CORE CITIES DATA

RHODE ISLAND DEPARTMENT OF HEALTH

A SUPPLEMENT TO CHILDHOOD LEAD POISONING IN RHODE ISLAND: THE NUMBERS, 2011 EDITION

CORE CITIES DATA

A SUPPLEMENT TO CHILDHOOD LEAD POISONING IN RHODE ISLAND: THE NUMBERS, 2011 EDITION

TABLE OF CONTENTS

Childhood Lead Poisoning Prevention Program

Rhode Island Department of Health, Three Capitol Hill, Providence, RI 02908

Magaly Angeloni, MBA, leadprogram@health.ri.gov

Additional lead poisoning data can be found at www.health.ri.gov/leadpoisoning

ELIMINATING CHILDHOOD LEAD POISONING IN RHODE ISLAND

In 2004, the Rhode Island Department of Health (HEALTH) laid out a plan to eliminate childhood lead poisoning statewide by 2010. In 2011, HEALTH is proud of the progress Rhode Island has made towards this goal and renews its commitment to eliminating childhood lead poisoning. With even more expertise and knowledge about the causes and effects of childhood lead poisoning and with the support of an even wider range of partners, Rhode Island is closer than ever to eliminating childhood lead poisoning.

There is still a lot of work to be done to achieve this goal, especially in Rhode Island's core cities. Cities where the child poverty level is greater than 15% are designated as core cities. 2010 Census data continues to identify Rhode Island's six core cities as Central Falls, Newport, Pawtucket, Providence, West Warwick, and Woonsocket.

Childhood lead poisoning will only be eliminated through intense primary prevention efforts that include an increase in the availability of lead-safe housing in Rhode Island. Relevant data sources must be used to identify housing that is poisoning children through lead exposure and that needs improvement. A comprehensive system of both state and municipal data to assess Rhode Island's housing situation must be implemented.

Childhood lead poisoning will only be completely eliminated through intense primary prevention efforts that include an increase in the availability of lead-safe housing in Rhode Island.

Further progress on lead poisoning elimination depends on the enforcement of housing violations and on compliance with housing regulations, including certificate of conformance regulations outlined in Rhode Island's Lead Hazard Mitigation Law. Constraints on funding for lead hazard abatement, enforcement, policy development, and public education means that remaining funds must be spent more efficiently and strategically. Stakeholders can accomplish this by continuing to forge collaborations to promote housing that is safe for all Rhode Island residents.

UNDERSTANDING BLOOD LEAD LEVELS

WHAT IS A LEVEL OF CONCERN?

A level of concern is the threshold used to define an elevated blood lead level. The Centers for Disease Control and Prevention (CDC) currently define any blood lead level greater than or equal to 10 µg/dL as a blood lead level of concern. The terms "childhood lead poisoning" and "elevated blood lead level" are also used to describe blood lead levels at or above 10 µg/dL.

Children with a blood lead level greater than the level of concern should be monitored and retested according to lead screening guidelines. Primary prevention activities, such as community-wide environmental interventions and nutritional and educational campaigns, should be directed at bringing children's blood lead levels below the level of concern.

WHAT IS AN ACTION LEVEL?

An action level is the threshold at which interventions are implemented if effective, evidence-based interventions exist and resources are available. It would not be sufficient to define one action level for all interventions, so different action levels trigger different interventions.

Guidelines issued by the CDC were used to define various action levels in Rhode Island. Rhode Island's action levels are detailed in the table below.

LEAD ACTION LEVELS IN RHODE ISLAND

CATEGORY	ACTION LEVEL	ACTION
ELEVATED BLOOD LEAD LEVEL (BLL)	BLL of 10–14 µg/dL	**CAPILLARY TEST:** Educational materials sent to the family. Letter sent to the primary care provider recommending a venous test to confirm the BLL.
		VENOUS TEST: Educational materials sent to the family.
	BLL of 15–19 µg/dL	**CAPILLARY TEST:** Letter sent to the primary care provider recommending a venous test to confirm the BLL.
		VENOUS TEST: Family is referred to a lead center* for an in-home lead education visit and some environmental intervention (e.g., temporary lead hazard control measures, window replacement).
SIGNIFICANT LEAD POISONING	One venous BLL ≥ 20 µg/dL ~ *or* ~ Two venous BLLs of 15–19 µg/dL done 90-365 days apart**	Family is referred to a lead center* for an in-home lead education visit and is offered an environmental inspection.

