Preventing Childhood Lead Poisoning in Massachusetts

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Outline

I. DPH’s Role in Preventing Childhood Lead Exposure

II. Extent and Impact of Childhood Lead Exposure in Boston and Massachusetts

III. Disparities in Childhood Lead Exposure

IV. Prevention efforts

V. Next Steps
DPH’s Role in Preventing Childhood Lead Exposure

- DPH is charged with promoting health across the state, especially among vulnerable populations, such as children.

- The MA lead law combines incentives, mandated code enforcement for lead-poisoned children, and an assortment of civil and criminal penalties, making it one of the strongest lead laws in the country.

- Despite these measures, the battle has not been won and children aged 3 and under have the highest risk because of
  - Older housing stock in MA
  - Hand-to-mouth activity & dust-coated toys
  - Lead dust, paint flakes, and renovations
Extent and Impact of Lead Exposure

- 78% of Massachusetts homes were built before 1978, when lead paint was prohibited.
- Recent science has shown that even lower blood lead levels may contribute to severe, irreversible negative health impacts.
- Childhood lead poisoning prevention is also critical for health equity: according to the CDC, children living at or below the poverty line are at a significantly elevated risk of exposure to lead.
Incidence (%) of Childhood Blood Lead Levels
5 µg/dL or greater (<6 yrs), by community, 2009-2013

(Total Cases = 14,958)
Prevalence of Elevated BLL (%) by Region of Origin: 1998-2010

Source: Division of Global Populations, Bureau of Infectious Disease, MA DPH
Incidence (%) of Childhood Blood Lead Levels 5 µg/dL or greater (<6 yrs) in Boston Neighborhoods 2009-2013

(Total Cases = 2,448)
Three Neighborhoods Make up >50% of all Incident Cases of BLLs ≥ 5 µg/dL (<6 yrs) from 2009-2013

- North Dorchester, 26%
- Roxbury/Mission Hill, 13%
- East Boston, 13%
- South Dorchester, 10%
- Hyde Park, 7%
- Mattapan, 6%
- Jamaica Plain, 5%
- Roslindale, 4%
- Brighton, 3%
- South Boston, 3%
- West Roxbury, 3%
- South End, 1%
- Downtown, 1%
- Allston, 1%
- Back Bay, etc, 1%
- North End, 0%
- Fenway, 0%

Total Cases = 2,448
Incidence (%) of Childhood Blood Lead Levels
5 µg/dL or greater (<6 yrs) in Boston
Census Tracts
2009-2013

(Total Cases = 2,448)
Association of blood lead levels $\geq 5 \, \mu g/dL$ (<6 yrs) and percent families below poverty level by census tract, 2007-2011

Prevalence of BLLs (5+ $\mu g/dL$), <6 yrs, greater than the state average

Suppressed (<50 screened)
Association of blood lead levels \( \geq 5 \) \( \mu g/dL \) and percent families below poverty level by census tract
Association of blood lead levels ≥ 5 µg/dL and percent Non-White/Hispanic by census tract

Prevalence of BLLs (5+ µg/dL), <6 yrs, greater than the state average (2007-2011)

Suppressed (<50 screened)

Percent minority
- 0.0 - 9.5
- 9.6 - 26.1
- 26.1 +

Greater Boston
Metro Boston
Association of blood lead levels ≥ 5 µg/dL and percent Non-White/Hispanic by census tract
Mostly Even Distribution of Pre-1978 Housing Units across Boston Neighborhoods (n=225,654)

- Mattapan, 4%
- Jamaica Plain, 6%
- South Dorchester, 6%
- South End…, 6%
- Roxbury/ Mission Hill, 9%
- Roslindale, 4%
- North End, 2%
- North Dorchester, 11%
- Charlestown, 3%
- Chinatown/ Downtown, 3%
- East Boston, 6%
- Fenway/LMA, 5%
- Hyde Park, 5%
- South Boston/ Waterfront, 6%
- Brighton, 9%
- Back Bay/ Beacon Hill, 7%
- Allston, 3%
- West Roxbury, 5%
Boston Housing Inspections for Lead, 2011-2013
Association of blood lead levels ≥ 5 µg/dL and compliance letters by census tract, 2011-2013
Data Observations

- North Dorchester, Roxbury/Mission Hill, and E. Boston contributed >50% of incident cases during last 5 years
- BLLs appeared correlated with poverty status but not highly correlated
- BLLs appeared highly correlated with minority status
- The neighborhoods with the higher numbers of homes inspected and in compliance occasionally but not consistently corresponded to the neighborhoods with the greater number of incident cases
Summary

- There remain important socio-demographic differences in incidence rates: neighborhoods and areas within neighborhoods with higher rates of poverty and/or minority populations make up a disproportionate number of children with elevated BLLs.
- And as the data show, there a number of high-risk communities like Boston across the state. Increased resources focused across the state would be necessary to further reduce lead exposure.
- Being poor and being a minority not only increases the risk of blood lead poisoning but makes it difficult to find a safe home.
Next Steps

- To further protect children, DPH is considering stronger standards to detect and respond to lead exposure
- DPH Plans to meet with the Governor’s Advisory Committee on Childhood Lead Poisoning Prevention
  - Through the Committee, DPH will review possible amendments to its regulations, including stronger standards for mandated code enforcement, and determine the resources necessary to do so.
Thank you

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