien County and Michigan both decreased comparatively steadily.
- The percentage of children with an EBLL among tested children in the City of Benton Harbor was higher than the corresponding percentages for Berrien County and Michigan overall across nearly all years.
- Although the percentage of EBLLs among tested children in the City of Benton Harbor rose year-over-year in 2021 and 2022, interpretation of the rise is complicated by the fluctuations in the number of children tested each year.
- The annual number of children with elevated blood lead levels among tested children in the City of Benton Harbor has dropped from 134 children in 2010 to fewer than 25 each year since 2018.

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Purpose

In 2021, the Berrien County Health Department requested that the Michigan Department of Health and Human Services (MDHHS) analyze the results of blood lead testing in the City of Benton Harbor from 2010 through 2021. The results of this analysis with regards to blood lead testing and elevated blood lead levels are presented here.

Background

Blood Lead Testing

Exposure to lead is measured by blood tests, where a laboratory determines how much lead is in the blood. This amount is called a blood lead level (BLL). A blood lead test determines if lead is in the blood, but it does not identify the source of the lead or the duration of exposure. Blood lead tests are performed on capillary blood samples (from a finger stick) or venous blood samples (from a blood draw). Capillary tests are often used because they are easier to do, but they are less accurate than venous tests.¹

Blood lead testing is critical to early intervention for child lead exposure, allowing referral to services and actions to prevent additional exposure and increased risk of harm. Children under the age of 6 are the primary focus of testing because they are most likely to experience negative health effects from lead. Blood lead testing is required for Michigan children enrolled in Medicaid programs² and the Women, Infants, and Children (WIC) program.³ MDHHS recommends blood lead testing for children if there is concern for lead exposure.⁴

MDHHS applies the CDC Blood Lead Reference value of 3.5 micrograms per deciliter ($\mu\text{g}/\text{dL}$) to identify children with unusually high child blood lead levels compared to the rest of the age-appropriate U.S. population (i.e. elevated blood lead level (EBLL)).⁵⁻⁶ An elevated capillary blood lead level initiates actions to educate the family to immediately minimize risk of ongoing exposure and for a confirmatory venous blood lead test to verify the elevated level. A venous (confirmed) EBLL initiates nursing case management and referral for environmental investigation and abatement services for families that qualify. These services assess the growth and development of the child, identify, and remove lead sources, recommend periodic retesting to monitor the child's blood lead level and recommend additional services as needed.⁴

Methods

Data Sources

The source of population data for children under 6 years of age was the American Community Survey 2020 five-year estimates, Table B09001 POPULATION OF CHILDREN.⁷ Blood lead testing and result data were sourced from the Michigan Blood Lead Surveillance Database on 6/30/2022.

Inclusion Criteria

Blood lead test results were included if:

1. The blood sample collection date was January 1, 2010, through December 31, 2022, and
2. The child was under 6 years old at the time of the blood sample collection, and
3. The residential address information for the child at the time of blood sample collection was a Michigan county, city, or ZIP code.

Blood lead test result records were excluded from the analysis if they were missing the date of blood sample collection, the child's date of birth, all three geographic characteristics (county, city, and ZIP code) or had a non-Michigan address.

Children can be tested more than once for lead exposure. To report the number of children who were tested in a year (instead of the number of tests overall), it is necessary to select one test to represent each child (deduplication). If a child had multiple tests within a calendar year, the highest BLL obtained from the most accurate test, a venous test, was included. If no venous test was performed, the highest BLL obtained from a capillary test was included. If the only test

results were of unknown test type, then the highest of these results was included. Unknown samples were assumed to be capillary samples.

Geographies

Addresses reported with blood lead test results were geocoded to county, census blocks, and latitude/longitude. Geocoding was successful for 96.7 percent of the addresses. Those in Berrien County were subsequently geocoded to minor civil division. Addresses were attributed to the City of Benton Harbor when minor civil division was geocoded to 2607520, which delineates the municipal boundaries.

Results are reported for Michigan, Berrien County, and the City of Benton Harbor. These categories are not mutually exclusive. All test results reported for the City of Benton Harbor are also included in Berrien County totals; test results for Berrien County are included in Michigan totals.

Analysis

Following deduplication, the annual percentage of children tested for blood lead was estimated by dividing the number of children with a blood lead test by the estimated population of children, then multiplying by 100. Among all children who had a blood lead test, the annual percentage of children with an EBLL was calculated by dividing the number of children with a blood lead test result $\geq 3.5\mu\text{g}/\text{dL}$ by the total number of children who were tested and multiplying by 100.

