

Children with Lead Poisoning

DEFINITION

Children with lead poisoning is the percentage of three-year-old children screened for lead poisoning who had elevated blood lead levels ($\geq 10\text{ug/dL}$) at any time prior to December 31, 2002. These data are for children eligible to enter kindergarten in the fall of 2004 (i.e., born between September 1, 1998 and August 31, 1999).

SIGNIFICANCE

Childhood lead poisoning is one of the most common pediatric health problems, yet it is entirely preventable. Infants, toddlers and preschool age children are most susceptible to the toxic effects of lead and absorb lead more readily than adults.¹ Lead exposure can cause irreversible damage resulting in loss of intelligence, speech delay, learning disabilities, attention deficits and behavioral problems. The most acute poisoning can result in severe illness and death.^{2,3} The societal costs of lead poisoning include the loss of lifetime earnings due to decreased cognition as well as medical and special education costs.⁴

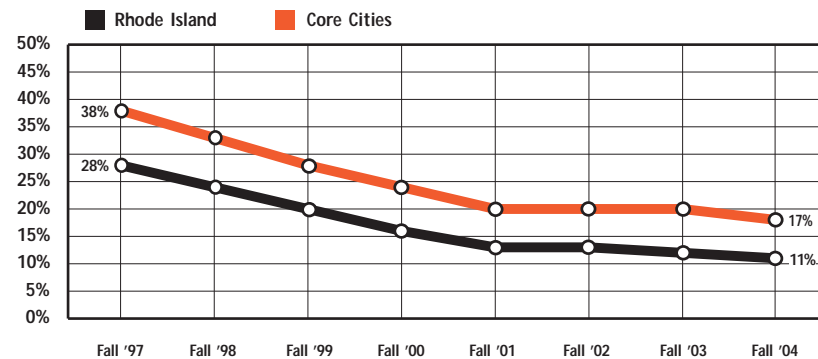
All children living in homes built before 1978 – when lead paint was banned from interior use in the United States – are at risk for lead poisoning. Low-income, minority and urban children are particularly likely to be affected.^{5,6} Black, Hispanic and Asian

children under age 6 screened in 2002 were two to three times as likely as White children to have elevated blood lead levels.⁷

The lack of affordable housing in many communities forces many low-income families to live in older dwellings with deteriorating lead paint, placing children at increased risk for exposure to lead.⁸ Inadequate nutrition and anemia, which are more common in low-income children, further increase susceptibility to lead poisoning.⁹ Children in older homes undergoing renovation are also at risk.¹⁰

Rhode Island law requires annual blood lead level screening for all children under age 6. During 2002, 7% of all Rhode Island children under age 6 who were tested for lead exposure had elevated lead levels over 10 ug/dL.¹¹ Of the 2,462 Rhode Island children with elevated blood lead levels, 823 had lead levels greater than or equal to 15 ug/dL.¹² A single test result of 20 ug/dL or greater or any two tests greater than 15 ug/dL within a 3 to 12 month period trigger a mandatory inspection of the child's home. The Department of Health sends certified lead inspectors to determine whether lead hazards are present and to work with property owners to make the property lead-safe. In Rhode Island in 2002, there were 322 inspections offered; of these, 260 were performed and 62 were refused.¹³

Children Entering Kindergarten with History of Lead Poisoning, Rhode Island and Core Cities, Fall 1997- Fall 2004



Source: Rhode Island Department of Health, Office of Occupational and Radiological Health and Division of Family Health, 1995 - 2002.

◆ The number of children entering kindergarten with a history of lead poisoning has decreased throughout the state as well as in the core cities.¹⁴ Children in the core cities (17%) are still almost three times as likely to have elevated blood lead levels as children in the remainder of the state (6%).¹⁵ Of the 7 children hospitalized for severe lead poisoning during 2002, 5 resided in Providence and 2 in Pawtucket.¹⁶

◆ In 2002, the Rhode Island legislature passed the Lead Mitigation Act, comprehensive legislation that places a strong emphasis on enforcement mechanisms for lead safety in housing and strengthens tenants' rights. The Lead Mitigation Act strengthens requirements and penalties for timely abatement by landlords, requires timely referral for prosecution in the event adequate abatement is not undertaken, and creates tenant remedies to enforce the provisions of the Act through agency intervention or privately-initiated court action.¹⁷

◆ The Centers for Disease Control and Prevention recommends a comprehensive, multi-disciplinary approach to the treatment of lead poisoning, including repeat blood tests to monitor lead levels, medical management, house inspections, removal of lead hazards, child development and social services, parent education and ongoing monitoring for developmental problems that may arise for children at key transition points such as first grade, fourth grade and middle school.^{18,19}

Table 17.

