MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

2023 Annual Childhood Lead Poisoning Surveillance Report

Highlights

- Lead paint is the primary source of childhood lead exposure and Massachusetts has the 4th oldest housing stock in the country, making lead exposure a significant health risk for Massachusetts children.
- At 73%, lead screening rates continued to improve in 2023, overcoming enduring pandemic-era declines to reach the highest level since 2017.
- In 2023, compared to the previous year, fewer children had lead poisoning—a venous blood lead level (BLL) ≥10 µg/dL—and fewer children were estimated to have a BLL ≥5 µg/dL. The lead poisoning prevalence for children 9 months to less than 4 years of age was 416, or 2.5 per 1,000 children, a reduction from 2.8 per 1,000 children in 2022 and the lowest prevalence to date.
- The impact of lead poisoning is disproportionately seen among high-risk communities, and this disparity continued among the 16 high-risk communities identified in 2023, which are home to 55% of all lead-poisoned children.
- Children living in the most rural areas of the state (i.e. “rural level 2” communities) are also at greater risk; these children continue to be screened less frequently (just 51% in 2023) while also experiencing double the prevalence of elevated BLLs ≥5 µg/dL compared to the state overall.
- Children living in low-income communities are 3.3 times more likely to have elevated BLLs than those in high-income communities.
- Multi-race children were 4.4 times more likely and Black children were 1.9 times more likely than White children to have blood lead levels ≥5 µg/dL; Hispanic children of any race are 1.7 times more likely than non-Hispanic children to have blood lead levels ≥5 µg/dL.
- To address health inequities in childhood lead exposure, the Childhood Lead Poisoning Prevention Program (CLPPP) is targeting expanded outreach to high-risk populations and family care practitioners.

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2. BACKGROUND

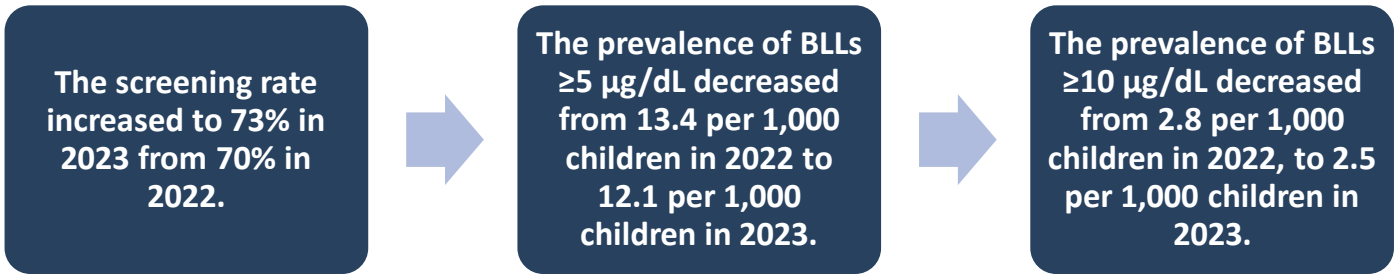
While the Commonwealth has made substantial gains in mitigating the harmful effects of lead exposure through public health interventions over the past 52 years, **lead exposure remains a health risk for children across Massachusetts**. There is no safe level of lead in blood and **childhood exposure to relatively low levels can cause severe and irreversible health effects** (CDC Advisory Committee on Childhood Lead Poisoning Prevention 2012), including damage to a child's mental and physical development (Lanphear 2007). Numerous studies have documented correlations between childhood lead poisoning and future school performance, unemployment, crime, violence, and incarceration, making lead exposure an important factor in the social determinants of health (Brown 2002; Gould 2009; Reyes 2007). Lead exposure is also a health equity issue, in which social position (e.g. socio-economic status) and socially assigned circumstances (e.g. race, ethnicity, etc.) prevent equal opportunities for children to reach their full health, social, and economic potential.

Lead paint is the primary source of exposure for lead-poisoned children, and Massachusetts has the fourth oldest housing stock in the country. **Most often, exposure occurs through ingestion of dust or soil contaminated by loose or deteriorated lead paint**, frequently on windows, other friction surfaces, exteriors, or when disturbed by unsafe renovation work.

The Massachusetts Lead Law requires any dwelling unit where a child under six years of age resides to be lead safe, regardless of a child's blood lead level (BLL) or whether the property is owner-occupied. To implement the law, the Department of Public Health's (DPH) Childhood Lead Poisoning Prevention Program (CLPPP) operates an integrated program of laboratory services, mandatory blood lead screening, medical case management for children with elevated blood lead levels, health education, environmental follow-up, and training and licensure of public and private lead inspectors.

This report for the year 2023 contains results of the DPH Childhood Lead Poisoning Prevention Program's annual review of screening rates and blood lead level prevalence, high-risk communities for lead poisoning, and special analyses designed to identify high-risk populations and evaluate progress towards health equity.

3. BLOOD LEAD SCREENING AND PREVALENCE OF EXPOSURE



Screening by Age

Massachusetts regulations require that all children be tested for blood lead between 9 and 12 months of age and, again, at ages 2 and 3 years. Additionally, all children should be tested at age 4 years if they live in a high-risk community. The lead screening rate for all children 9-47 months of age was 73% in 2023, an increase from the 2022 rate of 70% and above the 2019 pre-pandemic level of 72%. In 2023, statewide screening rates for 1-, 2-, and 3-year-old children were 76%, 78%, and 70%, respectively – an increase from 2022 for ages 2 and 3. Though 3-year-old screening rates continue to lag somewhat, substantial improvement has been made with yearly increases, evidence that outreach and education regarding the importance of screening through age 3 have been impactful. Approximately 16% of newly elevated blood lead levels (≥5 µg/dL) are in 3-year-olds and the majority of those (90% on average) were tested regularly at younger ages with no previous elevations. Screening children through age 3 (and age 4 for high-risk communities) protects these children from lead poisoning by enabling them and their families to receive prevention services.

Confirmatory Screening of Elevated Blood Lead Levels

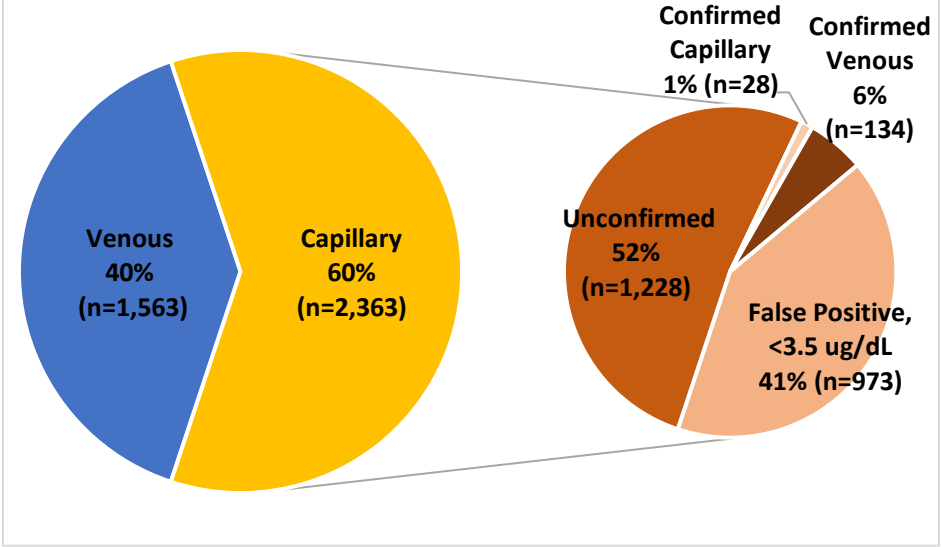
The DPH CLPPP regulations require **venous confirmation of capillary blood lead specimens ≥5 µg/dL**, the federal Centers for Disease Control and Prevention's (CDC) reference value in effect from 2012 to September 2021 and the current Massachusetts definition of a BLL of Concern. Children with venous BLLs at or above 5 µg/dL should receive intervention such as lead education, environmental investigation, and additional medical monitoring. Capillary specimens are a useful tool for preliminary lead screening; they can be easier to conduct than venous tests and a negative result is, typically, very reliable. However, there is only a 25% likelihood that a single elevated capillary result (≥5 µg/dL) is truly elevated upon a venous confirmatory rescreen. Therefore, timely venous confirmatory re-screening is needed to target public health services. For capillary test results ≥10 µg/dL, CLPPP staff contact health care providers to ensure the child receives a confirmation venous test. Ongoing engagement and education efforts are underway with healthcare providers across the state to highlight the need for confirmatory venous tests.

In 2023, the rate of confirmatory venous testing for capillary results ≥5 µg/dL was up to 73%, compared to 70% in 2022. Though increasing annually, there is an opportunity for improvement. Many children are still left without important interventions to address their lead exposure due to the lack of a confirmatory venous test.

New CDC Reference Value: Confirmatory Screening and Recommendations

In October 2021, CDC lowered the blood lead reference value (BLRV) from 5 µg/dL to 3.5 µg/dL. The CDC BLRV is a screening tool to identify children who have higher levels of lead in their blood compared with most children nationally, and it is calculated to reflect the 97.5th percentile of children's BLLs nationally using data from the National Health and Nutrition Examination Survey. For confirmed BLLs above the BLRV, CDC recommends certain follow-up actions by clinicians and public health professionals: reporting of results to the state health department, obtaining an exposure history, arranging for environmental investigation when BLLs are above state or local enforcement triggers, testing for iron deficiency, discussing calcium and iron intake, referring children for support services based on developmental milestones, and conducting follow-up BLL testing. MA CLPPP activities align with and support these recommendations by publishing the guidance on our website, re-iterating recommendations during clinical in-service trainings, and in daily interactions between the clinical care team and health care providers.

Figure 1. Test Method and Confirmation Status of Initial Blood Lead Screening Results 3.5- 4.9 µg/dL (n=3,926)



As shown in Figure 1, the rate of confirmatory re-screening for capillary test results 3.5 to 4.9 µg/dL was 48% in 2023, a substantial increase over the 34% confirmatory screening rate of 2022, an indication that MA CLPPP outreach efforts are making a positive impact. Massachusetts saw a total of 3,926 children aged 9-47 months with an initial blood lead level test result between 3.5 and 4.9 µg/dL, where 60% were capillary test results. Of the 1,135 capillary screenings that received a confirmatory follow-up test, only 14% were found to be truly ≥ 3.5 µg/dL. With reliability of capillary results in this range being so low, venous rescreening is highly recommended. Thus, while capillary testing is a useful screening tool, venous follow-up testing for blood lead levels ≥3.5 µg/dL (or venous initial screening) is critical to identify lead-exposed children and provide them with appropriate follow-up. To further this goal, CLPPP will consider updating its regulations to lower the definition of a BLL of concern from 5 µg/dL to 3.5 µg/dL, requiring confirmatory testing beginning at a blood lead level of 3.5 µg/dL.