EBLLs were additionally analyzed by test type, either venous (VEBLL) or capillary (CEBLL). The percent venous EBLL is the number of children who had at least 1 venous EBLL test result divided by the number of children under 6 who have had at least 1 EBLL test from any sample type, multiplied by 100. Given the higher reliability of a venous test compared to a capillary screening test, VEBLL is a more conservative estimate of the total population of children with EBLL, since it only includes those who had a confirmatory venous blood test and not an elevated capillary test alone. Charts with percentages are included in the [Results](#) section below, and tables with all numbers and percentages are in the [Appendix](#).

For a more in-depth description of the methods used by MDHHS's blood lead surveillance program, see the latest CLPPP annual data report at Michigan.gov/MILeadSafe by clicking the heading 'Learn About Lead' and selecting 'Lead Data and Reports' from the menu.

Results

Blood Lead Testing

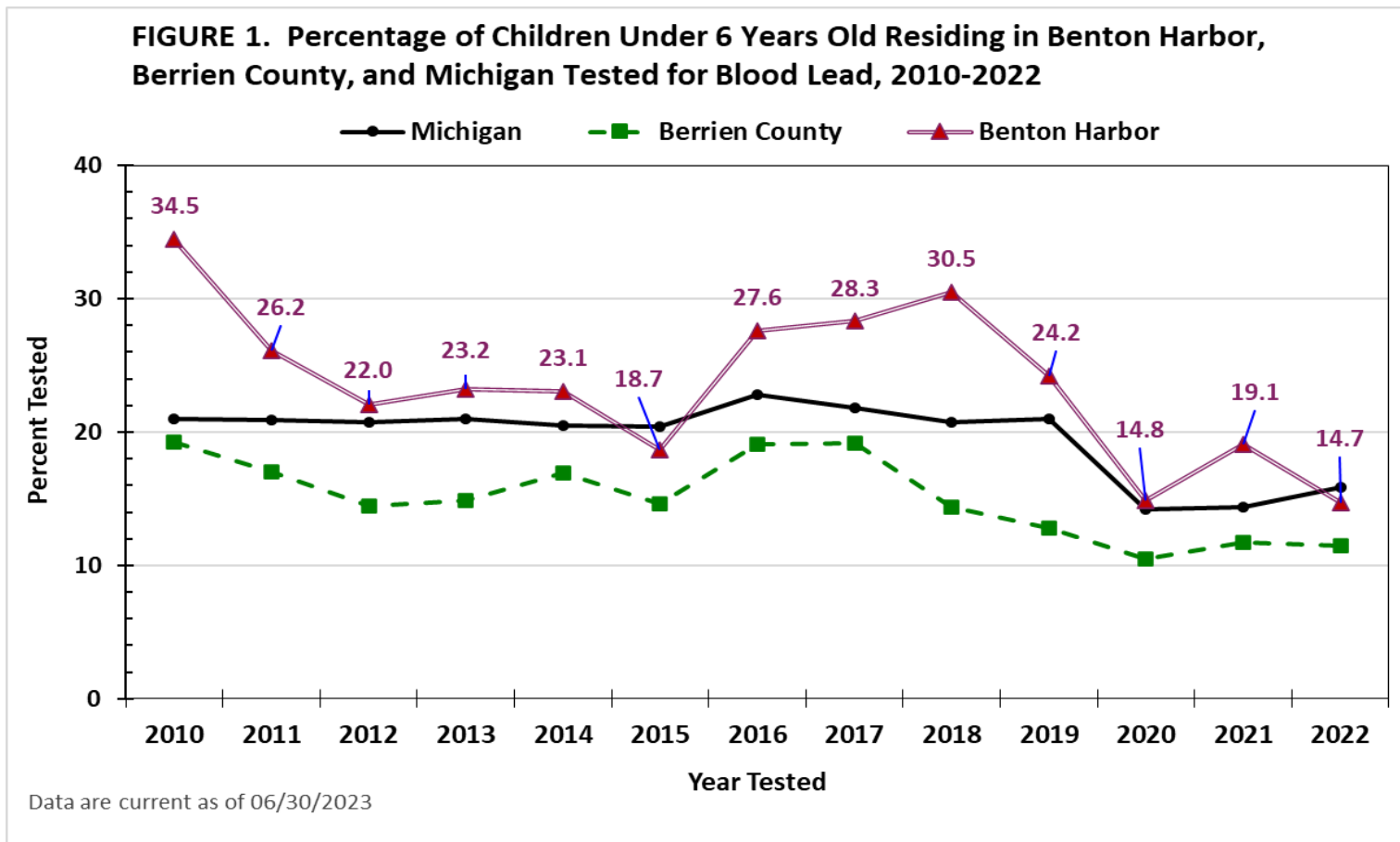
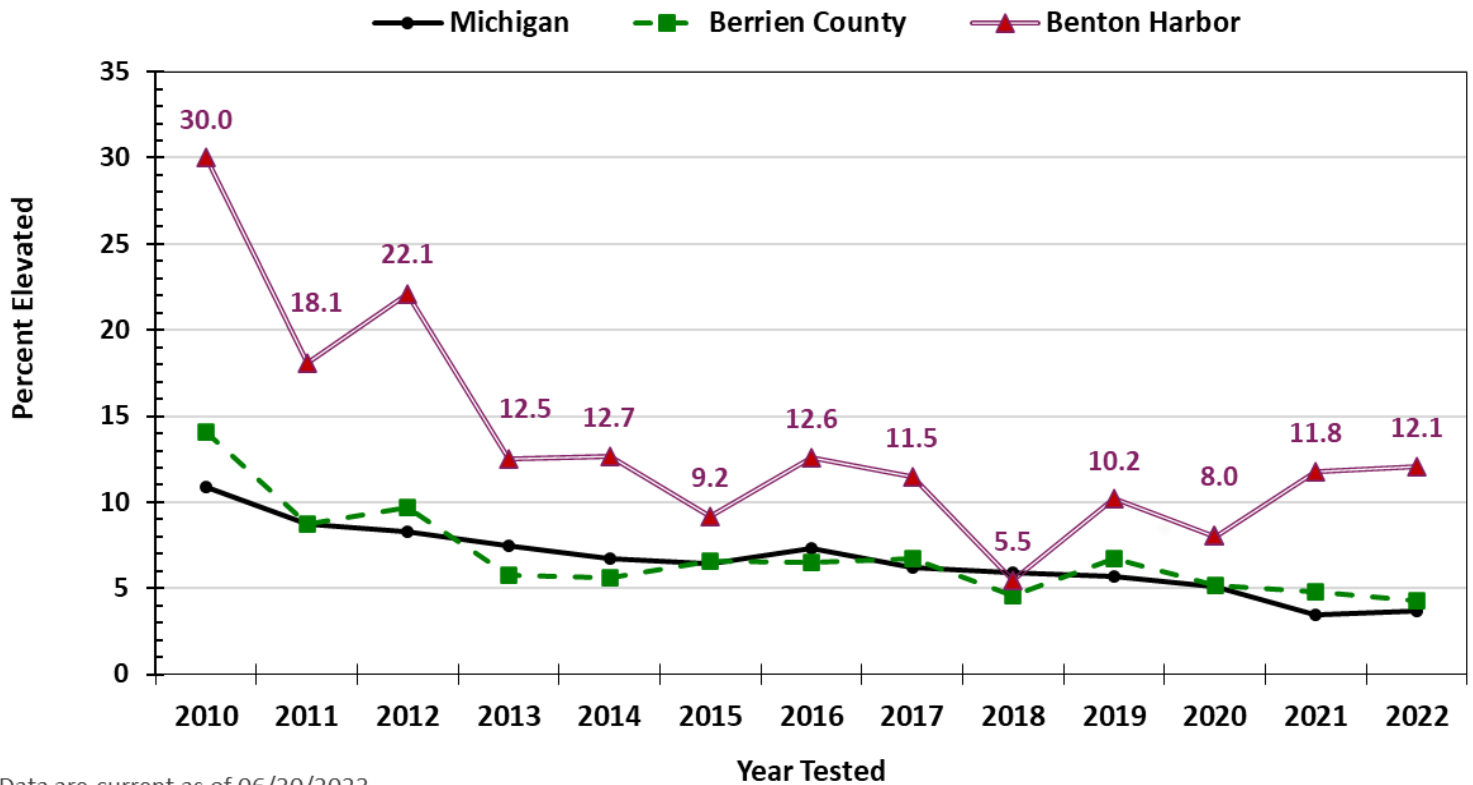


Figure 1 shows the percentage of children tested under the age of 6 in the City of Benton Harbor, Berrien County, and Michigan overall. The percentage of children tested in the City of Benton Harbor ranged from a high of 34.5 percent in 2010 to a low of 14.7 percent in 2022 (Figure 1, [Table A1](#)). The city’s testing rate is higher than those for Michigan and Berrien County for nearly all years ([Tables A2](#) and [A3](#)). The City of Benton Harbor’s testing rate dropped during the COVID-19 pandemic, from 24.2 percent in 2019 to 14.8 percent and 19.1 percent in 2020 and 2021, respectively. Similar drops in testing during these years are seen in Michigan and Berrien County. In 2022, testing rates in the city decreased to 14.7% while rates remained unchanged across the county and state.

