Bureau of BEH Environmental Health

Massachusetts Department of Public Health
Childhood Lead Poisoning Prevention Program

High Risk Community Incidence Rate Statistics
2009-2013 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 elevated cases, 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 elevated (≥ 10 µg/dL) cases that is above the state 5 year incidence rate of confirmed elevated 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 number of children (9 to 47 months of age) identified for the first time with a confirmed elevated blood lead level (≥ 10 µg/dL) combined over the 5 calendar years for each high risk community. An incident elevated 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 elevated blood lead level (≥ 10 µg/dL) within the 5 year period. Confirmed cases are defined as either a single elevated venous blood lead test or 2 elevated capillary blood lead tests drawn within 12 weeks of each other. Incidence is calculated by dividing the number of first time elevated 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 elevated 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 income to poverty 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 is equal to an annual income of $46,566. This data comes from the American Community Survey, 2010-2014.

% PRE-78 HOUSING: The percentage of all housing units built prior to 1978, as estimated by the 2010-2014 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 elevated childhood blood lead levels. The high risk score incorporates the 5 year incidence rate of elevated (≥ 10 µg/dL) cases, 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 elevated 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 Year Incidence Rate by Community) * (% Low-Moderate Income by Community / % Low-Moderate Income for MA) * (% Pre-78 by Community / % Pre-78 for MA)

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High Risk Communities for Childhood Lead Poisoning

January 1, 2009 through December 31, 2013

Community	% 5 Year Screening	5 Year Cases	Incidence Rate per 1,000 [1]	% PIR Below 2 [2]	% Pre-1978 Housing Units [3]	High Risk Score [4]
BOSTON	86	363	4.0	33	81	7.5
BROCKTON	85	131	6.8	35	83	13.9
CHELSEA	97	45	4.3	45	79	10.8
FALL RIVER	71	53	3.8	42	83	9.3
FITCHBURG	67	32	5.2	33	75	9.1
GLOUCESTER	91	21	5.7	20	78	6.3
HAVERHILL	70	50	4.9	25	65	5.6
HOLYOKE	79	43	5.3	49	85	15.5
LAWRENCE	82	97	5.7	55	81	17.9
LOWELL	78	111	5.4	35	78	10.4
LYNN	88	97	5.0	38	88	11.8
MALDEN	79	37	3.6	31	80	6.3
NEW BEDFORD	85	139	7.4	42	85	18.6
NORTH ADAMS	86	15	7.0	33	87	14.2
PITTSFIELD	77	30	4.4	32	81	8.0
SOMERVILLE	85	33	3.5	24	88	5.2
SPRINGFIELD	79	231	7.8	50	85	23.3
WORCESTER	76	123	4.2	35	79	8.2
ALL HIGH RISK	**82**	**1651**	**5.0**	**37**	**82**	**10.7**
MASSACHUSETTS	**76**	**2723**	**3.0**	**20**	**71**	**3.0**

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 of 3.0 for this 5 year period have been included.

Footnotes:

[1] Number of incident cases per 1,000 children (9 to 47 months) screened during this 5 year period.

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

[3] Percentage of housing units built prior to 1978 as estimated by the 2010-2014 American Community Survey.

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