Screening Rates by Community

While the 2023 Massachusetts screening rate of 73% represents one of the highest in the nation (CDC EPHT n.d.), screening rates by community vary greatly throughout the state. As shown in Appendix II, in 2023, screening rates for the 351 communities in MA ranged from 4% to 100%. Over 93% of communities saw a 2023 screening rate that was similar to or higher than their 2022 screening rate. However, for nearly 45% of these communities, their 2023 screening rate was still lower than their pre-pandemic rate. Among the 54 communities with the lowest screening rates (<55%), 94% of them are considered rural and 35% had an increased prevalence of elevated blood lead levels (≥5 µg/dL). Outreach and prevention activities are focused each year on communities with the lowest screening rates.

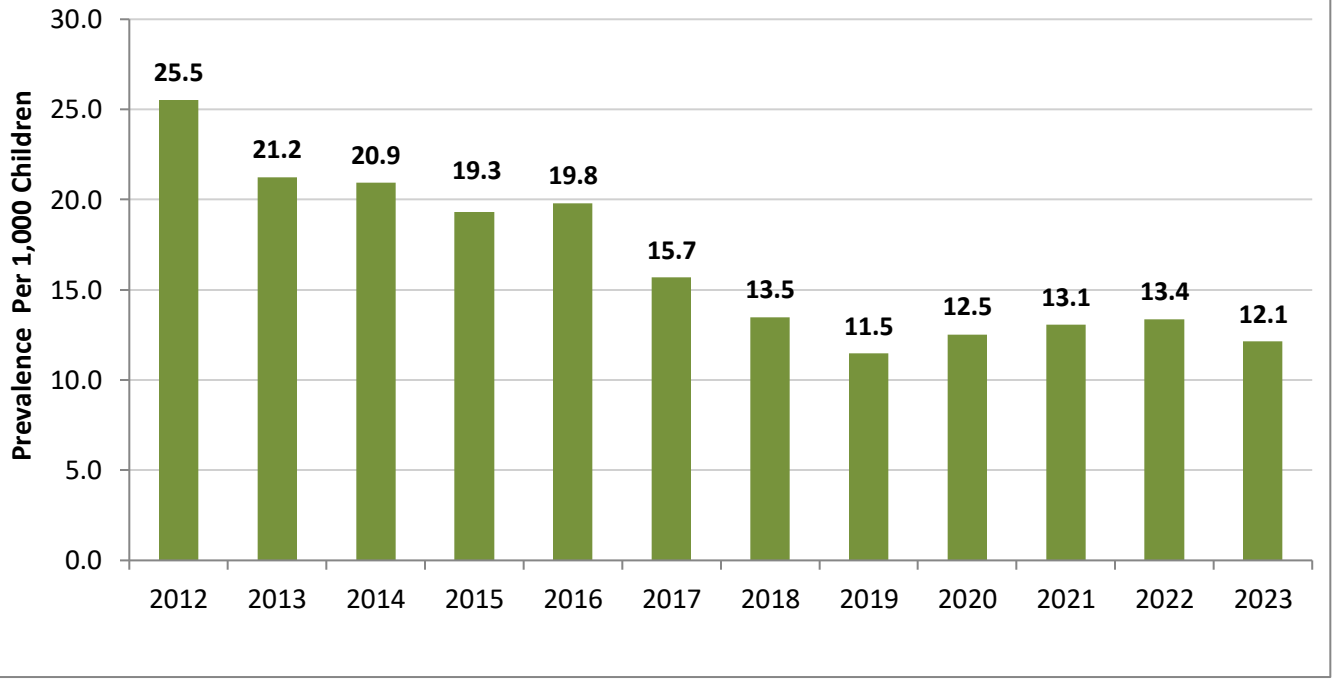
Exposure Prevalence

An estimated 2,059 children had a BLL ≥5 µg/dL in 2023.

416 children were identified as having lead poisoning in 2023, a venous BLL ≥10 µg/dL.

In 2017, CLPPP enacted regulatory changes that lowered the definition of lead poisoning from 25 µg/dL to 10 µg/dL; created a blood lead level of concern at 5 µg/dL; required venous confirmatory testing of any results ≥5 µg/dL; and began requiring proof of lead screening at entry to pre-school. After these 2017 regulatory changes, CLPPP saw a significant decrease in elevated blood lead levels (≥5 µg/dL) (Figure 2). This trend changed during 2020-2022 (during the height of the COVID-19 pandemic). However, in 2023, the prevalence of elevated blood lead levels ≥5 µg/dL once again decreased, dropping from 13.4 per 1,000 children in 2022 to 12.1 per 1,000 children in 2023.

Figure 2. Estimated Prevalence[1] of Elevated Blood Lead (≥5 µg/dL) in Massachusetts by Year, Children 9-47 Months of Age



[1] Estimated BLLs ≥5 include both confirmed results (venous and confirmed capillary tests) and a proportion of unconfirmed capillary results estimated to be truly elevated based on known capillary test reliability.

4. PRIMARY PREVENTION ACTIVITIES

Primary prevention is vital to eradicating childhood lead exposure. While Massachusetts is fortunate to have an active private sector of lead inspectors and de-leading contractors, **we also have the fourth oldest housing stock in the country, with approximately 67% of housing units built before 1978** when lead was banned in residential paint. From 2017-2023, children living in investor owner rental properties and owner-occupied properties experienced lead poisoning in equal numbers. The MA Lead Law requires that all homes built before 1978 where children under the age of six live are free from lead hazards, regardless of ownership or a child's blood lead level. CLPPP trains and helps to increase workforce capacity to support the inspection and de-leading of pre-1978 homes for both renters and owners.

Code enforcement lead determinations (abbreviated lead inspections) are key to local primary prevention efforts. Under the Massachusetts Lead Law, parents or guardians with a child under 6 years of age who rent a home built before 1978 can request the local health or inspectional services department to inspect their home for lead violations and enforce de-leading. In 2023, there were 257 active code enforcement lead determinators covering 162 communities. To continue building local inspectional capacity, CLPPP also held four determinator trainings, licensing 76 new code enforcement lead determinators.

CLPPP authorizes owners (and/or their agents) to safely do low- or moderate-risk de-leading work. Since 1994, nearly 19,500 owners and agents have become trained and authorized to fix the lead hazards in their homes. In 2023, CLPPP continued to offer free virtual moderate-risk de-leading classes in English and Spanish to property owners under an order to de-lead their homes with 101 owners/agents trained through these classes. In FY 2023, MassHousing's Get the Lead Out loan program provided $3,720,205 in loans to qualified property owners to de-lead their homes.

CLPPP has a dedicated hotline, 800-532-9571, for lead-related questions. In 2023, CLPPP staff answered 1,844 hotline calls, an increase from the previous year. To better communicate with families and educate the public about lead poisoning prevention, CLPPP offers educational materials in 14 languages, has staff who can communicate in seven languages in addition to English, and provides interpreter services as needed.

CLPPP publishes the Lead Safe Homes database, which includes inspection and de-leading data for homes built before 1978 from both code enforcement and private inspections. The database was recently upgraded to include downloadable copies of inspection reports and compliance documents. In 2023, the database had 532,487 hits. The upgraded database allows the public to learn about a home's lead history and enables users to make important decisions about buying, selling, or renting a home, with a goal of increasing preventative de-leading and encouraging lead-safe renovations. It is especially helpful for parents of young children, rental assistance programs, realtors, and rental property owners.

5. EMERGING CHALLENGES & RESPONSE

In 2023, the Healey-Driscoll Administration and the MA Department of Public Health responded to and supported the rising numbers of migrant families arriving in the state and in immediate need of shelters and services. In August of 2023, there were more than 5,500 families and more than 20,000 individuals, including children and pregnant people, that were in need. In response to the influx of new arrivals, CLPPP staff:

- Researched and presented possible exposure sources in the newly arrived populations and how to work with families in a culturally competent way.
- Coordinated with the DPH Office of Preparedness and Emergency Management, the DPH Division of Global Populations and Infectious Disease Prevention, and external partners to assist in standing up blood draw clinics to test newly arrived children for lead exposure.
- Responded with twenty-five CLPPP staff who assisted in testing over 1,000 children for lead at 40 emergency shelter sites across the Commonwealth.

- Prepared and distributed over 1,000 individual test results with educational material in four languages.
- Translated and distributed two CLPPP brochures in Haitian Creole. These are available on the CLPPP website.

On October 31, 2023, WanaBana LLC initiated a voluntary recall on applesauce pouches with cinnamon due to high levels of lead. This recall was later expanded to include two other brands of applesauce pouches. CLPPP published an initial online alert and on November 6, 2023, CLPPP issued a HHAN alert to clinicians who treat children, as well as a notice advising Local Boards of Health of the recall. CLPPP also reached out to the DPH Women, Infants, and Children (WIC) program and Department of Early Education and Care. CLPPP staff connected with community health workers to assist in identifying potential cases and educating families. As of the writing of this report, CLPPP has identified 5 confirmed and 9 probable cases of lead exposure due to consumption of contaminated applesauce pouches in Massachusetts. CLPPP will continue to conduct outreach and monitor cases in 2024.

6. HIGH-RISK COMMUNITIES

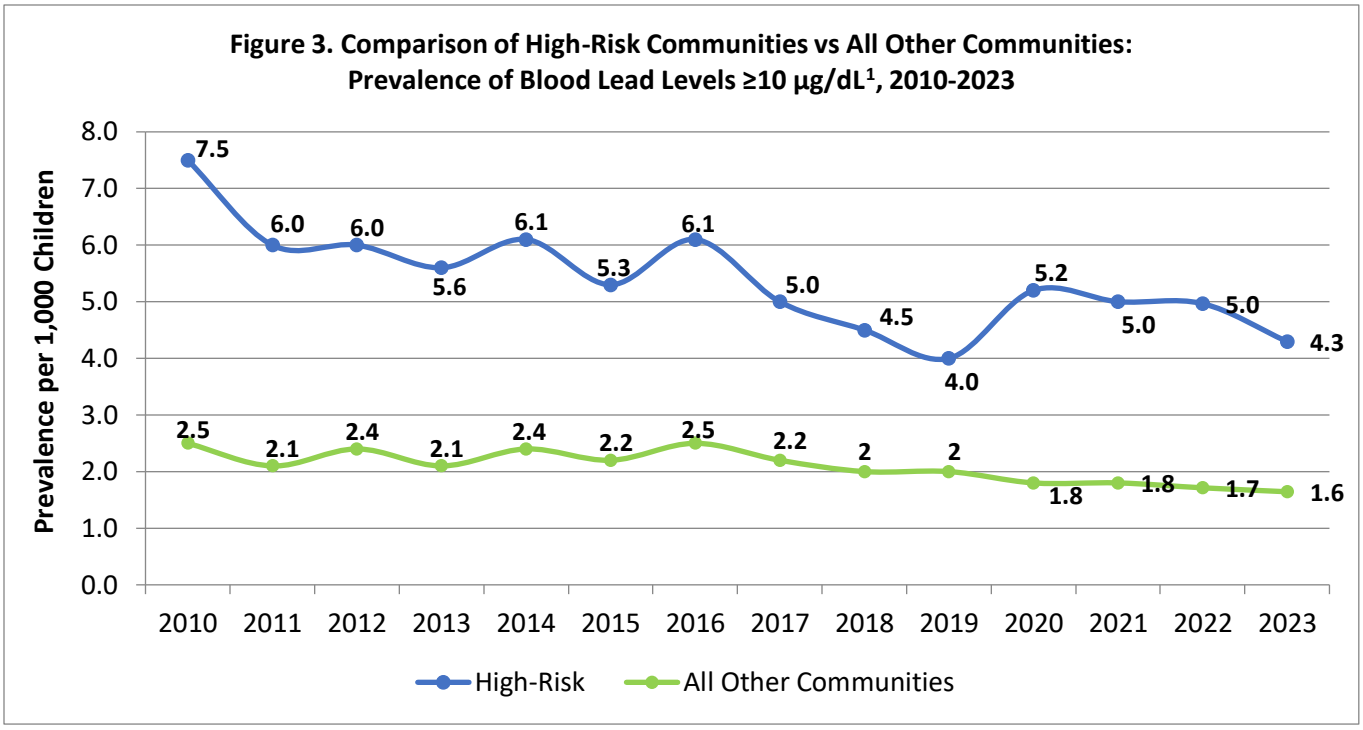
As shown in Appendix I, DPH identifies communities with a higher risk of childhood lead poisoning to better target resources and reduce health inequities associated with lead exposure in those communities. DPH determines risk by examining rates of newly poisoned children, the age of housing, and income levels for each of the state's 351 cities and towns. In addition, to be considered a high-risk community, a community must exhibit 15 or more cases of lead poisoning in the previous 5 years. In 2023, 16 high-risk communities were identified, representing more than half of lead poisoning cases. No towns were added to the 2023 high-risk community list and Holyoke dropped off the list from 2022. Children living in high-risk communities are more likely to have lead poisoning than those living in other parts of the state (Figure 3).