* *A lead center is a non-profit agency funded by Medicaid that offers comprehensive case management services to families of children with lead poisoning.*

** *Two venous blood lead levels of 15-19 µg/dL done between 90 and 365 days apart may also be referred to as "Persistent Lead Poisoning". Prior to January 1, 2006, two blood lead levels, capillary or venous, ≥ 15 µg/dL were used to define persistent lead poisoning.*

INCIDENCE OF CHILDHOOD LEAD POISONING IN CORE CITIES AND TOWNS

The Rhode Island Childhood Lead Poisoning Prevention Program (RI CLPPP) tracks and reports the number of cases of lead poisoning (a blood lead level greater than or equal to 10 µg/dL) among children younger than six years of age who have not previously been poisoned. This statistic is known as the incidence of childhood lead poisoning. In 2010, three of Rhode Island's six core cities had incidence rates equal to or greater than the 1% statewide rate.

Lead hazards in the home are the most common sources of lead poisoning. For this reason, housing and enforcement efforts that address lead hazards in core cities would help the state eliminate lead poisoning. Nowhere are these efforts needed more than in Providence, the city that continues to have the highest incidence of childhood lead poisoning in the state.

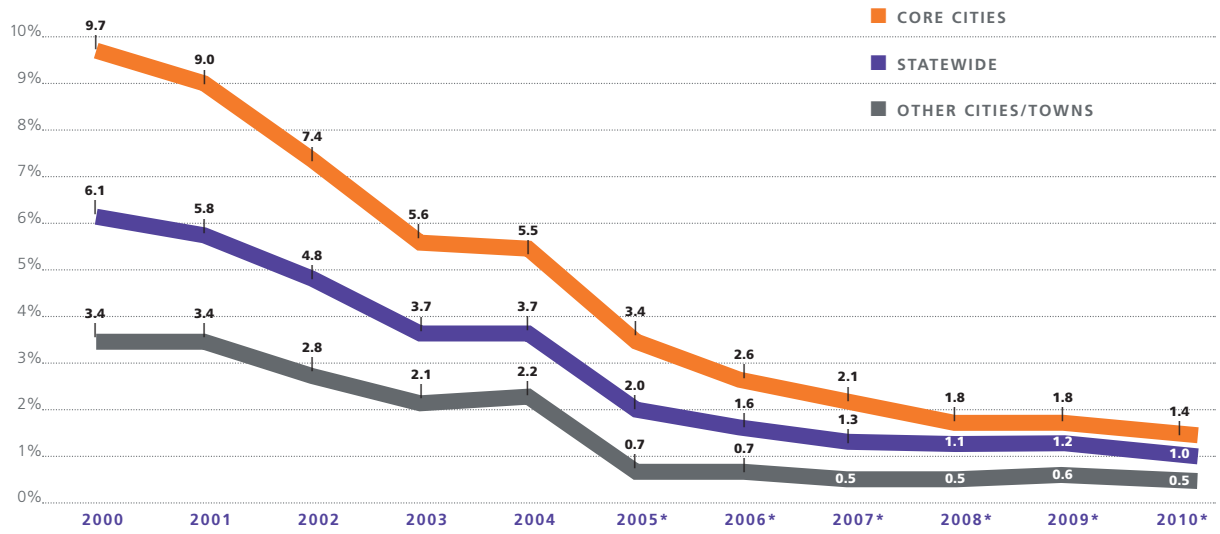
INCIDENCE OF CHILDHOOD LEAD POISONING IN CORE CITIES, 2010

Central Falls	0.9%
Newport	1.7%
Pawtucket	0.9%
Providence	1.8%
West Warwick	1.0%
Woonsocket	0.7%
Core cities combined	1.4%
Other cities/towns combined	0.5%
Statewide	**1.0%**

Source: Rhode Island Department of Health Lead Elimination Surveillance System

Note: Data are based on venous tests and confirmed capillary tests only.

