

Children with Lead Poisoning

DEFINITION

Children with lead poisoning is the percentage of children under age six with a confirmed elevated blood lead level (EBLL, ≥ 5 $\mu\text{g}/\text{dL}$) at any time prior to December 31, 2023.^{1,2} These data are for children eligible to enter kindergarten in the fall of 2025 (i.e., children born between September 1, 2019 and August 31, 2020).

SIGNIFICANCE

Lead poisoning is a preventable childhood disease. 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, even at very low levels, can cause irreversible damage, including slowed growth and development, learning disabilities, behavioral problems, and neurological damage. Though rare, severe poisoning can result in seizures, comas, and even death.^{4,5} The societal costs of childhood lead poisoning include the loss of future earnings due to cognitive impairment, and increased medical, special education, and juvenile justice costs.^{6,7} Children can be exposed to lead in the places they spend the most time. Homes, schools, and child care settings can be contaminated with lead from

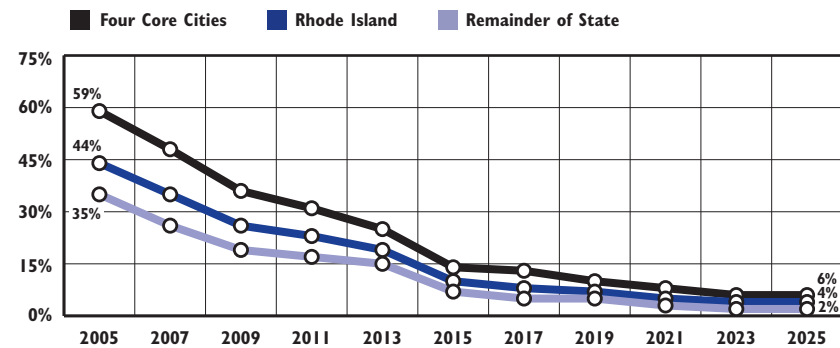
paint or paint dust if built before 1978. Children can also be exposed to lead poisoning through corrosion of lead service lines where the water pipe from a house or building connects to the public water main.⁸

There is no safe lead level in children. In late 2021, the Centers for Disease Control and Prevention lowered its blood reference value from 5 $\mu\text{g}/\text{dL}$ to 3.5 $\mu\text{g}/\text{dL}$, based on the top 2.5% BLLs of children ages one to five. This new lower reference value will allow parents and health officials to take corrective actions sooner for children with the highest BLLs.^{9,10}

Although the percentage of children with elevated blood lead levels is declining nationally and in Rhode Island, low-income children continue to be at higher risk of lead exposure. In Rhode Island, children living in the four core cities are at increased risk for lead exposure because the housing stock tends to be older.^{11,12,13}

In 2023, 595 (2.4%) of the 24,741 Rhode Island children under age six who were screened had confirmed elevated blood lead levels of ≥ 5 $\mu\text{g}/\text{dL}$. Children living in the four core cities (4.0%) were three times as likely than children in the remainder of the state (1.3%) to have confirmed elevated blood lead levels of ≥ 5 $\mu\text{g}/\text{dL}$.¹⁴

Children Entering Kindergarten with History of Elevated* Blood Lead Level (≥ 5 $\mu\text{g}/\text{dL}$), Rhode Island, Four Core Cities, and Remainder of State, 2005-2025



Source: Rhode Island Department of Health, Healthy Homes and Childhood Lead Poisoning Prevention Program, Children entering kindergarten between 2005 and 2025. *Elevated blood lead level of ≥ 5 $\mu\text{g}/\text{dL}$.

★ The number of children with elevated blood lead levels has been steadily declining in all areas of Rhode Island over the past two decades. Compared to the remainder of the state, the four core cities have over two times the rate of children with elevated blood levels.¹⁵

Lead Exposure and Academic Performance

★ Exposure to lead can negatively impact academic performance in early childhood.¹⁶ Rhode Island children with a history of lead exposure, even at low levels, have been shown to have decreased reading readiness at kindergarten entry and diminished reading and math proficiency in the third grade. Children with lead exposure are also at increased risk for absenteeism, grade repetition, and special education services.^{17,18}

★ Safe lead-free homes, schools, and communities are important to prevent lead exposure. This includes ensuring that Rhode Island homes (including rental properties), schools, and buildings are free of lead exposure through lead in the paint, dust, and water (through corrosion of lead services lines) by complying with lead inspections, remediations and practices, and providing equitable plans for full replacements of lead pipes.^{19,20}