FIGURE 2. Percentage of Tested Children Under 6 Years Old Residing in Benton Harbor, Berrien County, and Michigan with Elevated Blood Lead Levels ($\geq 3.5 \mu\text{g/dL}$), 2010-2022



Data are current as of 06/30/2023

Figure 2 shows the annual percentage of EBLLs across all blood lead tests among children tested in the City of Benton Harbor, Berrien County, and Michigan overall. The percentage of tested children under 6 years old with any elevated test result is likely an overestimate of the percentage of children with true elevated blood lead levels, since this includes unconfirmed elevated capillary test results that may not be truly elevated.

Between 2010-2022, the annual percentage of tested children with an EBLL in the City of Benton Harbor exceeded the percentage for both Berrien County and Michigan (except for 2018, in which the percentage for the state of Michigan was higher at 5.9 percent). In general, there was an overall decline in the percentage of EBLL in the City of Benton Harbor across all 12 years: the highest percentage of EBLL in the City of Benton Harbor was in 2010 and the lowest was in 2018, at 30.0 percent and 5.5 percent, respectively. (Figure 2) The number of children with an EBLL has followed a similar pattern, generally decreasing from 134 children in 2010 to 10 in 2020 and then increasing to 19 and 15 in 2021 and 2022, respectively. (Table A1) The percentage of EBLLs in Berrien County and Michigan also generally decreased during this period. (Tables A2 and A3) In 2019, the percentage of EBLLs in the City of Benton Harbor increased to 10.2 percent, and despite the drop to 8.0 percent in 2020, increased again to 11.5 and 12.1 percent in 2021 and 2022, respectively, the highest percentages since 2016. Berrien County’s EBLL percentages increased in 2019 (6.7 percent) but dropped the next two years to 4.3 percent in 2022. Michigan’s percentages consistently declined from 2010 to 2021.

FIGURE 3. Percentage of Tested Children Under 6 Years Old Residing in Benton Harbor, Berrien County, and Michigan with Venous Elevated Blood Lead Levels ($\geq 3.5 \mu\text{g/dL}$), 2010-2022