INCIDENCE OF CHILDHOOD LEAD POISONING, 2000–2010

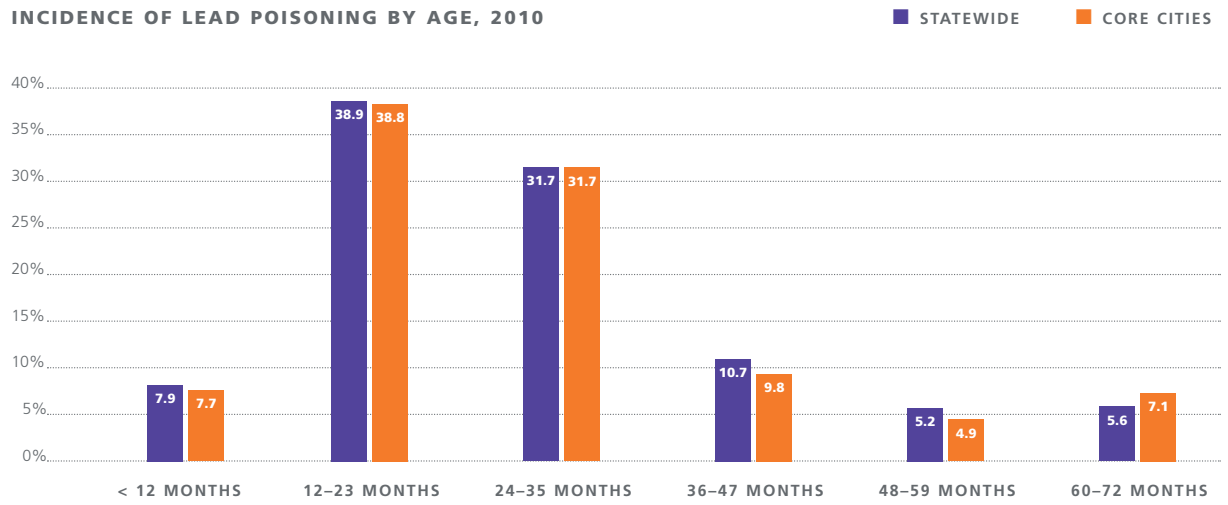


Source: Rhode Island Department of Health Lead Elimination Surveillance System

**Data are based on venous tests and confirmed capillary tests only.*

INCIDENCE OF CHILDHOOD LEAD POISONING BY AGE

In 2010, the age distribution for children in core cities who were determined to be lead-poisoned for the first time was similar to the age distribution statewide. In core cities and statewide, most first-time poisonings occurred among children one to two years of age.



Source: Rhode Island Department of Health Lead Elimination Surveillance System

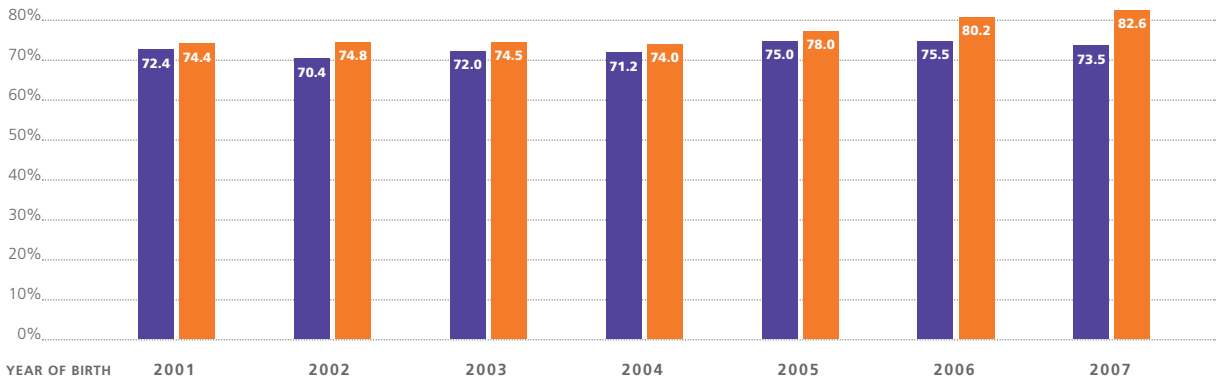
Note: Data are based on venous tests and confirmed capillary tests only.