Children with Lead Poisoning

Table 21. Lead Poisoning in Children Entering Kindergarten in the Fall of 2025, Rhode Island

CITY/TOWN	NUMBER TESTED FOR LEAD POISONING	CONFIRMED WITH BLOOD LEAD LEVEL ≥ 5 $\mu\text{g/dL}$	
		NUMBER	PERCENT
Barrington	188	<5	*
Bristol	129	<5	*
Burrillville	128	<5	*
Central Falls	345	27	7.8%
Charlestown	49	<5	*
Coventry	310	<5	*
Cranston	845	26	3.1%
Cumberland	408	5	1.2%
East Greenwich	168	<5	*
East Providence	488	15	3.1%
Exeter	42	<5	*
Foster	39	<5	*
Glocester	66	<5	*
Hopkinton	56	<5	*
Jamestown	38	<5	*
Johnston	325	8	2.5%
Lincoln	209	7	3.3%
Little Compton	29	0	0.0%
Middletown	189	<5	*
Narragansett	54	0	0.0%
New Shoreham	8	<5	*
Newport	223	12	5.4%
North Kingstown	263	<5	*
North Providence	361	10	2.8%
North Smithfield	115	<5	*
Pawtucket	906	40	4.4%
Portsmouth	141	0	0.0%
Providence	2,556	179	7.0%
Richmond	55	0	0.0%
Scituate	105	0	0.0%
Smithfield	149	<5	*
South Kingstown	173	<5	*
Tiverton	127	<5	*
Warren	86	0	0.0%
Warwick	702	8	1.1%
West Greenwich	57	<5	*
West Warwick	297	8	2.7%
Westerly	143	<5	*
Woonsocket	545	14	2.6%
Four Core Cities	4,352	260	6.0%
Remainder of State	6,765	141	2.1%
Rhode Island	11,119	401	3.6%

Children Under Age Six with a Blood Lead Level Above the Reference Value

★ With a new reference value of 3.5 $\mu\text{g/dL}$ the rate of childhood lead poisoning is predicted to jump to over 5% compared to 2.4% at 5 $\mu\text{g/dL}$ which will allow parents and health officials to take corrective actions sooner.^{21,22}

★ An environmental inspection of a child's home is offered when a venous test is $\geq 5\mu\text{g/dL}$. The Department of Health sends certified lead inspectors to determine whether lead hazards are present and works with owners to make the property lead-safe. In 2024, 433 environmental inspections were offered, 321 were performed, 138 were refused, had no response or were unable to be contacted, and seven had moved.^{23,24}

Lead Poisoning Screening for Children Age Three

★ All Rhode Island children must have at least two blood lead screening tests by age three and annual screening through age six. Lead screening is a mandated covered health insurance benefit in Rhode Island and is free of charge. In 2023, 72% of children received a test by age 15 months, and 57% received one test by 15 months and a second at least 12 months later and by age 36 months.^{25,26,27}

Source of Data for Table/Methodology

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

Data reported in this year's Factbook are not comparable to editions prior to 2012, due to a change in definition and data improvements within the Healthy Homes and Childhood Lead Poisoning Prevention Program.

Data for children entering kindergarten in the fall of 2025 reflect the number of Rhode Island children eligible to enter school in the fall of 2025 (i.e., born between 09/01/19 and 08/31/20)

Children confirmed positive for lead poisoning (blood lead level ≥ 5 $\mu\text{g/dL}$) are counted if they screened positive with a venous test and/or had a confirmed capillary test at any time in their lives prior to the end of December 2023. The Rhode Island Healthy Homes and Childhood Lead Poisoning Prevention Program recommends that children under age six with a capillary blood lead level of ≥ 5 $\mu\text{g/dL}$ receive a confirmatory venous test.

The denominator for percent confirmed is the number of children entering kindergarten in the fall of 2025 who were tested for lead poisoning. Data include both venous and confirmed capillary tests.

Of the 547 children entering kindergarten in 2025 who had an initial blood lead screen of ≥ 5 $\mu\text{g/dL}$, 191 did not receive a confirmatory second test. Their lead poisoning status is unknown.

*The data are not reported in accordance with the Rhode Island Department of Health's small number data policy.

Core cities are Central Falls, Pawtucket, Providence, and Woonsocket.

See Methodology Section for more information.

References

^{1,10,22} Centers for Disease Control and Prevention. (2022). *Blood lead reference value*. Retrieved February 20, 2024, from www.cdc.gov

² Rhode Island Department of Health. (n.d.). *Environmental lead program*. Retrieved February 20, 2024, from <https://health.ri.gov>

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