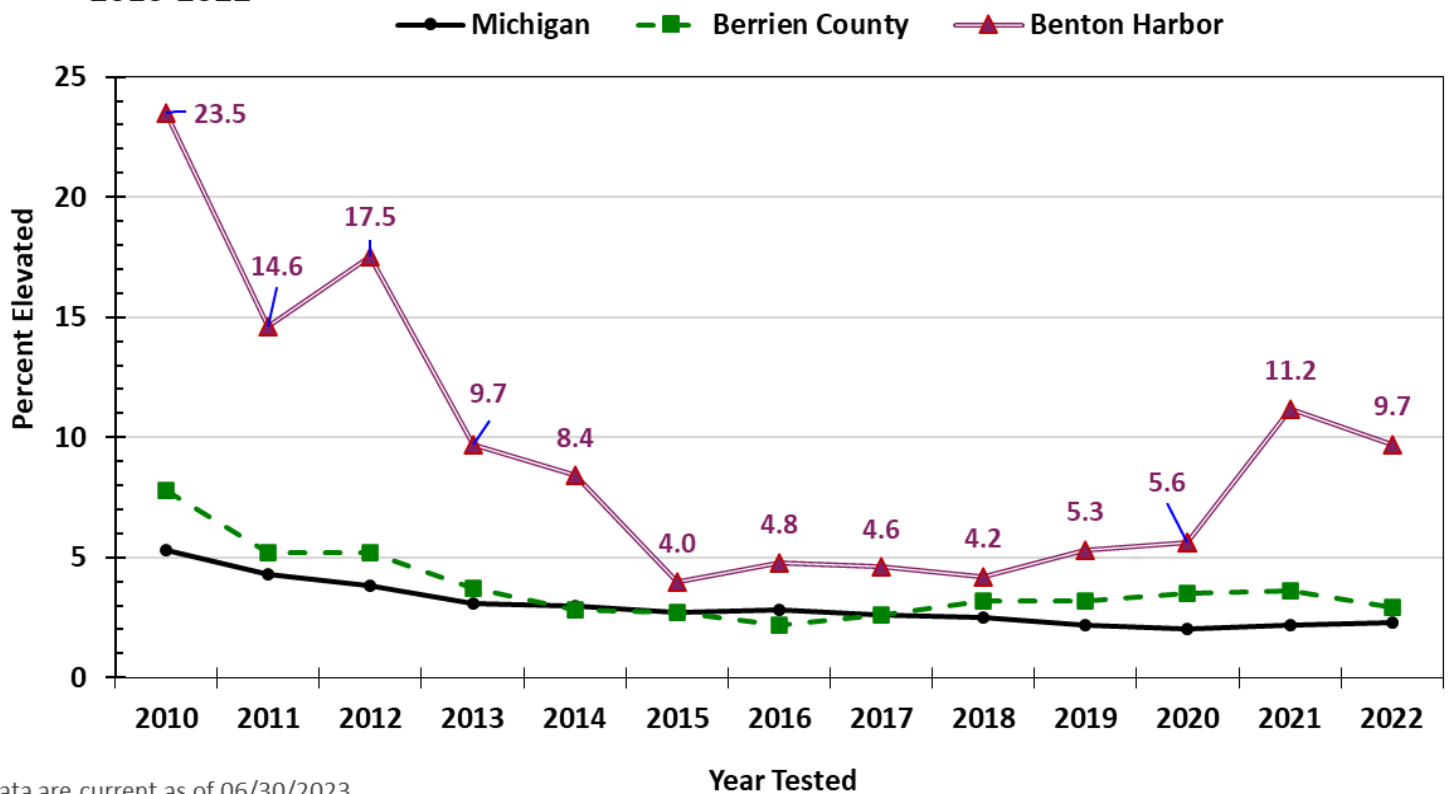


Figure 3 shows the annual percentage of children who had a venous blood test whose result was elevated ($\geq 3.5 \mu\text{g/dL}$) for the City of Benton Harbor, Berrien County, and Michigan overall. The percentage of children with elevated venous tests among all tested is a conservative estimate of all children tested with true elevated levels, since it does not include children with unconfirmed elevated capillary test results, which are included in the EBLL counts and percentages in Figure 2. The year-to-year trends in venous EBLL percentages in the City of Benton Harbor, Berrien County, and Michigan relative to each other largely mirror those seen across all EBLLs described above.

An additional metric, the percentage of venous tests among all elevated results, can give information on confirmatory testing practices and the validity of the EBLL detected. High proportions of venous samples used for the EBLL percentage provide assurance that the results are not due to false-positive results from capillary testing.¹ The City of Benton Harbor had a higher percent of elevated results from venous tests compared to Berrien County and Michigan in nearly all years, with between 40 percent and 94 percent of elevated test results from venous samples (see [Table A4](#)).

Limitations

The surveillance data used in these analyses are used to measure the frequency of EBLL so that we can understand the burden of EBLL in the City of Benton Harbor community compared to Berrien County and Michigan as a whole. We cannot easily draw conclusions from these data about the sources of lead exposure and whether any single source is driving year-to-year variations or causing the EBLL percentage in the City of Benton Harbor to be higher than those in the county or state.

Several factors complicate the interpretation of EBLL surveillance in children and year-to-year comparisons. First, not all children in Michigan receive blood lead tests. Michigan does not have mandatory blood lead testing, except for children enrolled in Medicaid² or WIC.³ For children not enrolled in these programs, health care providers recommend blood lead testing based on responses to lead exposure screening questions that indicate that they are at higher risk of EBLL. Even when a blood lead test is recommended, it may not be completed due to a variety of reasons, such as inability to travel to a lab. Not all children have access to or regularly see a health care provider, and therefore some children at higher risk of EBLL may not receive a testing recommendation. These factors mean that our estimate of the percentage of children who have an EBLL does not necessarily reflect the percentage if we tested every single child (i.e., the percentages in this report do not represent a true prevalence of EBLLs in the population).

Changes in the number of children tested in a community across time also impact year-to-year variations. When the numbers of children tested (the denominator in the EBLL percentage) differ from year to year, there may be a corresponding increase or decrease in the percentage of EBLLs driven by the testing change. During the COVID-19 pandemic, blood lead testing rates decreased nationwide.⁸ In the City of Benton Harbor, the testing rate in 2020 (14.8 percent) was almost half the 2019 rate (24.3 percent) and the percentage of EBLLs dropped to 8.0 percent. In 2021, a rise in both testing rates (18.6 percent) and EBLLs (11.5 percent) occurred, approximating the pre-pandemic percentage, though testing rates again decreased in 2022 (14.7 percent). In contrast, EBLL percentages in Berrien County declined slightly during this period while testing increased 1.5 percent. The large fluctuations in testing since the beginning of the pandemic further complicate interpretations of EBLL patterns in the City of Benton Harbor across years and comparisons to the county and state.