COMPLIANCE WITH CHILDHOOD LEAD SCREENING GUIDELINES

All Rhode Island healthcare providers are required by law to screen their patients between nine months and six years of age for lead poisoning each year. Compliance with these guidelines is assessed by measuring the proportion of children born in a given year who have had at least one blood lead test by 18 months of age and at least two blood lead tests by 36 months of age. These two blood lead tests should take place at least 12 months apart.

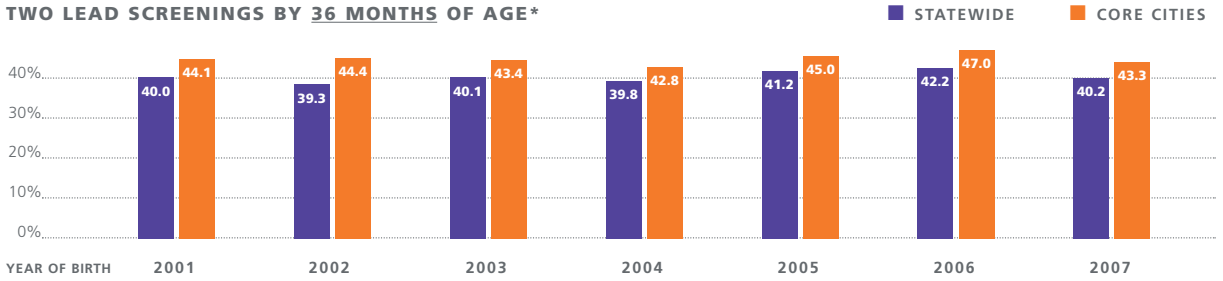
Lead screening rates have not changed dramatically in recent years. The percentage of children born in 2007 who were screened for lead poisoning at least once by 18 months of age was 73.5%. The percentage of these children who were screened a second time by 36 months of age was 40.2%.

The combined lead screening rates of children in core cities are higher than those of children statewide. High screening rates at community health centers in urban areas may account for this disparity.



Sources: Rhode Island Department of Health Lead Elimination Surveillance System and KIDSNET

Note: The year refers to the birth cohort of children screened at each age. Birth cohorts beyond 2007 are not included here because those children had not yet turned 36 months of age by the time this report was prepared.



Sources: Rhode Island Department of Health Lead Elimination Surveillance System and KIDSNET

Note: The year refers to the birth cohort of children screened at each age. Birth cohorts beyond 2007 are not included here because those children had not yet turned 36 months of age by the time this report was prepared.

