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**MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH**

**2023 Annual Childhood Lead Poisoning Surveillance Report**

# BACKGROUND

**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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# 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**](https://malegislature.gov/Laws/GeneralLaws/PartI/TitleXVI/Chapter111/Section189A) **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.

# BLOOD LEAD SCREENING AND PREVALENCE OF EXPOSURE

Screening by Age

**Massachusetts** [**regulations**](https://www.mass.gov/regulations/105-CMR-46000-lead-poisoning-prevention-and-control) **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.

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

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.

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.

# 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](https://www.mass.gov/info-details/find-your-homes-lead-history) 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.

# 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](https://www.mass.gov/orgs/childhood-lead-poisoning-prevention-program).

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](https://www.mass.gov/news/fdas-advisory-on-3-different-brands-of-apple-cinnamon-fruit-puree-pouches) 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.

# 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).

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

**2023 High-Risk Communities1**

1The 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.

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

# 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.



**Map 1. Estimated Prevalence of Elevated Blood Lead Levels ≥5 µg/dL1 by Rural Clusters (Numbered)2 and Urban Communities3, 9-47 Months of Age, 2023**

1Estimated 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.

2Rural 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.

3All 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](https://www.mass.gov/info-details/state-office-of-rural-health-rural-definition). 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.

# 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

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).

1Includes 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.

2Lowest 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.

1Estimated 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.

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

3MDPH 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.

4Race 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.

5Error 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.

1Estimated 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.

2Race 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.

3MDPH 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.

4Race 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.

# 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.

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

 |
| Community | % 5-YearScreening | 5-YearCases 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:

 1Number 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.

2Percentage 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).

3Percentage 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)

| Community | Population 9-47 mo1 | Total Screened | Percent Screened | Blood Lead Levels (μg/dL)2 | Estimated Confirmed ≥53 | Confirmed ≥104 | Percent Pre-1978 Housing Units5 |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| 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 |
| **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](https://www.masshousing.com/home-ownership/homeowners).
* **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](https://matracking.ehs.state.ma.us/Metadata/index.html)" 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](https://www.cdc.gov/lead-prevention/hcp/clinical-guidance/index.html).
* **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](https://www.mass.gov/service-details/state-office-of-rural-health-rural-definition).

**APPENDIX IV: References**

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