2023 High-Risk Communities[1]

1. **New Bedford**
2. **Springfield**
3. **Brockton**
4. **Fall River**
5. **Lowell**
6. **Lynn**
7. **Everett**
8. **Lawrence**
9. **Pittsfield**
10. **Worcester**
11. **Chelsea**
12. **Chicopee**
13. **Westfield**
14. **Boston**
15. **Malden**
16. **Taunton**

[1]The high-risk communities are listed in order from highest to lowest high-risk score.

Approximately 55% of identified cases of children with lead poisoning live in high-risk communities even though only about one-third of Massachusetts children live in those communities. This inequity in the prevalence of poisoned childhood blood lead levels has persisted despite reductions in BLLs overall. Since 2016 and until 2020, this disparity was shrinking as the rates of poisoned blood lead levels in children living in high-risk communities had been consistently decreasing (Figure 3). Unfortunately, the pandemic adversely impacted this trend. **In 2023, the disparity between high-risk and non-high-risk communities once again began to shrink,** though children in high-risk communities were 2.7 times more likely to experience a blood lead level greater than or equal to 10 ug/dL compared to non-high-risk communities.

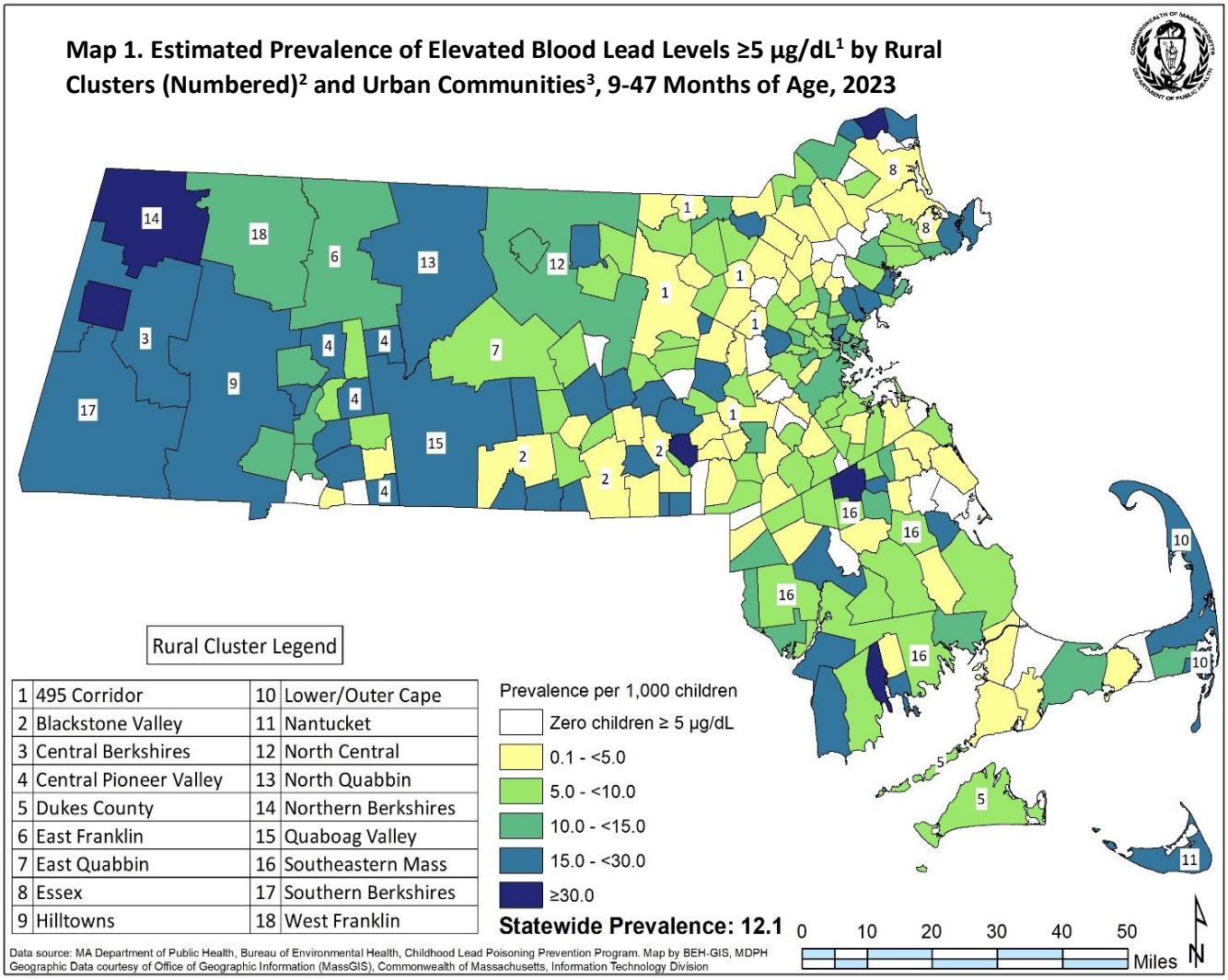


[1]Includes both venous tests and results of two capillary tests ≥10 µg/dL drawn within 84 days of each other.

7. RURAL COMMUNITIES

Rural communities with small populations may not meet the definition of a high-risk community. This is because, by definition, a high-risk community requires a minimum of 15 new lead poisoning cases over 5 years. However, **non-high-risk communities can still have a high prevalence of childhood blood lead poisoning even though the total number of cases may be low, meaning that individual children in these communities *are* at high-risk**.

DPH analyzes and maps screening rates and prevalence of elevated and poisoned blood lead levels by **rural clusters** (Map 1) in addition to individual communities. Rural clusters consist of neighboring or nearby rural communities grouped by the DPH Office of Rural Health and represent geographic areas that have been historically classified together in those regions. Clusters may represent areas of shared services, cultural commonality, or geographic cohesion. Grouping rural communities into clusters enables more robust and reliable blood lead level estimates to be generated whereas estimates for individual rural communities are frequently suppressed due to small numbers. As observed in Map 1, many rural areas, particularly in the central and western areas of the state, have a higher prevalence of blood lead levels ≥5 µg/dL compared to the state average.



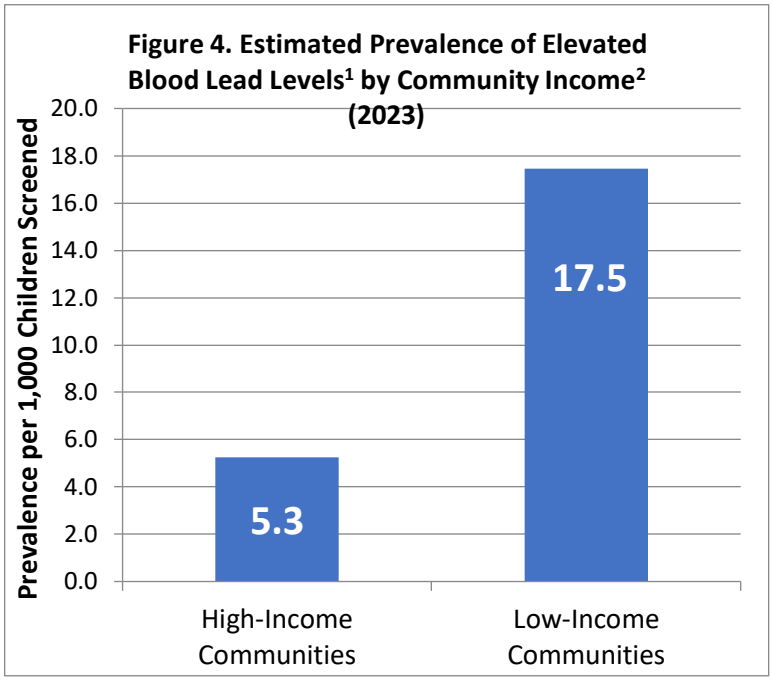
[1]Estimated prevalence is calculated using both confirmed results (venous and confirmed capillary tests) and a proportion of unconfirmed capillary results estimated to be truly elevated based on known capillary test reliability.
[2]Rural definitions are created by the MA Office of Rural Health. See technical notes section for details. All clusters are considered rural and were identified by state rural partners, representing geographic areas that have been historically classified together in those regions.
[3]All other non-numbered geographies are considered urban and are mapped as individual communities/towns.

Comparing rural and urban geographies, CLPPP has observed substantial disparities among a subset of rural communities that are the least densely populated, most remote, and most isolated from urban core areas, defined by the DPH Office of Rural Health as rural level 2 communities. In 2023, the screening rate in these most rural areas of the state increased to 51% from 49% in 2022, still substantially lower than the state's overall screening rate of 73%. The prevalence of blood lead levels ≥5 µg/dL in these areas remained double that of the state as a whole, though the prevalence has been decreasing since 2020 and is down from 32 per 1,000 children in 2020 to 24 per 1,000 children in 2023. Since 2022, several rural clusters, including Blackstone Valley, East Franklin, East Quabbin, North Quabbin, and West Franklin, have had a decrease in overall prevalence rates. CLPPP will continue to track data associated with vulnerable populations to identify health disparities to inform population-specific strategies to prevent and reduce childhood lead exposure.

8. HEALTH EQUITY

While lead continues to affect children in all communities across Massachusetts, data collected by DPH shows that **lead exposure disproportionately impacts lower income communities and communities of color**, making lead exposure a critical health equity issue.