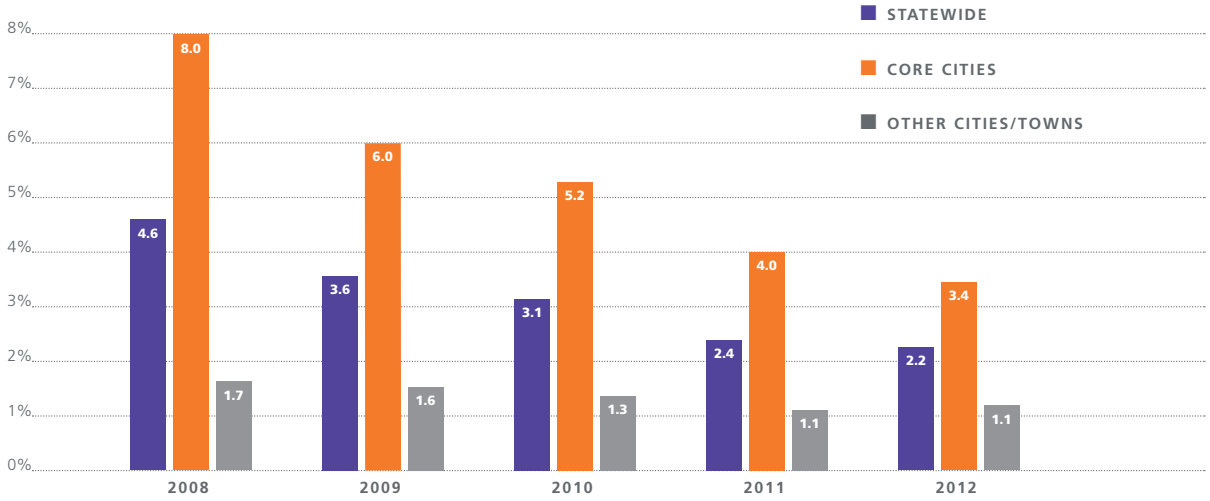
**Screens must take place at least 12 months apart*

LEAD POISONING AMONG CHILDREN ENTERING KINDERGARTEN

Rhode Island state law requires healthcare professionals to screen all children for lead poisoning before they enter kindergarten. The table below illustrates the elevated blood lead levels of Rhode Island three-year-olds in core cities and statewide. Rates are based on all blood lead tests given through August 31, two years prior to the year the child enters kindergarten. These rates are used to determine the percentage of children who are lead-poisoned prior to entering kindergarten at five years of age (e.g., rates for children entering kindergarten in 2011 are based on blood lead test results through August 31, 2009).

The proportion of children entering kindergarten after having had an elevated blood lead level is higher in core cities than in other cities and towns and statewide. This may be the result of the age of housing in core cities and the increased presence of lead hazards in housing in core cities.

PERCENT OF CHILDREN ENTERING KINDERGARTEN WITH BLOOD LEAD LEVELS ≥ 10 µg/dL, 2008–2012



Source: Rhode Island Department of Health Lead Elimination Surveillance System

Notes: Data are based on venous tests and confirmed capillary tests only. Years refer to the start of school years.

TABLES

Source: Rhode Island Department of Health Lead Elimination Surveillance System

Notes: Data prior to 2005 are based on all venous and capillary blood lead tests received by a child. Data for 2005 and later are based on venous tests and confirmed capillary tests only.

COMPLIANCE WITH LEAD SCREENING GUIDELINES

TABLE 1A. ONE LEAD SCREENING BY 18 MONTHS OF AGE

	CORE CITIES		STATEWIDE	
YEAR	# CHILDREN BORN	# CHILDREN SCREENED AT LEAST ONCE BY 18 MONTHS OF AGE	# CHILDREN BORN	# CHILDREN SCREENED AT LEAST ONCE BY 18 MONTHS OF AGE
2001	7,353	5,470 (74%)	12,946	9,368 (72%)
2002	7,609	5,689 (75%)	13,247	9,321 (70%)
2003	8,023	5,981 (75%)	13,471	9,640 (72%)
2004	6,386	4,728 (74%)	13,277	9,447 (71%)
2005	5,901	4,603 (78%)	13,482	10,105 (75%)
2006	5,738	4,600 (80%)	13,181	9,949 (75%)
2007	5,630	4,650 (83%)	13,208	9,714 (74%)

COMPLIANCE WITH LEAD SCREENING GUIDELINES

TABLE 1B. TWO LEAD SCREENINGS BY 36 MONTHS OF AGE*

	CORE CITIES		STATEWIDE	
YEAR	# CHILDREN BORN	# CHILDREN SCREENED AT LEAST ONCE BY 36 MONTHS OF AGE*	# CHILDREN BORN	# CHILDREN SCREENED AT LEAST ONCE BY 36 MONTHS OF AGE*
2001	7,353	3,240 (44%)	12,946	5,180 (40%)
2002	7,609	3,382 (44%)	13,247	5,210 (39%)
2003	8,023	3,483 (43%)	13,471	5,454 (40%)
2004	6,386	2,736 (43%)	13,277	5,286 (39%)
2005	5,901	2,654 (45%)	13,482	5,555 (41%)
2006	5,738	2,699 (47%)	13,181	5,558 (42%)
2007	5,630	2,435 (43%)	13,208	5,305 (40%)

