



High-Risk Community Incidence Rate Statistics 2014-2018 Calendar Year Data

Massachusetts lead regulation (105 CMR 460.050) requires that all children be tested for blood lead between the ages of 9 and 12 months, and again at ages 2 and 3. Additionally, all children should be tested at age 4 if they live in a high-risk community in Massachusetts. The following table presents Massachusetts high-risk communities for the past 5 calendar years based on a high-risk score that incorporates the incidence rate of cases with a confirmed blood lead level ≥ 10 $\mu\text{g}/\text{dL}$, the percentage of families living below 200% of their poverty threshold, and percentage of housing built before 1978. This information is relevant to assessing the need for treatment and prevention services at the community level in Massachusetts.

DATA DESCRIPTION

HIGH-RISK COMMUNITIES: Communities with a 5-year incidence rate of confirmed ≥ 10 $\mu\text{g}/\text{dL}$ cases that is above the state 5-year incidence rate of confirmed ≥ 10 $\mu\text{g}/\text{dL}$ cases 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. For more information about the Get the Lead Out program, click [here](#).

5-YEAR CASES: The total number of children (9 to 47 months of age) identified for the first time with a confirmed blood lead level ≥ 10 $\mu\text{g}/\text{dL}$ over the 5 calendar years for each high-risk community. An incident case is only counted once over the course of the 5-year time period.

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 $\mu\text{g}/\text{dL}$ within the 5-year period. Confirmed cases are defined as either a single venous blood lead test or 2 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, with venous specimens taking 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 a family of four

(two adults, two children), a PIR of 2.00 equates to an annual income of approximately \$45,000. The data come from the American Community Survey, 2013-2017.

% PRE-78 HOUSING: The percentage of all housing units built prior to 1978, as estimated by the 2013-2017 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. According to Massachusetts regulations (105 CMR 460.000), removal or covering of lead hazards is required in units built before 1978 where a child under six years of age is living. This is a change from earlier high-risk community incidence rate statistics (data prior to 2009-2013), which used the percentage of all housing units built prior to 1950.

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 $\geq 10 \mu\text{g/dL}$, 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. The formula for the high-risk score is below:

$(5\text{-Year Incidence Rate by Community}) * (\% \text{ Low-Moderate Income by Community} / \% \text{ Low-Moderate Income for MA}) * (\% \text{ Pre-78 by Community} / \% \text{ Pre-78 for MA})$

High-Risk Communities for Childhood Lead Poisoning

January 1, 2014 through December 31, 2018

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	77%	251	2.9	32%	79%	5.8
BROCKTON	81%	123	6.6	33%	82%	14.2
CHELSEA	92%	21	2.2	42%	77%	5.6
CHICOPEE	66%	22	3.2	30%	82%	6.2
EVERETT	77%	30	3.5	33%	88%	8.1
FALL RIVER	75%	44	3.3	39%	82%	8.4
FITCHBURG	63%	21	3.7	30%	78%	6.9
GARDNER	56%	16	7.3	29%	77%	12.9
HOLYOKE	73%	42	5.9	45%	83%	17.5
LAWRENCE	70%	58	3.6	50%	81%	11.6
LOWELL	70%	90	4.7	37%	79%	10.9
LYNN	80%	96	4.9	34%	86%	11.4
MALDEN	74%	39	3.9	28%	79%	6.8
NEW BEDFORD	83%	111	6.2	39%	85%	16.3
PITTSFIELD	75%	28	4.7	30%	83%	9.3
SPRINGFIELD	77%	146	5.6	48%	84%	17.9
WORCESTER	79%	107	3.7	34%	79%	7.9
ALL HIGH-RISK	76%	1245	4.1	36%	81%	9.5
MASSACHUSETTS	73%	2319	2.6	18%	70%	2.6

Comments:

The percent screened and number of newly identified cases with confirmed blood lead levels $\geq 10 \mu\text{g/dL}$ (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 $\geq 10 \mu\text{g/dL}$ per 1,000 children (9 to 47 months) screened during this 5-year period.

² Percentage of families with a poverty to income ratio below 2.00 (i.e. < 200% of the poverty threshold).

³ Percentage of housing units built prior to 1978 as estimated by the American Community Survey.

⁴ $(5\text{-Year Incidence Rate by community}) * (\% \text{ PIR below 2 by community} / \% \text{ PIR below 2 MA}) * (\% \text{ pre-1978 by community} / \% \text{ pre-1978 MA})$