Community Income



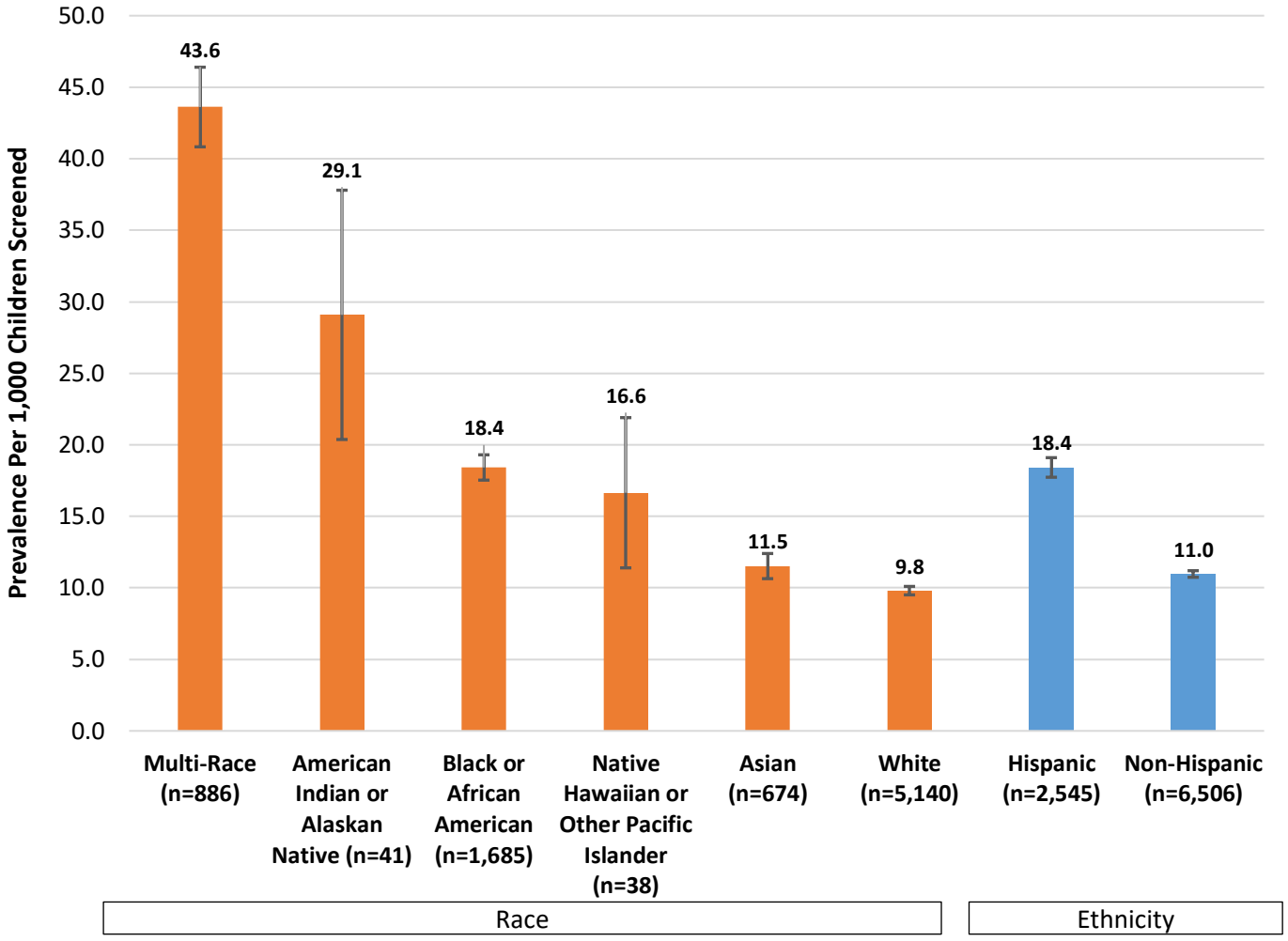
[1]Includes confirmed BLLs (one venous or two capillary blood tests ≥5 µg/dL within 84 days) and a proportion of unconfirmed blood lead tests (single capillary tests) for children 9-47 months of age.
[2]Lowest versus highest quartile of families living at or below 200% of the Federal Poverty threshold using poverty to income ratio data from the U.S. American Community Survey.

In 2023, **children living in low-income communities were 3.3 times more likely to have elevated blood lead levels than children living in high-income communities** (Figure 4). This disparity has been decreasing since the nearly four-fold difference observed in 2020.

Race and Ethnicity

As seen in Figure 5 (below), White children have the lowest risk of lead exposure in Massachusetts. Compared to White children, **Multi-Race children are 4.4 times more likely**, **American Indian or Alaskan Native children are 3.0 times more likely, and Black children are 1.9 times more likely** to have elevated blood lead levels. These differences are statistically significant. **Hispanic children of any race are 1.7 times more likely than non-Hispanic children to have elevated blood lead levels,** a difference that is also statistically significant. Historical housing policies that have perpetuated segregation and limited opportunity for home ownership, such as redlining, have led to the increase in risk factors for lead poisoning in Black communities, including older housing stock, dilapidated housing, and fewer owner-occupied housing units (Sampson and Winter 2016; Moody et al. 2016).

Figure 5. Estimated Prevalence[1] of Elevated Blood Lead Levels ≥ 5µg/dL by Race/Hispanic Ethnicity[2,3], Children 9-47 months, 2019-2023[4]



[1]Estimated prevalence is calculated using both confirmed results (venous and confirmed capillary tests) and a proportion of unconfirmed capillary results estimated to be truly elevated based on known capillary test reliability. Unique children with estimated confirmed BLLs are identified in each year from 2019-2023 and cases are then summed. The same child may be represented more than once in the 5-year range.

[2]Race categories include individuals of Hispanic and Non-Hispanic ethnicities.

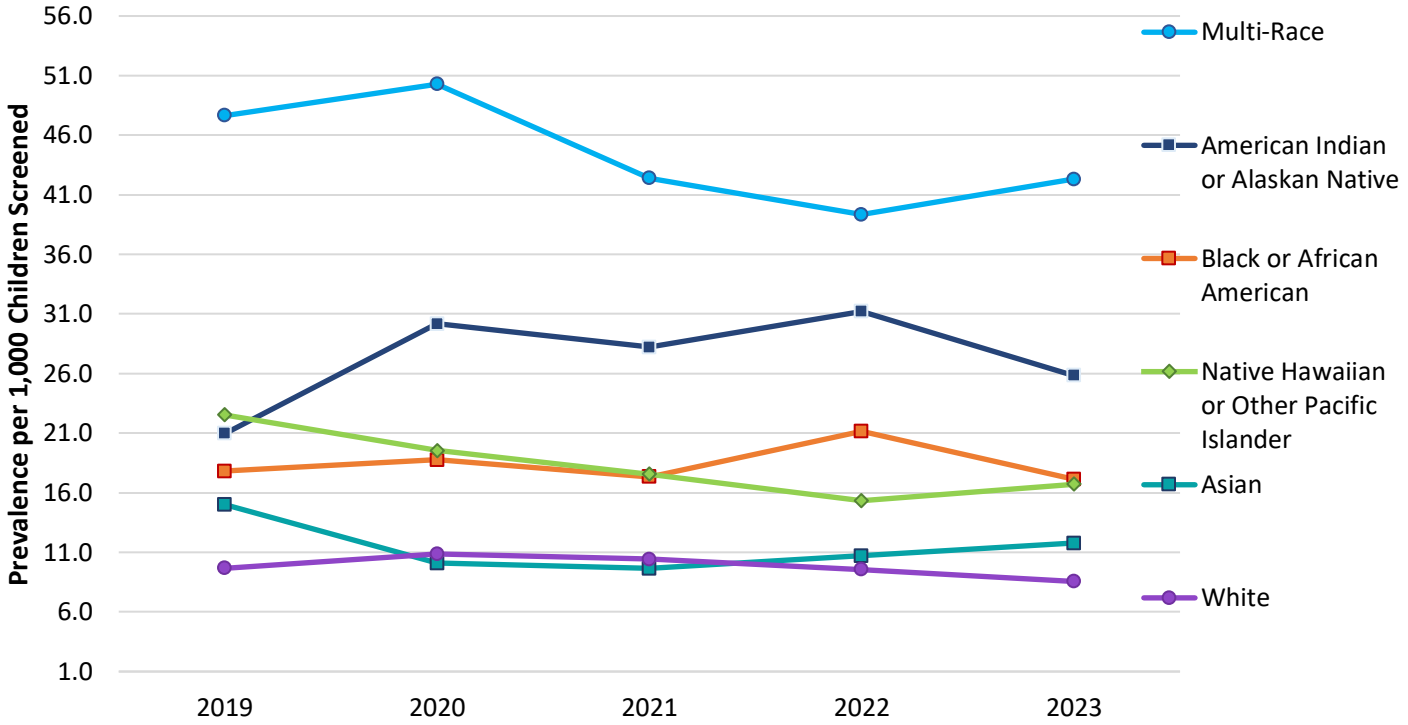
[3]MDPH acknowledges that race is a social construct which carries no biological significance in distinguishing human beings. However, many health inequities are rooted in the effects of racism experienced by people of color. MDPH collects race information to better understand these health inequities.

[4]Race and ethnicity information is assigned based on information reported with blood test results from laboratories and doctor's offices and, for those missing such information, from maternal race and ethnicity reported on birth certificates for children born in Massachusetts.

[5]Error bars represent 95% confidence intervals (CI). When the 95% CI for two values do not overlap, the values are considered statistically significantly different from one another.

As seen in Figure 6 (below), children who identify as **American Indian or Alaskan Native, Black, or White saw an increase in elevated blood lead level prevalence from 2019 through 2022, with a decrease in 2023**. Children who identify as Multi-Race, Native Hawaiian or Pacific Islander, and Asian saw a decrease in prevalence from 2019 through 2022 with a slight increase in 2023. Children who identify as **Multi-Race have an increased risk of having elevated blood lead levels compared to all other races listed.** However, the prevalence of elevated blood lead levels has been decreasing over the last several years from 47.7 per 1,000 children in 2019 to 42.3 per 1,000 children in 2023. CLPPP will continue to track race and ethnicity data and plans to examine the increased risk of having an elevated blood lead level within the multi-race population to identify opportunities for prevention and outreach.

Figure 6. Estimated Prevalence[1] by Year of Children with Elevated BLLs (≥ 5µg/dL) by Race/Hispanic Ethnicity[2,3], 9-47 Months of Age, 2019-2023



[1]Estimated prevalence is calculated using both confirmed results (venous and confirmed capillary tests) and a proportion of unconfirmed capillary results estimated to be truly elevated based on known capillary test reliability. This measure is sometimes referred to as "estimated confirmed" ≥5 µg/dL. Unique children with estimated confirmed BLLs are identified in each year from 2019-2023 and cases are then summed. The same child may be represented more than once in the 5-year range.

[2]Race categories include individuals of Hispanic and Non-Hispanic ethnicities. A rolling three-year average was calculated for each year (2019-2023) for American Indian or Alaskan Native and Native Hawaiian or Pacific Islander due to small case counts.

[3]MDPH acknowledges that race is a social construct which carries no biological significance in distinguishing human beings. However, many health inequities are rooted in the effects of racism experience by people of color. MDPH collects race information to better understand these health inequities.

[4]Race and ethnicity information is assigned based on information reported with blood test results from laboratories and doctor's offices and, for those missing such information, from maternal race and ethnicity reported on birth certificates for children born in Massachusetts.