** Screenings must take place at least 12 months apart*

INCIDENCE OF CHILDHOOD LEAD POISONING

TABLE 2A. INCIDENCE IN CORE CITIES

YEAR	# CHILDREN WITH BLL ≥ 10 µg/dL FOR FIRST TIME	# CHILDREN SCREENED WITH NO PREVIOUS ELEVATED BLL	INCIDENCE
1997	1,669	12,453	13.4%
1998	1,273	12,372	10.3%
1999	1,410	12,787	11.0%
2000	1,200	12,400	9.7%
2001	1,277	14,164	9.0%
2002	1,041	14,003	7.4%
2003	811	14,493	5.6%
2004	799	14,581	5.5%
2005	498	14,522	3.4%
2006	387	14,625	2.6%
2007	297	14,392	2.1%
2008	257	14,116	1.8%
2009	240	13,376	1.8%
2010	183	13,031	1.4%

INCIDENCE OF CHILDHOOD LEAD POISONING

TABLE 2B. INCIDENCE IN OTHER CITIES/TOWNS

YEAR	# CHILDREN WITH BLL ≥ 10 µg/dL FOR FIRST TIME	# CHILDREN SCREENED WITH NO PREVIOUS ELEVATED BLL	INCIDENCE
1997	715	15,761	4.5%
1998	606	15,861	3.8%
1999	623	16,476	3.8%
2000	550	16,077	3.4%
2001	597	17,756	3.4%
2002	509	18,018	2.8%
2003	364	17,143	2.1%
2004	377	17,107	2.2%
2005	123	17,142	0.7%
2006	113	16,953	0.7%
2007	91	16,597	0.5%
2008	73	15,218	0.5%
2009	84	14,102	0.6%
2010	69	13,280	0.5%

INCIDENCE OF CHILDHOOD LEAD POISONING

TABLE 2C. INCIDENCE STATEWIDE

YEAR	# CHILDREN WITH BLL ≥ 10 µg/dL FOR FIRST TIME	# CHILDREN SCREENED WITH NO PREVIOUS ELEVATED BLL	INCIDENCE
1997	2,369	28,125	8.4%
1998	1,870	28,170	6.6%
1999	2,025	29,187	6.9%
2000	1,740	28,419	6.1%
2001	1,857	31,848	5.8%
2002	1,535	31,954	4.8%
2003	1,161	31,579	3.7%
2004	1,167	31,610	3.7%
2005	624	31,669	2.0%
2006	500	31,578	1.6%
2007	388	30,989	1.3%
2008	330	29,334	1.1%
2009	324	27,478	1.2%
2010	252	26,311	1.0%

INCIDENCE BY AGE AND BLOOD LEAD LEVEL

TABLE 3A. INCIDENCE BY AGE IN CORE CITIES, 2010

AGE	# CHILDREN WITH BLL ≥ 10 µg/dL FOR FIRST TIME	% CHILDREN WITH BLL ≥ 10 µg/dL FOR FIRST TIME
< 12 months	14	7.7%
12–23 months	71	38.8%
24–35 months	58	31.7%
36–47 months	18	9.8%
48–59 months	9	4.9%
60–72 months	13	7.1%
Total	**183**	**100%**

INCIDENCE BY AGE AND BLOOD LEAD LEVEL

TABLE 3B. INCIDENCE BY AGE STATEWIDE, 2010

AGE	# CHILDREN WITH BLL ≥ 10 µg/dL FOR FIRST TIME	% CHILDREN WITH BLL ≥ 10 µg/dL FOR FIRST TIME
< 12 months	20	7.9%
12–23 months	98	38.9%
24–35 months	80	31.7%
36–47 months	27	10.7%
48–59 months	13	5.2%
60–72 months	14	5.6%
Total	**252**	**100%**