In addition to the changing numbers of tested children, other factors that make year-to-year comparisons difficult include:

- Populations tested: Children who were tested in one year may have different characteristics (like age, race and ethnicity, or Medicaid status) associated with exposures to lead hazards compared to another year.
- Follow-up testing: The proportion of elevated results that reflect newly identified EBLLs compared to follow-up tests for children with EBLLs initially identified in previous years may vary.
- Test type: The proportion can be affected by the distribution of capillary versus venous results, because capillary blood lead tests are known to produce false positives.¹ In the City of Benton Harbor, the percentage of venous EBLLs dropped from 23.5 percent in 2010 to 4.0 percent in 2015, where it stayed until 2019 and 2020 when it rose to 5.3 percent and 5.6 percent, respectively. In 2021, the rate doubled to 10.8 percent, where 17 of the 18 children with EBLLs had a venous test. This rare split in testing type reflects a recall by Magellan, the manufacturer of the Lead-Care II testing machines, which halted all capillary testing and impacted blood lead testing and surveillance nationwide in 2021.
- Small counts: Rates and percentages based on small counts are not as stable or reliable as rates or percentages based on larger counts.

This report highlights the most relevant limitations for this data. For a full list of limitations surrounding blood lead testing results, see the latest CLPPP annual data report at [Michigan.gov/MILeadSafe](https://michigan.gov/MILeadSafe) under “Learn About Lead,” in “Lead Data and Reports.”

Conclusion

The percentage of children tested in the City of Benton Harbor with an EBLL has fluctuated between roughly 5 percent and 13 percent since 2013. The percentages of children tested with an EBLL in 2021 and 2022 (11.8 percent, 19 children and 12.1 percent, 15 children, respectively) were the highest since 2016 and were increases from the percentage in 2020 (8.0 percent, 10 children). The venous-specific testing results follow a similar pattern, with a more marked increase from 2020 (5.6 percent) to 2021 (11.2 percent) and a drop in 2022 (9.7 percent). Both percentages are higher than the corresponding measures for Berrien County and Michigan for nearly all years examined. MDHHS will continue to monitor the proportion of children with elevated blood lead levels in the City of Benton Harbor and will continue providing educational outreach, nursing case management, and environmental assessment and abatement services to eligible residents in order to mitigate the effects of lead exposure and support primary prevention efforts to prevent new or ongoing lead exposures.

Appendix: Full Data Tables

Table A1. Total Number and Percentage of Children under Age 6 Tested for Lead and the Number and Percent of Children with Elevated Blood Lead Levels ($\geq 3.5 \mu\text{g/dL}$) by Test Type and Year, City of Benton Harbor^A, 2010-2022

Year	The City of Benton Harbor, MCD 2607520 ^A						
	Population ^B	# Tested ^C	% Tested ^D	# EBLL ^{E,F}	% EBLL ^G	# Venous EBLL ^{F,H}	% Venous EBLL ^G
2010	1,297	447	34.5	134	30.0	105	23.5
2011	1,392	364	26.2	66	18.1	53	14.6
2012	1,293	285	22.0	63	22.1	50	17.5
2013	1,379	320	23.2	40	12.5	31	9.7
2014	1,400	323	23.1	41	12.7	27	8.4
2015	1,333	249	18.7	23	9.2	10	4.0
2016	1,205	333	27.6	42	12.6	16	4.8
2017	1,229	348	28.3	40	11.5	16	4.6
2018	1,013	309	30.5	17	5.5	13	4.2
2019	933	226	24.2	23	10.2	12	5.3
2020	843	125	14.8	10	8.0	7	5.6
2021	843	161	19.1	19	11.8	18	11.2
2022	843	124	14.7	15	12.1	12	9.7

Data are current as of June 30, 2023.

^A Residence in the City of Benton Harbor is defined by geocoded address in the minor civil division (MCD) of the City of Benton Harbor: 2607520

^B Source: American Community Survey 5-year population estimates (Table B09001 - POPULATION OF CHILDREN). Estimates for 2021 are not available, so the estimate for 2020 was used in these years.