9. Conclusions and Next Steps

Childhood Lead Poisoning Prevention made some important gains in 2023. Statewide screening rates are one of the highest in the nation and have returned to the highest level since 2017. More significantly, in 2023, the number of children exposed to lead decreased. While it is important to acknowledge these gains, there is still work to be done. Childhood lead exposure continues to be a critical health issue with substantial disparities for non-white children and children living in high-risk and rural communities. In 2024, CLPPP will continue the work to reduce these disparities. CLPPP will partner with high-risk communities, like our collaboration with the City of Chelsea and its local Department of Public Health, health care providers, and advocacy groups to provide technical assistance and more in-depth evaluation of their local efforts to improve screening rates. CLPPP will partner with programs across DPH doing housing related work to support a more holistic approach to housing, a key social determinant of health. Finally, CLPPP will aim to improve testing capabilities and data collection for alternative non-paint and dust exposure sources for lead poisoned children.

Appendix I: High-Risk Communities for Childhood Lead Poisoning
Calendar Year: 2019 - 2023

Community	% 5-Year Screening	5-Year Cases [1]	Incidence Rate per 1,000 [1]	% PIR Below 2 [2]	% Pre-1978 Housing Units [3]	High-Risk Score [4]
BOSTON	69%	186	2.6	26%	73%	4.6
BROCKTON	72%	96	5.7	26%	80%	11.1
CHELSEA	69%	18	2.4	38%	70%	6.0
CHICOPEE	60%	16	2.7	24%	79%	4.8
EVERETT	73%	25	3.3	34%	79%	8.3
FALL RIVER	70%	51	3.9	38%	78%	10.8
LAWRENCE	66%	36	2.4	44%	77%	7.6
LOWELL	65%	89	5.4	26%	75%	9.8
LYNN	75%	81	4.4	30%	79%	9.7
MALDEN	77%	24	2.6	25%	72%	4.4
NEW BEDFORD	78%	101	6.0	36%	83%	16.7
PITTSFIELD	67%	23	4.5	20%	83%	7.0
SPRINGFIELD	66%	91	4.3	39%	82%	12.8
TAUNTON	70%	23	2.9	22%	63%	3.7
WESTFIELD	59%	17	4.4	17%	69%	4.8
WORCESTER	63%	73	3.1	32%	75%	6.9
ALL HIGH-RISK	69%	950	3.6	30%	76%	7.7
MASSACHUSETTS	70%	1727	2.1	16%	67%	2.1

Comments:

The percent screened and number of newly identified cases with confirmed blood lead levels ≥10 µg/dL (children 9 to 47 months) have been identified for this 5-year period.

Communities with at least 15 cases and a High-Risk Score statistically significantly higher than the state High-Risk Score for this 5-year period have been included.

Footnotes:

[1]Number and rate of incident cases ≥10 µg/dL per 1,000 children (9 to 47 months) screened during this 5-year period. An incident case is only counted once over the course of the 5-year time-period. MA CLPPP defines lead poisoning as a confirmed blood lead level ≥10 µg/dL.

[2]Percentage of families with a poverty to income ratio (PIR) below 2.00 (i.e., < 200% of the poverty threshold). As reported by the 2022 5-Year American Community Survey (Table B17026).

[3]Percentage of housing units built prior to 1978 as estimated by the American Community Survey. In 1977, the Consumer Product Safety Commission banned lead-containing paint (16 C.F.R. 1303). Housing units built prior to this date may contain dangerous levels of lead in paint. As reported by the 2022 5-Year American Community Survey (Table B25034).

[4](5-Year Incidence Rate by community) * (% PIR below 2 by community / % PIR below 2 MA) * (% pre-1978 by community / % pre-1978 MA)

Appendix II: Screening and Prevalence of Childhood Blood Lead Levels for Children 9 months to less than 4 years of age by Community Calendar Year 2023

Community	Population 9-47 mo[1]	Total Screened	Percent Screened	Blood Lead Levels (µg/dL)[2]								Estimated Confirmed ≥5[3]		Confirmed ≥10[4]		Percent Pre-1978 Housing Units[5]
				0-4		5-9		10-24		≥25						
				N	%	N	%	N	%	N	%	N	%	N	%	
ABINGTON	615	530	86	526	99.2	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	64
ACTON	699	547	78	544	99.5	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	56
ACUSHNET	286	245	86	243	99.2	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	71
ADAMS	241	237	98	214	90.3	22	9.3	NS	NS	0	0.0	15	6.3	NS	NS	91
AGAWAM	838	578	69	578	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	69
ALFORD	10	4	40	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	44
AMESBURY	537	342	64	330	96.5	10	2.9	NS	NS	0	0.0	11	3.2	NS	NS	64
AMHERST	473	261	55	259	99.2	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	58
ANDOVER	1111	819	74	815	99.5	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	58
ARLINGTON	1786	1191	67	1183	99.3	7	0.6	NS	NS	0	0.0	7	0.6	NS	NS	86
ASHBURNHAM	201	142	71	136	95.8	NS	NS	NS	NS	0	0.0	6	4.2	NS	NS	43
ASHBY	91	71	78	69	97.2	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	62
ASHFIELD	36	25	69	25	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	66
ASHLAND	738	557	75	553	99.3	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	42
ATHOL	399	224	56	220	98.2	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	72
ATTLEBORO	1716	1322	77	1301	98.4	17	1.3	3	0.2	1	0.1	16	1.2	4	0.3	59
AUBURN	531	385	73	384	99.7	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	71
AVON	156	154	99	153	99.4	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	88
AYER	296	205	69	205	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	54
BARNSTABLE	1494	968	65	948	97.9	18	1.9	NS	NS	0	0.0	10	1.0	NS	NS	52
BARRE	162	108	67	107	99.1	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	68
BECKET	54	19	35	17	89.5	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	55
BEDFORD	537	306	57	305	99.7	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	53
BELCHERTOWN	434	323	74	319	98.8	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	37
BELLINGHAM	623	395	63	394	99.7	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	56
BELMONT	1047	578	55	571	98.8	6	1.0	NS	NS	0	0.0	6	1.0	NS	NS	88
BERKLEY	201	172	86	171	99.4	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	37

Appendix II: Screening and Prevalence of Childhood Blood Lead Levels for Children 9 months to less than 4 years of age by Community Calendar Year 2023

Community	Population 9-47 mo[1]	Total Screened	Percent Screened	Blood Lead Levels (µg/dL)[2]								Estimated Confirmed ≥5[3]		Confirmed ≥10[4]		Percent Pre-1978 Housing Units[5]
				0-4		5-9		10-24		≥25						
				N	%	N	%	N	%	N	%	N	%	N	%	
BERLIN	96	82	85	82	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	38
BERNARDSTON	48	24	50	23	95.8	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	67
BEVERLY	1460	989	68	981	99.2	6	0.6	NS	NS	0	0.0	7	0.7	NS	NS	68
BILLERICA	1250	1117	89	1111	99.5	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	59
BLACKSTONE	285	161	56	157	97.5	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	60
BLANDFORD	22	25	>99	25	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	70
BOLTON	184	167	91	166	99.4	0	0.0	NS	NS	0	0.0	NS	NS	NS	NS	42
BOSTON	20903	14628	70	14428	98.6	159	1.1	35	0.2	6	0.0	188	1.3	40	0.3	73
BOURNE	467	386	83	384	99.5	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	53
BOXBOROUGH	150	121	81	120	99.2	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	45
BOXFORD	221	214	97	214	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	52
BOYLSTON	153	112	73	112	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	53
BRAINTREE	1368	931	68	927	99.6	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	73
BREWSTER	199	143	72	140	97.9	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	38
BRIDGEWATER	814	728	89	724	99.5	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	42
BRIMFIELD	99	68	69	68	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	38
BROCKTON	4700	3502	75	3378	96.5	96	2.7	25	0.7	3	0.1	117	3.3	28	0.8	80
BROOKFIELD	101	68	67	68	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	50
BROOKLINE	2221	1221	55	1214	99.4	7	0.6	0	0.0	0	0.0	6	0.5	0	0.0	82
BUCKLAND	45	20	44	20	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	77
BURLINGTON	877	659	75	655	99.4	NS	NS	0	0.0	NS	NS	NS	NS	NS	NS	59
CAMBRIDGE	2985	2107	71	2091	99.2	15	0.7	1	0.0	0	0.0	15	0.7	1	0.0	69
CANTON	806	737	91	733	99.5	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	49
CARLISLE	142	106	75	105	99.1	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	52
CARVER	346	281	81	280	99.6	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	46
CHARLEMONT	27	18	67	18	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	72
CHARLTON	399	289	72	289	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	39

Appendix II: Screening and Prevalence of Childhood Blood Lead Levels for Children 9 months to less than 4 years of age by Community Calendar Year 2023

Community	Population 9-47 mo[1]	Total Screened	Percent Screened	Blood Lead Levels (µg/dL)[2]								Estimated Confirmed ≥5[3]		Confirmed ≥10[4]		Percent Pre-1978 Housing Units[5]
				0-4		5-9		10-24		≥25						
				N	%	N	%	N	%	N	%	N	%	N	%	
CHATHAM	90	38	42	37	97.4	0	0.0	0	0.0	NS	NS	NS	NS	NS	NS	53
CHELMSFORD	1128	1012	90	1001	98.9	9	0.9	NS	NS	0	0.0	10	1.0	NS	NS	66
CHELSEA	2178	1479	68	1456	98.4	17	1.1	4	0.3	2	0.1	22	1.5	6	0.4	70
CHESHIRE	92	55	60	54	98.2	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	69
CHESTER	26	30	>99	29	96.7	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	66
CHESTERFIELD	23	24	>99	24	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	58
CHICOPEE	1945	1236	64	1211	98.0	20	1.6	4	0.3	1	0.1	22	1.8	5	0.4	79
CHILMARK	22	9	41	9	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	43
CLARKSBURG	45	33	73	32	97.0	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	68
CLINTON	568	400	70	392	98.0	8	2.0	0	0.0	0	0.0	7	1.8	0	0.0	69
COHASSET	264	297	>99	296	99.7	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	68
COLRAIN	44	24	55	23	95.8	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	72
CONCORD	507	354	70	353	99.7	0	0.0	NS	NS	0	0.0	NS	NS	NS	NS	63
CONWAY	37	15	41	15	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	55
CUMMINGTON	10	11	>99	11	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	66
DALTON	166	136	82	130	95.6	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	77
DANVERS	819	688	84	680	98.8	NS	NS	NS	NS	NS	NS	7	1.0	NS	NS	70
DARTMOUTH	691	604	87	596	98.7	6	1.0	NS	NS	0	0.0	NS	NS	NS	NS	59
DEDHAM	843	763	91	759	99.5	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	74
DEERFIELD	109	65	60	65	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	61
DENNIS	276	212	77	211	99.5	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	70
DIGHTON	253	209	83	204	97.6	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	50
DOUGLAS	267	178	67	177	99.4	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	40
DOVER	160	178	>99	178	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	54
DRACUT	1118	758	68	755	99.6	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	52
DUDLEY	322	246	76	241	98.0	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	65
DUNSTABLE	72	95	>99	95	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	36

Appendix II: Screening and Prevalence of Childhood Blood Lead Levels for Children 9 months to less than 4 years of age by Community Calendar Year 2023