INCIDENCE BY AGE AND BLOOD LEAD LEVEL

TABLE 4A. INCIDENCE BY BLOOD LEAD LEVEL IN CORE CITIES, 2010

BLOOD LEAD LEVEL	# CHILDREN WITH ELEVATED BLL FOR FIRST TIME	% CHILDREN WITH ELEVATED BLL FOR FIRST TIME
10–14 µg/dL	117	63.9%
15–19 µg/dL	35	19.1%
20–24 µg/dL	17	9.3%
25+ µg/dL	14	7.7%
Total	**183**	**100%**

INCIDENCE BY AGE AND BLOOD LEAD LEVEL

TABLE 4B. INCIDENCE BY BLOOD LEAD LEVEL STATEWIDE, 2010

BLOOD LEAD LEVEL	# CHILDREN WITH ELEVATED BLL FOR FIRST TIME	% CHILDREN WITH ELEVATED BLL FOR FIRST TIME
10–14 µg/dL	159	63.1%
15–19 µg/dL	48	19.0%
20–24 µg/dL	26	10.3%
25+ µg/dL	19	7.5%
Total	**252**	**100%**

PREVALENCE BY AGE AND BLOOD LEAD LEVEL

TABLE 5A. PREVALENCE OF LEAD POISONING IN CORE CITIES, 1997–2010

YEAR	# CHILDREN WITH BLL ≥ 10 µg/dL	TOTAL # CHILDREN SCREENED	PREVALENCE
1997	3,391	16,423	20.6%
1998	2,584	15,648	16.5%
1999	2,402	15,407	15.6%
2000	2,030	14,511	14.0%
2001	2,068	16,295	12.7%
2002	1,801	16,074	11.2%
2003	1,331	16,275	8.2%
2004	1,210	14,955	7.5%
2005	793	15,626	5.1%
2006	615	15,617	3.9%
2007	475	15,149	3.1%
2008	385	14,754	2.6%
2009	334	13,861	2.4%
2010	265	13,451	2.0%

PREVALENCE BY AGE AND BLOOD LEAD LEVEL

TABLE 5B. PREVALENCE OF LEAD POISONING IN OTHER CITIES/TOWNS, 1997–2010

YEAR	# CHILDREN WITH BLL ≥ 10 µg/dL	TOTAL # CHILDREN SCREENED	PREVALENCE
1997	1,084	17,352	6.2%
1998	874	17,127	5.1%
1999	819	17,503	4.7%
2000	729	16,948	4.3%
2001	775	18,666	4.2%
2002	676	18,853	3.6%
2003	503	17,938	2.8%
2004	493	17,280	2.8%
2005	188	17,460	1.1%
2006	154	17,200	0.9%
2007	139	16,812	0.8%
2008	101	15,438	0.7%
2009	104	14,224	0.7%
2010	90	13,412	0.7%

PREVALENCE BY AGE AND BLOOD LEAD LEVEL

TABLE 5C. PREVALENCE OF LEAD POISONING STATEWIDE, 1997–2010

YEAR	# CHILDREN WITH BLL ≥ 10 µg/dL	TOTAL # CHILDREN SCREENED	PREVALENCE
1997	4,446	33,647	13.2%
1998	3,437	32,684	10.5%
1999	3,208	32,816	9.8%
2000	2,741	31,382	8.7%
2001	2,813	34,865	8.1%
2002	2,450	34,835	7.0%
2003	1,811	34,130	5.3%
2004	1,685	33,839	5.0%
2005	981	33,086	3.0%
2006	790	32,838	2.4%
2007	608	31,961	1.9%
2008	486	30,192	1.6%
2009	438	28,085	1.6%
2010	355	26,863	1.3%