^C 2020 and 2021 are abnormal testing years. Blood lead testing throughout Michigan decreased starting in February 2020, associated with the COVID-19 pandemic. Stay-at-home orders, closures, and virtual care limited blood lead testing. The populations tested in 2020 and 2021 are likely different from previous years. Comparing the EBLL percentage to other years will be difficult to interpret.

^D Percent is among population of children less than 6 years old (% Tested = # All Blood Samples Tested / Population Children <6 * 100%)

^E Each child is counted only once per calendar year. If a child had multiple tests in the calendar year, the *highest BLL from a venous test* was counted. If no venous test was performed, the *highest BLL from a capillary blood draw* was counted. If the type of test was unknown, the highest BLL obtained from an unknown test type was counted.

^F An elevated blood lead level (EBLL) is a blood lead level (BLL) test result at or above $3.5 \mu\text{g/dL}$.

^G Percent is among all tested children less than 6 years old who had a blood lead test (% EBLL = # EBLL, CE BLL, or VE BLL / # All Children Tested * 100%)

^H A blood lead test result at or above $3.5 \mu\text{g/dL}$ determined by a venous test.

Table A2. Total Number and Percentage of Children under Age 6 Tested for Lead and the Number and Percent of Children with Elevated Blood Lead Levels ($\geq 3.5 \mu\text{g}/\text{dL}$) by Test Type Residing in Berrien County^A, 2010-2022

Year	Berrien County						
	Population ^B	# Tested ^C	% Tested ^D	# EBLL ^{E,F}	% EBLL ^G	# Venous EBLL ^{F,H}	% Venous EBLL ^G
2010	11,793	2,270	19.3	320	14.1	176	7.8
2011	11,634	1,978	17.0	172	8.7	102	5.2
2012	11,772	1,703	14.5	165	9.7	89	5.2
2013	11,599	1,726	14.9	100	5.8	64	3.7
2014	11,491	1,943	16.9	109	5.6	54	2.8
2015	11,600	1,697	14.6	112	6.6	46	2.7
2016	11,248	2,148	19.1	139	6.5	48	2.2
2017	11,214	2,154	19.2	144	6.7	57	2.6
2018	10,844	1,560	14.4	72	4.6	50	3.2
2019	10,748	1,380	12.8	93	6.7	44	3.2
2020	10,496	1,104	10.5	57	5.2	39	3.5
2021	10,376	1,214	11.7	58	4.8	44	3.6
2022	10,376	1,189	11.5	51	4.3	34	2.9

Data are current as of June 30, 2023.

^A Residence in Berrien County is defined by geocoded address.

^B Source: American Community Survey 5-year population estimates (Table B09001 - POPULATION OF CHILDREN). Estimates for 2021 are not available, so the estimate for 2020 was used in these years.

^C 2020 and 2021 are abnormal testing years. Blood lead testing throughout Michigan decreased starting in February 2020, associated with the COVID-19 pandemic. Stay-at-home orders, closures, and virtual care limited blood lead testing. The populations tested in 2020 and 2021 are likely different from previous years. Comparing the EBLL percentage to other years will be difficult to interpret.

^D Percent is among population of children less than 6 years old (% Tested= # All Blood Samples Tested/Population Children <6 * 100%)

^E Each child is counted only once per calendar year. If a child had multiple tests in the calendar year, the *highest BLL from a venous test* was counted. If no venous test was performed, the *highest BLL from a capillary blood draw* was counted. If the type of test was unknown, the highest BLL obtained from an unknown test type was counted.

^F An elevated blood lead level (EBLL) is a blood lead level (BLL) test result at or above $3.5 \mu\text{g}/\text{dL}$.

^G Percent is among all tested children less than 6 years old who had a blood lead test (% EBLL= # EBLL, CE BLL, or VE BLL/# All Children Tested * 100%)

^H A blood lead test result at or above $3.5 \mu\text{g}/\text{dL}$ determined by a venous test

Table A3. Total Number and Percentage of Children under Age 6 Tested for Lead and the Number and Percent of Children with Elevated Blood Lead Levels ($\geq 3.5 \mu\text{g/dL}$) by Test Type Residing in Michigan^A, 2010-2022