Community	Population 9-47 mo[1]	Total Screened	Percent Screened	Blood Lead Levels (µg/dL)[2]								Estimated Confirmed ≥5[3]		Confirmed ≥10[4]		Percent Pre-1978 Housing Units[5]
				0-4		5-9		10-24		≥25						
				N	%	N	%	N	%	N	%	N	%	N	%	
DUXBURY	452	376	83	375	99.7	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	56
EAST BRIDGEWATER	481	348	72	344	98.9	NS	NS	0	0.0	NS	NS	NS	NS	NS	NS	56
EAST BROOKFIELD	66	39	59	39	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	70
EAST LONGMEADOW	457	351	77	351	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	61
EASTHAM	91	50	55	49	98.0	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	54
EASTHAMPTON	430	251	58	247	98.4	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	69
EASTON	699	594	85	589	99.2	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	48
EDGARTOWN	149	94	63	93	98.9	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	39
EGREMONT	26	11	42	11	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	62
ERVING	44	9	20	9	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	71
ESSEX	114	90	79	90	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	63
EVERETT	2049	1599	78	1560	97.6	32	2.0	7	0.4	0	0.0	35	2.2	7	0.4	79
FAIRHAVEN	388	318	82	313	98.4	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	79
FALL RIVER	3715	2709	73	2655	98.0	45	1.7	8	0.3	1	0.0	46	1.7	9	0.3	78
FALMOUTH	710	480	68	477	99.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	58
FITCHBURG	1773	1139	64	1110	97.5	23	2.0	NS	NS	NS	NS	22	1.9	6	0.5	79
FLORIDA	21	10	48	9	90.0	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	59
FOXBOROUGH	626	560	89	558	99.6	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	54
FRAMINGHAM	3026	2371	78	2333	98.4	30	1.3	7	0.3	1	0.0	37	1.6	8	0.3	74
FRANKLIN	1131	746	66	744	99.7	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	40
FREETOWN	213	221	>99	221	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	54
GARDNER	765	486	64	477	98.1	7	1.4	NS	NS	0	0.0	6	1.2	NS	NS	71
AQUINNAH	16	3	19	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	47
GEORGETOWN	291	231	79	229	99.1	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	57
GILL	31	20	65	20	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	60
GLOUCESTER	770	624	81	599	96.0	22	3.5	NS	NS	NS	NS	16	2.6	NS	NS	74
GOSHEN	24	16	67	16	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	63

Appendix II: Screening and Prevalence of Childhood Blood Lead Levels for Children 9 months to less than 4 years of age by Community Calendar Year 2023

Community	Population 9-47 mo[1]	Total Screened	Percent Screened	Blood Lead Levels (µg/dL)[2]								Estimated Confirmed ≥5[3]		Confirmed ≥10[4]		Percent Pre-1978 Housing Units[5]
				0-4		5-9		10-24		≥25						
				N	%	N	%	N	%	N	%	N	%	N	%	
GOSNOLD	0	0	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	73
GRAFTON	715	472	66	470	99.6	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	50
GRANBY	136	114	84	113	99.1	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	64
GRANVILLE	41	35	85	33	94.3	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	61
GREAT BARRINGTON	152	72	47	67	93.1	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	64
GREENFIELD	559	241	43	235	97.5	6	2.5	0	0.0	0	0.0	NS	NS	0	0.0	81
GROTON	360	264	73	262	99.2	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	38
GROVELAND	187	158	84	158	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	55
HADLEY	103	79	77	78	98.7	0	0.0	NS	NS	0	0.0	NS	NS	NS	NS	67
HALIFAX	252	197	78	196	99.5	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	44
HAMILTON	272	226	83	224	99.1	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	78
HAMPDEN	105	96	91	94	97.9	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	72
HANCOCK	20	5	25	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	38
HANOVER	493	426	86	423	99.3	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	57
HANSON	294	249	85	247	99.2	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	58
HARDWICK	84	35	42	34	97.1	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	61
HARVARD	130	128	98	126	98.4	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	63
HARWICH	272	162	60	160	98.8	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	55
HATFIELD	68	39	57	36	92.3	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	69
HAVERHILL	2878	1803	63	1764	97.8	32	1.8	7	0.4	0	0.0	26	1.4	6	0.3	62
HAWLEY	7	4	57	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	63
HEATH	16	5	31	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	50
HINGHAM	885	736	83	732	99.5	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	56
HINSDALE	37	37	100	37	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	55
HOLBROOK	371	312	84	309	99.0	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	81
HOLDEN	704	403	57	400	99.3	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	57
HOLLAND	78	50	64	50	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	50

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Community	Population 9-47 mo[1]	Total Screened	Percent Screened	Blood Lead Levels (µg/dL)[2]								Estimated Confirmed ≥5[3]		Confirmed ≥10[4]		Percent Pre-1978 Housing Units[5]
				0-4		5-9		10-24		≥25						
				N	%	N	%	N	%	N	%	N	%	N	%	
HOLLISTON	533	411	77	408	99.3	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	70
HOLYOKE	1551	1020	66	1002	98.2	16	1.6	NS	NS	0	0.0	14	1.4	NS	NS	83
HOPEDALE	175	118	67	117	99.2	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	57
HOPKINTON	691	570	82	560	98.2	7	1.2	NS	NS	0	0.0	9	1.6	NS	NS	33
HUBBARDSTON	117	94	80	94	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	31
HUDSON	630	468	74	463	98.9	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	57
HULL	213	148	69	147	99.3	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	76
HUNTINGTON	59	38	64	37	97.4	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	63
IPSWICH	319	245	77	243	99.2	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	62
KINGSTON	473	421	89	411	97.6	8	1.9	NS	NS	0	0.0	9	2.1	NS	NS	47
LAKEVILLE	342	294	86	292	99.3	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	43
LANCASTER	192	176	92	176	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	60
LANESBOROUGH	78	51	65	50	98.0	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	63
LAWRENCE	4570	3113	68	3080	98.9	26	0.8	6	0.2	1	0.0	33	1.1	7	0.2	77
LEE	137	56	41	54	96.4	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	71
LEICESTER	294	212	72	210	99.1	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	58
LENOX	89	51	57	50	98.0	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	67
LEOMINSTER	1529	1136	74	1125	99.0	10	0.9	NS	NS	0	0.0	10	0.9	NS	NS	66
LEVERETT	32	25	78	24	96.0	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	55
LEXINGTON	996	553	56	549	99.3	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	66
LEYDEN	13	9	69	9	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	51
LINCOLN	296	232	78	231	99.6	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	58
LITTLETON	333	275	83	274	99.6	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	50
LONGMEADOW	488	305	63	304	99.7	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	86
LOWELL	5019	3506	70	3394	96.8	86	2.5	23	0.7	3	0.1	90	2.6	25	0.7	75
LUDLOW	495	359	73	356	99.2	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	62
LUNENBURG	383	280	73	278	99.3	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	58

Appendix II: Screening and Prevalence of Childhood Blood Lead Levels for Children 9 months to less than 4 years of age by Community Calendar Year 2023

Community	Population 9-47 mo[1]	Total Screened	Percent Screened	Blood Lead Levels (µg/dL)[2]								Estimated Confirmed ≥5[3]		Confirmed ≥10[4]		Percent Pre-1978 Housing Units[5]
				0-4		5-9		10-24		≥25						
				N	%	N	%	N	%	N	%	N	%	N	%	
LYNN	4939	3784	77	3681	97.3	86	2.3	16	0.4	1	0.0	97	2.6	16	0.4	79
LYNNFIELD	378	357	94	357	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	67
MALDEN	2287	1891	83	1866	98.7	20	1.1	5	0.3	0	0.0	23	1.2	5	0.3	72
MANCHESTER	133	95	71	94	98.9	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	76
MANSFIELD	764	665	87	658	98.9	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	48
MARBLEHEAD	565	499	88	494	99.0	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	84
MARION	130	99	76	99	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	65
MARLBOROUGH	1722	1191	69	1176	98.7	14	1.2	NS	NS	0	0.0	11	0.9	NS	NS	58
MARSHFIELD	817	684	84	681	99.6	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	65
MASHPEE	360	280	78	278	99.3	NS	NS	0	0.0	NS	NS	NS	NS	NS	NS	22
MATTAPOISETT	137	110	80	110	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	55
MAYNARD	451	258	57	254	98.4	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	69
MEDFIELD	428	375	88	370	98.7	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	60
MEDFORD	1635	1425	87	1409	98.9	14	1.0	2	0.1	0	0.0	14	1.0	2	0.1	76
MEDWAY	443	314	71	312	99.4	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	52
MELROSE	1085	866	80	860	99.3	NS	NS	NS	NS	0	0.0	6	0.7	NS	NS	84
MENDON	175	146	83	145	99.3	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	29
MERRIMAC	148	128	86	126	98.4	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	49
METHUEN	1876	1200	64	1191	99.3	7	0.6	2	0.2	0	0.0	8	0.7	2	0.2	63
MIDDLEBOROUGH	772	661	86	655	99.1	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	49
MIDDLEFIELD	8	4	50	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	44
MIDDLETON	239	190	79	190	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	39
MILFORD	1243	921	74	883	95.9	33	3.6	NS	NS	0	0.0	35	3.8	NS	NS	65
MILLBURY	424	315	74	312	99.0	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	64
MILLIS	279	217	78	216	99.5	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	53
MILLVILLE	92	59	64	58	98.3	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	53
MILTON	993	790	80	785	99.4	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	81

Appendix II: Screening and Prevalence of Childhood Blood Lead Levels for Children 9 months to less than 4 years of age by Community Calendar Year 2023

Community	Population 9-47 mo[1]	Total Screened	Percent Screened	Blood Lead Levels (µg/dL)[2]								Estimated Confirmed ≥5[3]		Confirmed ≥10[4]		Percent Pre-1978 Housing Units[5]
				0-4		5-9		10-24		≥25						
				N	%	N	%	N	%	N	%	N	%	N	%	
MONROE	2	4	>99	NS	NS	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	67
MONSON	188	141	75	139	98.6	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	60
MONTAGUE	278	128	46	125	97.7	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	78
MONTEREY	23	1	4	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	54
MONTGOMERY	29	16	55	15	93.8	0	0.0	NS	NS	0	0.0	NS	NS	NS	NS	48
MOUNT WASHINGTON	3	2	67	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	69
NAHANT	50	79	>99	78	98.7	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	89
NANTUCKET	566	273	48	268	98.2	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	41
NATICK	1404	1019	73	1012	99.3	7	0.7	0	0.0	0	0.0	7	0.7	0	0.0	60
NEEDHAM	1165	863	74	862	99.9	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	65
NEW ASHFORD	4	6	>99	6	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	68
NEW BEDFORD	4283	3398	79	3282	96.6	96	2.8	18	0.5	2	0.1	103	3.0	20	0.6	83
NEW BRAINTREE	31	14	45	14	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	48
NEW MARLBOROUGH	28	5	18	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	54
NEW SALEM	23	11	48	10	90.9	0	0.0	NS	NS	0	0.0	NS	NS	NS	NS	62
NEWBURY	166	122	73	121	99.2	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	64
NEWBURYPORT	481	276	57	276	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	71
NEWTON	2818	1891	67	1878	99.3	13	0.7	0	0.0	0	0.0	12	0.6	0	0.0	81
NORFOLK	378	363	96	360	99.2	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	41
NORTH ADAMS	427	277	65	243	87.7	31	11.2	NS	NS	0	0.0	21	7.6	NS	NS	87
NORTH ANDOVER	1006	703	70	699	99.4	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	50
NORTH ATTLEBOROUGH	1041	659	63	655	99.4	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	57
NORTH BROOKFIELD	154	92	60	88	95.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	68
NORTH READING	487	410	84	410	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	57
NORTHAMPTON	629	299	48	296	99.0	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	72
NORTHBOROUGH	444	406	91	403	99.3	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	47
NORTHBRIDGE	560	393	70	386	98.2	NS	NS	NS	NS	0	0.0	7	1.8	NS	NS	58