Lead Poisoning in Children Entering Kindergarten in the Fall of 2004

| CITY/TOWN | NUMBER TESTED FOR LEAD POISONING | # SCREENED POSITIVE >=10 UG/DL | % CHILDREN >=10 UG/DL |
|--------------------|----------------------------------|--------------------------------|-----------------------|
| Barrington | 211 | 8 | 3.8% |
| Bristol | 240 | 13 | 5.4% |
| Burrillville | 169 | 14 | 8.3% |
| Central Falls | 376 | 77 | 20.5% |
| Charlestown | 96 | 11 | 11.5% |
| Coventry | 406 | 17 | 4.2% |
| Cranston | 825 | 59 | 7.2% |
| Cumberland | 423 | 19 | 4.5% |
| East Greenwich | 127 | 7 | 5.5% |
| East Providence | 492 | 45 | 9.1% |
| Exeter | 53 | 4 | 7.5% |
| Foster | 50 | 4 | 8.0% |
| Glocester | 78 | 4 | 5.1% |
| Hopkinton | 103 | 7 | 6.8% |
| Jamestown | 45 | 3 | 6.7% |
| Johnston | 305 | 9 | 3.0% |
| Lincoln | 237 | 17 | 7.2% |
| Little Compton | 35 | 4 | 11.4% |
| Middletown | 173 | 14 | 8.1% |
| Narragansett | 129 | 6 | 4.7% |
| New Shoreham | 6 | 0 | 0.0% |
| Newport | 345 | 71 | 20.6% |
| North Kingstown | 355 | 23 | 6.5% |
| North Providence | 273 | 12 | 4.4% |
| North Smithfield | 116 | 8 | 6.9% |
| Pawtucket | 1,021 | 136 | 13.3% |
| Portsmouth | 203 | 19 | 9.4% |
| Providence | 2,898 | 558 | 19.3% |
| Richmond | 92 | 5 | 5.4% |
| Scituate | 136 | 7 | 5.1% |
| Smithfield | 163 | 8 | 4.9% |
| South Kingstown | 328 | 28 | 8.5% |
| Tiverton | 162 | 19 | 11.7% |
| Warren | 124 | 11 | 8.9% |
| Warwick | 869 | 43 | 4.9% |
| West Greenwich | 58 | 0 | 0.0% |
| West Warwick | 375 | 17 | 4.5% |
| Westerly | 172 | 21 | 12.2% |
| Woonsocket | 720 | 115 | 16.0% |
| Unknown Residence | 537 | 18 | 3.4% |
| Core Cities | 5,735 | 974 | 17.0% |
| Remainder of State | 7,791 | 487 | 6.3% |
| Rhode Island | 13,526 | 1,461 | 10.8% |

Lead Poisoning Rates in Rhode Island

◆ In the core cities, 17% of the children who will enter kindergarten in the fall of 2004 have a history of lead poisoning as compared to 38% in the fall of 1997. One in five children entering kindergarten in Central Falls, Newport and Providence has a history of lead exposure.²⁰

Source of Data for Table/Methodology

Rhode Island Department of Health, Office of Occupational and Radiological Health and Division of Family Health.

Core cities are Central Falls, Newport, Pawtucket, Providence, West Warwick and Woonsocket.

Data for children entering kindergarten in the fall of 2004 reflect the number of RI children eligible to enter school in the fall of 2004 (i.e., born between 9/1/98 and 8/31/99) who screened positive for lead poisoning at any time prior to the end of December 2002. Data include both venous and capillary tests.

The denominator is the number of children entering school in the fall of 2004 who were screened for lead poisoning.

References for Indicator

- ^{1,9} Farley, D. (January-February, 1998). "Dangers of Lead Still Linger" in *FDA Consumer*, Washington, DC: U.S. Food and Drug Administration.
- ^{2,5,18} *Screening Young Children for Lead Poisoning: Guidelines for State and Local Public Health Officials* (November 1997). Atlanta, GA: Centers for Disease Control and Prevention.
- ^{3,10,19} *Managing Elevated Blood Lead Levels Among Young Children* (2002). Atlanta, GA: Centers for Disease Control and Prevention.
- ⁴ *Eliminating Childhood Lead Poisoning: A Federal Strategy Targeting Lead Paint Hazards* (2000). Washington, DC: President's Task Force on Environmental Health Risks and Safety Risks to Children.
- ^{6,8} *2002 Housing Resources Commission Annual Report* (March 2002). Providence, RI: Housing Resources Commission.
- ^{7,14,15,20} Rhode Island Department of Health, Division of Occupational and Radiological Health and Division of Family Health. Data are for children entering kindergarten in the fall of 2004 and fall of 1997 (who screened at or above 10 ug/dL at any time up until age three).
- ^{11,12} Rhode Island Department of Health, Division of Occupational and Radiological Health and Division of Family Health. Data are for all children under age 6 screened in 2002.
- ^{13,16} Rhode Island Department of Health, Division of Occupational and Radiological Health and Division of Family Health, January-December 2002.
- ¹⁷ The State of Rhode Island General assembly Web site: www.rilin.state.ri.us/PublicLaws/law02/law02188.htm. (February 2003).