

Children with Lead Poisoning

DEFINITION

Children with lead poisoning is the percentage of three-year-old children with a confirmed elevated blood lead level (≥ 10 mcg/dL) at any time prior to December 31, 2008.¹ These data are for children eligible to enter kindergarten in the fall of 2010 (i.e., children born between September 1, 2004 and August 31, 2005).

SIGNIFICANCE

Lead poisoning is a preventable childhood disease.² Infants, toddlers and preschool-age children are most susceptible to the toxic effects of lead because they absorb lead more readily than adults and have inherent vulnerability due to developing central nervous systems.³ Lead exposure can cause irreversible damage including loss of intelligence, impaired cognitive, motor, and physical abilities and behavioral problems. Though rare, acute poisoning can result in severe illness and death.^{4,5,6} The societal costs of childhood lead poisoning include the loss of future earnings due to decreased cognition and medical and special education costs.⁷

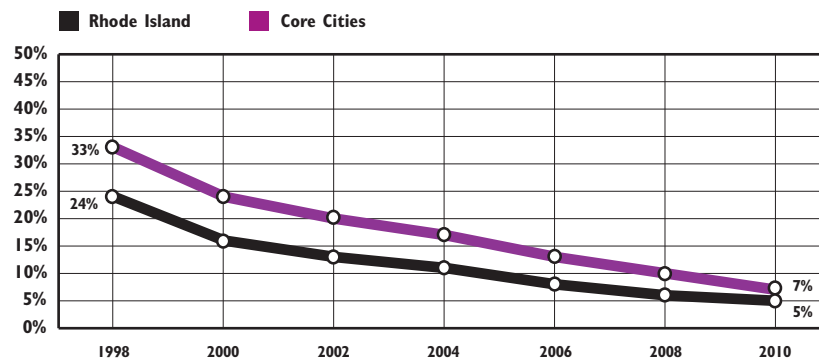
Access to healthy housing (defined as dry, clean, pest-free, ventilated, safe, free of contaminants and well-maintained) is an important element in preventing lead poisoning.⁸ Children living in homes built before 1978, when lead paint was

banned from interior use in the U.S., are at high risk for lead poisoning.^{9,10} Low-income and minority children are particularly likely to be lead poisoned.¹¹ Children living in one of the six core cities (where most children who are racial and ethnic minorities live) are at increased risk for lead exposure because the housing stock tends to be older.¹² Nutritional factors also play a role in lead poisoning by affecting the rate of absorption of lead.¹³

The U.S. Centers for Disease Control and Prevention has recognized that lead exposure at any level is harmful and recommends a focus on primary prevention of lead exposure.¹⁴ Prevention efforts should target the systematic reduction of lead paint in housing as the key source of lead exposure, through the removal and replacement of building materials that contain lead, professional cleaning and paint stabilization.¹⁵

In 2006, Rhode Island had the second highest percentage (among 34 comparable states) of children under the age of six with a confirmed elevated blood lead level. In 2006, the rate of lead poisoning for children under age six in Rhode Island was 2.4%, compared to 1.2% in the U.S.¹⁶ In Rhode Island in 2008, 487 children under age six had confirmed elevated blood lead levels (1.6% of those tested).¹⁷

Children Entering Kindergarten with History of Elevated Blood Lead Level Screening, Rhode Island and Core Cities, 1998–2010



Source: Rhode Island Department of Health, Childhood Lead Poisoning Prevention Program, Children entering kindergarten between 1998–2010.

◆ Elevated blood lead levels have been steadily declining in the core cities and in Rhode Island over the past decade. Of the 563 children entering kindergarten in 2010 who had a blood lead screen of ≥ 10 mcg/dL, 43 did not receive a confirmatory second test. Their lead poisoning status is unknown.¹⁸

◆ In Rhode Island, a child is considered to be “significantly lead poisoned” if she or he has a single venous blood test result of ≥ 20 mcg/dL or two venous tests ≥ 15 mcg/dL that are at least 90 days but no more than 365 days apart.¹⁹

◆ When a child is “significantly lead poisoned,” an inspection of the child’s home is offered. The Rhode Island Department of Health sends certified lead inspectors to determine whether lead hazards are present and, if hazards are found, works with property owners to make the property lead-safe. In 2008, 63 environmental inspections were offered, of which 40 were performed. Of the 40 inspections performed, 37 are ongoing and in various stages of abatement, two were completed, and one was determined not to be a violation. Of the 23 inspections that were offered but not performed, 16 were refused, four were for properties from which the lead poisoned child had moved, two received no response, and one is pending.²⁰