Appendix II: Screening and Prevalence of Childhood Blood Lead Levels for Children 9 months to less than 4 years of age by Community Calendar Year 2023

Community	Population 9-47 mo[1]	Total Screened	Percent Screened	Blood Lead Levels (µg/dL)[2]								Estimated Confirmed ≥5[3]		Confirmed ≥10[4]		Percent Pre-1978 Housing Units[5]
				0-4		5-9		10-24		≥25						
				N	%	N	%	N	%	N	%	N	%	N	%	
NORTHFIELD	60	37	62	37	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	60
NORTON	557	448	80	447	99.8	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	42
NORWELL	410	392	96	390	99.5	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	64
NORWOOD	1190	936	79	927	99.0	7	0.7	NS	NS	0	0.0	8	0.9	NS	NS	71
OAK BLUFFS	169	51	30	51	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	52
OAKHAM	39	27	69	27	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	40
ORANGE	239	126	53	118	93.7	6	4.8	NS	NS	NS	NS	7	5.6	NS	NS	71
ORLEANS	100	42	42	40	95.2	0	0.0	NS	NS	0	0.0	NS	NS	NS	NS	59
OTIS	34	21	62	21	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	54
OXFORD	377	301	80	298	99.0	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	63
PALMER	351	240	68	232	96.7	7	2.9	NS	NS	0	0.0	7	2.9	NS	NS	67
PAXTON	133	74	56	73	98.6	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	67
PEABODY	1665	1452	87	1438	99.0	12	0.8	1	0.1	1	0.1	13	0.9	2	0.1	63
PELHAM	31	15	48	15	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	60
PEMBROKE	583	506	87	505	99.8	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	51
PEPPERELL	351	281	80	280	99.6	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	46
PERU	16	15	94	14	93.3	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	49
PETERSHAM	32	23	72	23	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	62
PHILLIPSTON	46	19	41	19	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	40
PITTSFIELD	1504	948	63	896	94.5	36	3.8	16	1.7	0	0.0	35	3.7	13	1.4	83
PLAINFIELD	16	12	75	12	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	53
PLAINVILLE	329	250	76	249	99.6	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	43
PLYMOUTH	1809	1491	82	1478	99.1	13	0.9	0	0.0	0	0.0	9	0.6	0	0.0	49
PLYMPTON	86	84	98	84	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	46
PRINCETON	83	73	88	72	98.6	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	50
PROVINCETOWN	31	13	42	13	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	64
QUINCY	3130	2285	73	2264	99.1	19	0.8	2	0.1	0	0.0	17	0.7	2	0.1	67

Appendix II: Screening and Prevalence of Childhood Blood Lead Levels for Children 9 months to less than 4 years of age by Community Calendar Year 2023

Community	Population 9-47 mo[1]	Total Screened	Percent Screened	Blood Lead Levels (µg/dL)[2]								Estimated Confirmed ≥5[3]		Confirmed ≥10[4]		Percent Pre-1978 Housing Units[5]
				0-4		5-9		10-24		≥25						
				N	%	N	%	N	%	N	%	N	%	N	%	
RANDOLPH	1211	872	72	864	99.1	NS	NS	NS	NS	NS	NS	7	0.8	NS	NS	70
RAYNHAM	488	379	78	379	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	42
READING	919	711	77	707	99.4	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	74
REHOBOTH	332	261	79	258	98.9	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	49
REVERE	2495	1717	69	1706	99.4	9	0.5	2	0.1	0	0.0	11	0.6	2	0.1	66
RICHMOND	17	6	35	NS	NS	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	75
ROCHESTER	133	125	94	125	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	46
ROCKLAND	648	481	74	473	98.3	7	1.5	NS	NS	0	0.0	NS	NS	NS	NS	65
ROCKPORT	129	68	53	68	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	78
ROWE	15	6	40	6	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	79
ROWLEY	180	118	66	118	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	49
ROYALSTON	34	23	68	23	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	50
RUSSELL	50	40	80	40	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	63
RUTLAND	301	208	69	207	99.5	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	40
SALEM	1402	1147	82	1125	98.1	17	1.5	NS	NS	0	0.0	22	1.9	NS	NS	75
SALISBURY	219	133	61	131	98.5	0	0.0	NS	NS	0	0.0	NS	NS	NS	NS	46
SANDISFIELD	26	7	27	7	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	53
SANDWICH	498	415	83	415	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	42
SAUGUS	784	720	92	706	98.1	11	1.5	NS	NS	0	0.0	13	1.8	NS	NS	72
SAVOY	12	19	>99	19	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	50
SCITUATE	575	587	>99	580	98.8	7	1.2	0	0.0	0	0.0	NS	NS	0	0.0	74
SEEKONK	388	282	73	276	97.9	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	69
SHARON	657	442	67	439	99.3	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	60
SHEFFIELD	73	33	45	33	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	65
SHELBURNE	38	26	68	26	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	72
SHERBORN	112	131	>99	131	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	68
SHIRLEY	201	154	77	153	99.4	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	51

Appendix II: Screening and Prevalence of Childhood Blood Lead Levels for Children 9 months to less than 4 years of age by Community Calendar Year 2023

Community	Population 9-47 mo[1]	Total Screened	Percent Screened	Blood Lead Levels (µg/dL)[2]								Estimated Confirmed ≥5[3]		Confirmed ≥10[4]		Percent Pre-1978 Housing Units[5]
				0-4		5-9		10-24		≥25						
				N	%	N	%	N	%	N	%	N	%	N	%	
SHREWSBURY	1333	803	60	789	98.3	12	1.5	NS	NS	0	0.0	13	1.6	NS	NS	49
SHUTESBURY	35	22	63	22	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	51
SOMERSET	498	350	70	348	99.4	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	78
SOMERVILLE	2084	1524	73	1512	99.2	10	0.7	2	0.1	0	0.0	11	0.7	2	0.1	82
SOUTH HADLEY	413	291	70	288	99.0	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	65
SOUTHAMPTON	169	96	57	96	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	48
SOUTHBOROUGH	315	297	94	296	99.7	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	49
SOUTHBRIDGE	635	436	69	425	97.5	9	2.1	NS	NS	0	0.0	8	1.8	NS	NS	73
SOUTHWICK	234	184	79	183	99.5	0	0.0	NS	NS	0	0.0	NS	NS	NS	NS	49
SPENCER	348	240	69	236	98.3	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	65
SPRINGFIELD	6459	4312	67	4195	97.3	92	2.1	24	0.6	1	0.0	106	2.5	24	0.6	82
STERLING	209	147	70	147	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	52
STOCKBRIDGE	29	22	76	22	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	77
STONEHAM	662	668	>99	661	99.0	NS	NS	NS	NS	0	0.0	7	1.0	NS	NS	72
STOUGHTON	937	749	80	743	99.2	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	69
STOW	239	153	64	153	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	54
STURBRIDGE	356	213	60	211	99.1	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	48
SUDBURY	581	547	94	545	99.6	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	54
SUNDERLAND	100	27	27	25	92.6	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	53
SUTTON	241	178	74	177	99.4	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	48
SWAMPSCOTT	498	431	87	428	99.3	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	73
SWANSEA	428	350	82	345	98.6	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	67
TAUNTON	2216	1683	76	1643	97.6	33	2.0	5	0.3	2	0.1	36	2.1	7	0.4	63
TEMPLETON	290	172	59	169	98.3	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	56
TEWKSBURY	890	721	81	719	99.7	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	45
TISBURY	143	112	78	111	99.1	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	50
TOLLAND	10	1	10	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	44

Appendix II: Screening and Prevalence of Childhood Blood Lead Levels for Children 9 months to less than 4 years of age by Community Calendar Year 2023

Community	Population 9-47 mo[1]	Total Screened	Percent Screened	Blood Lead Levels (µg/dL)[2]								Estimated Confirmed ≥5[3]		Confirmed ≥10[4]		Percent Pre-1978 Housing Units[5]
				0-4		5-9		10-24		≥25						
				N	%	N	%	N	%	N	%	N	%	N	%	
TOPSFIELD	165	158	96	158	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	67
TOWNSEND	259	211	81	209	99.1	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	57
TRURO	33	15	45	15	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	52
TYNGSBOROUGH	365	297	81	293	98.7	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	25
TYRINGHAM	6	1	17	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	53
UPTON	248	186	75	185	99.5	0	0.0	NS	NS	0	0.0	NS	NS	NS	NS	49
UXBRIDGE	464	281	61	280	99.6	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	51
WAKEFIELD	876	717	82	713	99.4	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	69
WALES	65	34	52	34	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	41
WALPOLE	866	798	92	796	99.7	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	56
WALTHAM	2167	1574	73	1541	97.9	29	1.8	4	0.3	0	0.0	28	1.8	4	0.3	69
WARE	340	173	51	167	96.5	NS	NS	0	0.0	NS	NS	6	3.5	NS	NS	68
WAREHAM	629	500	79	492	98.4	7	1.4	NS	NS	0	0.0	6	1.2	NS	NS	69
WARREN	159	74	47	67	90.5	7	9.5	0	0.0	0	0.0	7	9.5	0	0.0	44
WARWICK	17	9	53	8	88.9	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	55
WASHINGTON	12	1	8	0	0.0	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	59
WATERTOWN	1103	841	76	835	99.3	NS	NS	NS	NS	0	0.0	6	0.7	NS	NS	79
WAYLAND	428	370	86	368	99.5	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	67
WEBSTER	622	458	74	446	97.4	9	2.0	NS	NS	NS	NS	12	2.6	NS	NS	65
WELLESLEY	1058	671	63	669	99.7	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	73
WELLFLEET	58	21	36	20	95.2	NS	NS	0	0.0	0	0.0	0	0.0	0	0.0	53
WENDELL	33	7	21	7	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	50
WENHAM	119	142	>99	141	99.3	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	73
WEST BOYLSTON	185	138	75	138	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	65
WEST BRIDGEWATER	232	192	83	189	98.4	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	70
WEST BROOKFIELD	89	84	94	82	97.6	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	63
WEST NEWBURY	105	94	90	94	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	50

Appendix II: Screening and Prevalence of Childhood Blood Lead Levels for Children 9 months to less than 4 years of age by Community Calendar Year 2023