Year	Michigan						
	Population ^B	# Tested ^C	% Tested ^D	# EBLLE,F	% EBLLE,G	# Venous EBLLE,H	% Venous EBLLE,G
2010	741,970	155,956	21.0	16,951	10.9	8,315	5.3
2011	728,409	152,190	20.9	13,184	8.7	6,478	4.3
2012	716,637	148,917	20.8	12,335	8.3	5,596	3.8
2013	707,903	148,453	21.0	11,066	7.5	4,570	3.1
2014	701,063	143,885	20.5	9,592	6.7	4,258	3.0
2015	694,168	141,550	20.4	9,040	6.4	3,829	2.7
2016	690,245	157,650	22.8	11,438	7.3	4,370	2.8
2017	687,562	150,258	21.9	9,273	6.2	3,924	2.6
2018	685,986	142,189	20.7	8,337	5.9	3,617	2.5
2019	683,842	143,285	21.0	8,205	5.7	3,195	2.2
2020	682,854	97,198	14.2	4,944	5.1	1,973	2.0
2021	682,854	98,092	14.4	3,439	3.5	2,113	2.2
2022	682,854	108,269	15.9	4,023	3.7	2,455	2.3

Data are current as of June 30, 2023.

^A Residence in Michigan is defined by geocoded address.

^B Source: American Community Survey 5-year population estimates (Table B09001 - POPULATION OF CHILDREN). Estimates for 2021 are not available, so the estimate for 2020 was used in these years.

^C 2020 and 2021 are abnormal testing years. Blood lead testing throughout Michigan decreased starting in February 2020, associated with the COVID-19 pandemic. Stay-at-home orders, closures, and virtual care limited blood lead testing. The populations tested in 2020 and 2021 are likely different from previous years. Comparing the EBLLE percentage to other years will be difficult to interpret.

^D Percent is among population of children less than 6 years old (% Tested= # All Blood Samples Tested/Population Children <6 * 100%)

^E Each child is counted only once per calendar year. If a child had multiple tests in the calendar year, the *highest BLL from a venous test* was counted. If no venous test was performed, the *highest BLL from a capillary blood draw* was counted. If the type of test was unknown, the highest BLL obtained from an unknown test type was counted.

^F An elevated blood lead level (EBLLE) is a blood lead level (BLL) test result at or above $3.5 \mu\text{g/dL}$.

^G Percent is among all tested children less than 6 years old who had a blood lead test (% EBLLE= # EBLLE, CEBLLE, or VEBLLE/# All Children Tested * 100%)

^H A blood lead test result at or above $3.5 \mu\text{g/dL}$ determined by a venous test

Table A4. Number and Percentage of Elevated (≥ 3.5 $\mu\text{g}/\text{dL}$) Blood Lead Test Results from Venous Testing for Children under Age 6 Residing in the City of Benton Harbor, Berrien County, and Michigan, 2010-2022

Year	The City of Benton Harbor ^A			Berrien County			Michigan		
	# EBLL ^B	# EBLL – Venous ^C	% EBLL - Venous ^D	# EBLL ^B	# EBLL – Venous ^C	% EBLL - Venous ^D	# EBLL ^B	# EBLL – Venous ^C	% EBLL - Venous ^D
2010	134	105	78.4	320	176	55.0	16,951	8,315	49.1
2011	66	53	80.3	172	102	59.3	13,184	6,478	49.1
2012	63	50	79.4	165	89	53.9	12,335	5,596	45.4
2013	40	31	77.5	100	64	64.0	11,066	4,570	41.3
2014	41	27	65.9	109	54	49.5	9,592	4,258	44.4
2015	23	10	43.5	112	46	41.1	9,040	3,829	42.4
2016	42	16	38.1	139	48	34.5	11,438	4,370	38.2
2017	40	16	40.0	144	57	39.6	9,273	3,924	42.3
2018	17	13	76.5	72	50	69.4	8,337	3,617	43.4
2019	23	12	52.2	93	44	47.3	8,205	3,195	38.9
2020	10	7	70.0	57	39	68.4	4,944	1,973	39.9
2021	19	18	94.7	58	44	75.9	3,439	2,113	61.4
2022	15	12	80.0	51	34	66.7	4,023	2,455	61.0

Data are current as of June 30, 2023.

^A Residence in the City of Benton Harbor is defined by geocoded address in the minor civil division (MCD) of the City of Benton Harbor: 2607520.

^B A blood lead level test result at or above 3.5 $\mu\text{g}/\text{dL}$ as determined by the test type: first by the highest venous BLL, or if not available, the highest BLL from a capillary test, or if not available, from an unspecified test type, assumed to be capillary.

^C A blood lead test result at or above 3.5 $\mu\text{g}/\text{dL}$ determined by a venous test.

^D Percent is among all elevated blood lead test results that were determined by venous tests ($\% \text{VEBLL} = (\# \text{VEBLL} / (\# \text{All EBLL})) * 100\%$).

References

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