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Table 20. Lead Poisoning in Children Entering Kindergarten in the Fall of 2010, Rhode Island

CITY/TOWN	NUMBER TESTED FOR LEAD POISONING	SCREENED WITH BLOOD LEAD LEVEL ≥10 mcg/dL		CONFIRMED WITH BLOOD LEAD LEVEL ≥10 mcg/dL	
		NUMBER	PERCENT	NUMBER	PERCENT
Barrington	190	4	2.1%	3	1.6%
Bristol	210	8	3.8%	0	0.0%
Burrillville	159	6	3.8%	2	1.3%
Central Falls	436	30	6.9%	26	6.0%
Charlestown	65	6	9.2%	3	4.6%
Coventry	364	5	1.4%	2	0.5%
Cranston	782	26	3.3%	20	2.6%
Cumberland	372	4	1.1%	3	0.8%
East Greenwich	156	0	0.0%	0	0.0%
East Providence	511	31	6.1%	17	3.3%
Exeter	45	1	2.2%	0	0.0%
Foster	52	1	1.9%	0	0.0%
Glocester	67	3	4.5%	3	4.5%
Hopkinton	80	3	3.8%	1	1.3%
Jamestown	46	0	0.0%	0	0.0%
Johnston	268	3	1.1%	1	0.4%
Lincoln	196	3	1.5%	2	1.0%
Little Compton	27	1	3.7%	1	3.7%
Middletown	221	5	2.3%	2	0.9%
Narragansett	104	3	2.9%	0	0.0%
New Shoreham	8	1	12.5%	0	0.0%
Newport	320	19	5.9%	5	1.6%
North Kingstown	311	5	1.6%	3	1.0%
North Providence	252	10	4.0%	7	2.8%
North Smithfield	84	2	2.4%	1	1.2%
Pawtucket	1,082	58	5.4%	33	3.0%
Portsmouth	191	2	1.0%	1	0.5%
Providence	2,916	242	8.3%	215	7.4%
Richmond	60	3	5.0%	0	0.0%
Scituate	123	3	2.4%	0	0.0%
Smithfield	156	2	1.3%	1	0.6%
South Kingstown	284	7	2.5%	1	0.4%
Tiverton	141	5	3.5%	1	0.7%
Warren	119	5	4.2%	4	3.4%
Warwick	807	13	1.6%	7	0.9%
West Greenwich	48	0	0.0%	0	0.0%
West Warwick	368	5	1.4%	1	0.3%
Westerly	261	9	3.4%	3	1.1%
Woonsocket	669	29	4.3%	20	3.0%
Unknown Residence	4	0	NA	0	NA
Core Cities	5,791	383	6.6%	300	5.2%
Remainder of State	6,760	180	2.7%	89	1.3%
Rhode Island	12,555	563	4.5%	389	3.1%

Source of Data for Table/Methodology

Rhode Island Department of Health, Childhood Lead Poisoning Prevention Program.

Data for children entering kindergarten in the fall of 2010 reflect the number of Rhode Island children eligible to enter school in the fall of 2010 (i.e., born between 9/1/04 and 8/31/05).

Children who screened positive for lead poisoning (blood lead level ≥10 mcg/dL) are counted if they screened positive with an unconfirmed capillary test at any time in their lives prior to the end of December 2008. Children confirmed positive for lead poisoning (blood lead level ≥10 mcg/dL) are counted if they screened positive with a venous test and/or had a confirmed capillary tests at any time in their lives prior to the end of December 2008. The Rhode Island Childhood Lead Poisoning Prevention Program recommends that children under age six with a capillary blood lead level of ≥10 mcg/dL receive a confirmatory venous test.

The denominator is the number of children entering school in the fall of 2009 who were tested for lead poisoning. Screening data are based on the highest lead test result through December 2008. Data include both venous and confirmed capillary tests.

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

See Methodology Section for more information.

References

- ¹¹⁹ *Childhood lead poisoning in Rhode Island: The numbers. 2008 Edition.* (2008). Providence, RI: Rhode Island Department of Health, Childhood Lead Poisoning Prevention Program. Data are based on venous tests and confirmed capillary tests only. The highest result (venous or capillary) is used.
- ²⁷ Brown, M. J. (2002). Costs and benefits of enforcing housing policies to prevent childhood lead poisoning. *Medical Decision Making*, 22(06), 482-492.
- ^{34,41} Rischitelli, G., Nygren, P. Bougatsos, C., Freeman, M. & Helfand, M. (2006). Screening for elevated lead levels in childhood and pregnancy: An updated summary of evidence for the U.S. Preventive Services Taskforce. *Pediatrics*, 118, 1867-1895.

(continued on page 156)