Community	Population 9-47 mo[1]	Total Screened	Percent Screened	Blood Lead Levels (µg/dL)[2]								Estimated Confirmed ≥5[3]		Confirmed ≥10[4]		Percent Pre-1978 Housing Units[5]
				0-4		5-9		10-24		≥25						
				N	%	N	%	N	%	N	%	N	%	N	%	
WEST SPRINGFIELD	1076	740	69	727	98.2	9	1.2	NS	NS	0	0.0	11	1.5	NS	NS	71
WEST STOCKBRIDGE	22	12	55	12	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	60
WEST TISBURY	81	44	54	44	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	32
WESTBOROUGH	843	518	61	509	98.3	6	1.2	NS	NS	0	0.0	9	1.7	NS	NS	53
WESTFIELD	1285	879	68	868	98.7	10	1.1	NS	NS	0	0.0	11	1.3	NS	NS	69
WESTFORD	690	563	82	557	98.9	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	42
WESTHAMPTON	35	25	71	24	96.0	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	63
WESTMINSTER	221	190	86	189	99.5	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	60
WESTON	315	274	87	274	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	67
WESTPORT	342	282	82	276	97.9	NS	NS	0	0.0	NS	NS	NS	NS	NS	NS	63
WESTWOOD	484	427	88	427	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	64
WEYMOUTH	1922	1661	86	1648	99.2	12	0.7	1	0.1	0	0.0	10	0.6	1	0.1	71
WHATELY	47	14	30	14	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	55
WHITMAN	553	444	80	436	98.2	6	1.4	NS	NS	0	0.0	7	1.6	NS	NS	76
WILBRAHAM	401	324	81	322	99.4	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	72
WILLIAMSBURG	57	33	58	33	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	62
WILLIAMSTOWN	142	100	70	97	97.0	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	76
WILMINGTON	824	610	74	609	99.8	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	53
WINCHENDON	317	220	69	211	95.9	6	2.7	NS	NS	NS	NS	7	3.2	NS	NS	45
WINCHESTER	801	596	74	593	99.5	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	75
WINDSOR	10	11	>99	11	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	60
WINTHROP	618	459	74	452	98.5	7	1.5	0	0.0	0	0.0	6	1.3	0	0.0	84
WOBURN	1423	1197	84	1187	99.2	8	0.7	NS	NS	0	0.0	10	0.8	NS	NS	62
WORCESTER	7578	4871	64	4787	98.3	67	1.4	15	0.3	2	0.0	75	1.5	17	0.3	75
WORTHINGTON	18	11	61	9	81.8	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	67
WRENTHAM	367	349	95	346	99.1	NS	NS	NS	NS	0	0.0	NS	NS	NS	NS	47
YARMOUTH	644	428	66	426	99.5	NS	NS	0	0.0	0	0.0	NS	NS	0	0.0	65

Appendix II: Screening and Prevalence of Childhood Blood Lead Levels for Children 9 months to less than 4 years of age by Community Calendar Year 2023

Community	Population 9-47 mo[1]	Total Screened	Percent Screened	Blood Lead Levels (µg/dL)[2]								Estimated Confirmed ≥5[3]		Confirmed ≥10[4]		Percent Pre-1978 Housing Units[5]
				0-4		5-9		10-24		≥25						
				N	%	N	%	N	%	N	%	N	%	N	%	
Total for MA	**232249**	**169727**	**73**	**167312**	**98.6**	**1978**	**1.2**	**392**	**0.2**	**45**	**0.0**	**2059**	**1.2**	**421**	**0.2**	**67**

Comments

N = number (counts of children)

NS = Number or prevalence is not shown when N is between 1-5 and total screened is less than 1,200. These small numbers are suppressed to protect privacy.

Footnotes:

[1] This report uses the 2020 UMass Donahue Institute (UMDI) interim population estimates, the most current available at the time of publication. Population count for children 9 to 47 months of age is obtained from UMDI population estimates. For more information, see "About our Data" on mass.gov/dph/matracking. According to MA state regulations (105 CMR 460.050), children are not required to be screened until 9 months of age.

[2] Blood lead levels (BLLs) include both confirmed and unconfirmed blood lead tests. A confirmed test is either a single venous specimen of any value, or two capillary specimens ≥5 µg/dL drawn within 12 weeks of each other. A single capillary blood test of any value is considered unconfirmed.

[3] The Centers for Disease Control and Prevention (CDC) used a reference value of 5 µg/dL between 2012 and 2021 to identify children whose BLLs are higher than 97.5% of all U.S. children's levels, based on the National Health and Nutrition Examination Survey (NHANES). In 2021, the CDC lowered its reference level from 5 µg/dL to 3.5 µg/dL. There is no safe blood lead level. Massachusetts defines a Blood Lead Level of Concern as 5-9 µg/dL (venous) and requires confirmatory testing for capillary samples ≥5µg/dL and re-screening for confirmed blood lead levels ≥5µg/dL. The number of children with estimated confirmed ≥5 µg/dL BLLs is calculated as the sum of those with confirmed BLLs ≥5 µg/dL and a proportion of unconfirmed capillary tests estimated to be truly ≥5 µg/dL based on known capillary test reliability.

[4] Lead poisoning in this surveillance report is defined as a confirmed BLL ≥10 µg/dL.

[5] Percentage of housing units built prior to 1978 as defined by the American Community Survey. In 1977 the Consumer Product Safety Commission banned lead-containing paint (16 C.F.R. 1303). Housing units built prior to this date may contain dangerous levels of lead in paint. As reported by the 2022 5-Year American Community Survey (Table B25034).

APPENDIX III: Technical Notes

High-Risk Community Report:

- **High-Risk Communities**: Communities with a 5-year incidence of confirmed ≥ 10 µg/dL cases of at least 15 and with a 5-year incidence rate that is above the state rate after adjusting for low to moderate income and old housing stock (built pre-1978). The combination of these factors places certain communities at greater risk of childhood lead poisoning. It is important for these communities to extend annual childhood blood lead screening through the age of 4. To help alleviate the burden of childhood lead exposure, an amendment to the Massachusetts Lead Law in 1988 established a *Get the Lead Out* program, which provides loans and grants to help pay for lead paint abatement. The law requires that 50% of the funding be used in high-risk communities. More information about the *Get the Lead Out* program can be found here.
- **Incidence Rate per 1,000**: The number of children (9 to 47 months of age per 1,000 children) identified for the first time with a confirmed blood lead level ≥ 10 µg/dL within the 5-year period. Confirmed cases are defined as either a single venous blood lead test or two capillary blood lead tests drawn within 12 weeks of each other. Incidence is calculated by dividing the number of first-time cases by the total number of children screened in the geographic area and multiplied by 1,000. This determines the rate per 1,000 children. An incident case is only counted once over the course of the 5-year time-period. To determine the blood lead level of a child with multiple tests within the period of evaluation, venous specimens take priority followed by confirmed capillary specimens. Single unconfirmed capillary specimens are not included in the incidence rate.
- **% PIR Below 2**: The poverty to income ratio (PIR), provided by the US Census Bureau, represents the ratio of a family's income to their appropriate poverty threshold, which depends on the number and ages of individuals in the family. A PIR below 1.00 indicates that the income for the respective family is below the official definition of poverty, while a PIR greater than 1.00 indicates income above the poverty level. In identifying high-risk communities, we are interested in families with low to moderate income and have chosen a PIR of 2.00 to define this income cut off. A PIR of 2.00 translates to an income that is 200% of the poverty level. For example, in 2022, for a family of four (two adults, two children), a PIR of 2.00 equates to an annual income of approximately $60,000.
- **High-Risk Score**: This score is used to determine which communities are at highest risk for childhood lead poisoning. The high-risk score incorporates the 5-year incidence rate of blood lead levels ≥ 10 µg/dL, the percentage of families living below 200% of their poverty threshold, and the percentage of housing built before 1978. The score for each community in Massachusetts with at least 15 cases is compared to the state high-risk score. When the community high-risk score exceeds the state high-risk score by a statistically significant margin, that community is at high-risk for childhood lead poisoning.

Annual Screening and Prevalence Report:

- **Total Screened**: The total number of children 9 to 47 months of age screened for lead poisoning in the given calendar year.
- **Percent Screened**: The percentage of children 9 to 47 months of age who were screened for lead poisoning in the given calendar year. This is calculated by dividing the total number of children screened by the underlying population in the geographic area based on the population estimate for the given calendar year. The 2023 report calculates percent screened using 2020 population estimates developed by the UMass Donahue Institute (UMDI) using 2020 decennial Census data. For more information about UMDI population estimates, visit the "About our Data" page on Environmental Public Health Tracking (EPHT). Screening rate data in this report may differ from other publications, such as EPHT reports.
- **µg/dL**: micrograms per deciliter, the unit of measurement for blood lead specimens.
- **Blood Lead Levels**: The number and percentage of children within each blood lead level category, out of all children screened 9 to 47 months of age. Only one blood lead specimen is counted per child. If a child has had more than one blood lead specimen within the designated time-period, then the highest

specimen is counted, with venous specimens taking priority, followed by confirmed capillary specimens and, finally, unconfirmed capillary specimens when no confirmed specimens are available. On December 1, 2017, the MA CLPPP began requiring venous confirmation of capillary blood lead specimens ≥5 µg/dL. Prior to that date, capillary blood lead specimens between 5 and 9 µg/dL were frequently unconfirmed. Unconfirmed capillary blood lead specimens ≥10 µg/dL are less common but may exist due to a failure to re-test according to guidelines. In December 2017, the MA CLPPP also revised its regulations to define childhood lead poisoning as a venous blood lead level ≥10 µg/dL and to define a blood lead level of concern as one between 5 and 9 µg/dL. The CDC reference level for blood lead in children, in effect from 2012-2021, is 5 µg/dL. In 2021, the CDC lowered its reference level from 5 µg/dL to 3.5 µg/dL. There is no safe blood lead level. Massachusetts defines a Blood Lead Level of Concern as 5-9 µg/dL (venous) and requires confirmatory testing for capillary samples ≥5 µg/dL and re-screening for confirmed blood lead levels ≥5 µg/dL. For more information regarding the CDC reference level, please visit the CDC's information page on blood lead levels here.

- **Estimated confirmed ≥5**: Capillary blood tests can be a useful tool for preliminary lead screening because they are easier to conduct than venous tests, especially on children. However, a single capillary test does not provide adequate precision or reliability to be considered confirmatory of an elevated blood lead level. Only about 1/3 of capillary results in the 5-9 µg/dL range are found to be truly ≥5 µg/dL upon retest. Until confirmatory testing of preliminary capillary results 5-9 µg/dL becomes standard practice in Massachusetts, as required by MA CLPPP as of December 1, 2017, a calculation is employed to estimate the true number of children with blood lead levels ≥5 µg/dL. The number of children with estimated confirmed ≥5 µg/dL blood lead levels is calculated as the sum of those with confirmed blood lead levels ≥5 µg/dL and a proportion of those having unconfirmed blood lead levels ≥5 µg/dL. The proportion of unconfirmed blood lead levels ≥5 µg/dL estimated to be truly elevated is based on the annual statewide proportion of capillary results in the 5-9 µg/dL range found to be truly ≥5 µg/dL upon retest (positive predictive value).

Other:

- **Rural cluster definitions**: Rural levels and clusters are defined by the MA Office of Rural Health. More detail can be found here.

APPENDIX IV: References

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