PREVALENCE BY AGE AND BLOOD LEAD LEVEL

TABLE 6A. PREVALENCE OF LEAD POISONING BY AGE IN CORE CITIES, 2010

AGE	# CHILDREN WITH BLL ≥ 10 µg/dL	% CHILDREN WITH BLL ≥ 10 µg/dL
< 12 months	12	4.5%
12–23 months	78	29.4%
24–35 months	81	30.6%
36–47 months	44	16.6%
48–59 months	24	9.1%
60–72 months	26	9.8%
Total	**265**	**100%**

PREVALENCE BY AGE AND BLOOD LEAD LEVEL

TABLE 6B. PREVALENCE OF LEAD POISONING BY AGE STATEWIDE, 2010

AGE	# CHILDREN WITH BLL ≥ 10 µg/dL	% CHILDREN WITH BLL ≥ 10 µg/dL
< 12 months	18	5.1%
12–23 months	105	29.6%
24–35 months	113	31.8%
36–47 months	60	16.9%
48–59 months	28	7.9%
60–72 months	31	8.7%
Total	**355**	**100%**

PREVALENCE BY AGE AND BLOOD LEAD LEVEL

TABLE 7A. PREVALENCE OF LEAD POISONING BY BLOOD LEAD LEVEL IN CORE CITIES, 2010

BLOOD LEAD LEVEL	# CHILDREN WITH ELEVATED BLL	% CHILDREN WITH ELEVATED BLL
10–14 µg/dL	169	63.8%
15–19 µg/dL	54	20.4%
20–24 µg/dL	20	7.5%
25+ µg/dL	22	8.3%
Total	**265**	**100%**

PREVALENCE BY AGE AND BLOOD LEAD LEVEL

TABLE 7B. PREVALENCE OF LEAD POISONING BY BLOOD LEAD LEVEL STATEWIDE, 2010

BLOOD LEAD LEVEL	# CHILDREN WITH ELEVATED BLL	% CHILDREN WITH ELEVATED BLL
10–14 µg/dL	225	63.4%
15–19 µg/dL	69	19.4%
20–24 µg/dL	32	9.0%
25+ µg/dL	29	8.2%
Total	**355**	**100%**

GLOSSARY

Abatement
An activity that reduces the risk of human exposure to lead.

BLL
Blood lead level.

CDC
Centers for Disease Control and Prevention.

Core Cities
Cities where the child poverty level is greater than 15%. 2010 Census data identified Rhode Island's six core cities as Central Falls, Newport, Pawtucket, Providence, West Warwick, and Woonsocket.

Elevated Blood Lead Level
One blood lead test result of 10 to 19 µg/dL.

Incidence
The proportion of new cases of a disease that develop during a specified period of time among the population at risk for developing the disease. For example, the incidence of lead poisoning in Rhode Island in 2010 is the proportion of children with a first-time blood lead level greater than or equal to 10 µg/dL among those at risk for developing lead poisoning (i.e., children younger than six years of age who have never been lead-poisoned in the past).

KIDSNET
Rhode Island's integrated child health information system.

Lead Center
A non-profit agency funded by Medicaid that offers comprehensive case management services to families of children with lead poisoning.

Prevalence
The proportion of people in a population who have a given disease at a specific point in time. For example, the prevalence of lead poisoning in 2010 is the proportion of children who had a blood lead level greater than or equal to 10 µg/dL in 2010.

RI CLPPP
The Rhode Island Childhood Lead Poisoning Prevention Program.

Screening
A mandatory test that involves collecting a blood sample, either through a finger stick or a venipuncture, from a child younger than six years of age who does not show any signs or symptoms of lead poisoning, and then analyzing the sample to determine the amount of lead in the child's blood.

Significant Lead Poisoning
A venous blood lead level greater than or equal to 20 µg/dL in a child younger than six years of age, or two venous blood lead levels 15 to 19 µg/dL from a child younger than six years of age tested between 90 and 365 days apart.

µg/dL
Micrograms per deciliter of blood. The measurement used to estimate the amount of lead in a sample of blood. This measure is sometimes represented as mcg/dL.