MARYLAND DEPARTMENT OF THE ENVIRONMENT

Lead Poisoning Prevention Program

Childhood Blood Lead Surveillance in Maryland

Annual Report 2008

June, 2009

MARYLAND CHILDHOOD LEAD REGISTRY

ANNUAL SURVEILLANCE REPORT 2008

EXECUTIVE SUMMARY

The Maryland Department of the Environment's statewide Childhood Lead Registry (CLR) performs childhood blood lead surveillance for Maryland. The CLR receives the reports of all blood lead tests done on Maryland children 0-18 years of age, and the CLR provides blood lead test results to the Department of Health and Mental Hygiene including Medicaid and local health departments as needed for case management and planning.

Since 1995, the CLR has released a comprehensive annual report on statewide childhood blood lead testing. This current report presents the childhood blood lead test results for calendar year 2008 (CY 2008). All numbers are based on blood lead testing (venous or capillary) on children. The CLR does not receive any reports on lead screening based on the lead risk assessment questionnaire. With few exceptions all numbers referred to children 0-72 months of age.

CY 2008 Surveillance Highlights:

- A total of 122,285 blood lead tests from 118,895 children 0-18 years were received and processed by the CLR in 2008, of which 109,625 tests were from 106,452 children 0-72 months. The overall blood lead testing for children 0-72 months was 22.4% for 2008.

- The highest testing rates for children 0-72 months were found in Wicomico County (34.6%); followed by Caroline County (34.3%), Somerset County (34.1%), and Baltimore City (33.3%).

- The highest testing rates for children 0-35 months were found in Caroline County (56.7%), Somerset county (54.1%), Wicomico county (49.8%), and Dorchester County (46.8%).

- Close to 90% of addresses were geocodable at the longitude, latitude level. The county assignment however is based on: 1) census tract as determined by geocoding, 2) child's zip code address, and 3) the original county name if it were included in the address information.

- In 2008, more than 92% of blood lead tests were reported electronically. The average reporting time, from the time sample is drawn to time the result enters the CLR database is about 6 days. The average time for elevated blood lead results (≥10 μg/dL) is approximately 30 hours.

- Out of 106,452 children 0-72 months tested for lead statewide in 2008, 713 (0.7%) were found to have blood lead level ≥10 μg/dL (prevalent cases) of whom 489 had their very first EBL test (incident cases) in 2008.

Overview

Exposure to lead is still the most significant and widespread environmental hazards for children in Maryland. Children are at the greatest risk from birth to age six while their neurological systems are being developed. Exposure to lead can cause long-term neurological damage that may be associated with learning and behavioral problems and with decreased intelligence.

Sources of Childhood Lead Exposure

Lead paint dust from deteriorated lead paint or from renovation is the major source of exposure for children in Maryland. Out of estimated of 2,318,430 residential houses in Maryland 436,222 (18.8%) are built before 1950 (95% likely to contain lead paint) and 929,519 (40.1%) built between 1950-1979 (75% likely to have lead paint. (Source: US Census Bureau, 2007 American Community Survey)

Water, air, and soil, may provide low-level, "background" exposure, but rarely may cause childhood lead poisoning.

Imported products, parental occupations, hobbies, and imported traditional medicines occasionally may cause lead exposure among children.

In-utero exposure to lead may affect fetal development. This can be of more significance among certain subgroup populations who may be more at risk of environmental lead exposure.

Terms and Definitions

There is no evidence of a blood lead level below which there are no health effects. The Centers for Disease Control and Prevention (CDC) concurs that the evidence shows that there is no threshold level for blood lead that can be considered "safe". CDC's current blood lead level of concern of 10 µg/dL is based on: 1) lack of successful clinical or public health interventions with BLLs below 10 µg/dL, 2) likelihood of misclassification errors due to uncertainty associated with laboratory testing at levels <10 µg/dL, and 3) the need to prioritize public health resources for children with BLL ≥10 µg/dL. Based on these facts, the CLR dropped the term "Lead Poisoning" as was initially defined: "a venous blood lead level ≥25 µg/dL" and later dropped the level to 20 µg/dL. Instead, to better reflect the extent of the work and to direct program activities to the "more at-risk" areas, from 2005 forward new terms 'incidence' and 'prevalence' with the following definitions were included in annual report.

EBL (Elevated Blood Lead level): A blood lead level ≥10 µg/dL, currently defined by CDC as "Level of Concern". The highest venous, in the absence of venous test the highest capillary test was the bases of determination.

Prevalence: Any child with an EBL for the calendar year is the basis of this selection. Prevalence reflects the existing load of children with EBL who may be new to the program or may have been carried-over from previous years (continuously or after some remission.)

Incidence: Any child with the very first EBL is basis of this selection. Incidence reflects the load of the children with EBL who may have never been tested for lead before or the result of all their blood lead tests were all below 10 µg/dL. Incidence is a better indicator for primary prevention. It is expected that the expansion of primary prevention activities results in less exposure and fewer new cases. The old cases, because of the extent and severity of the past exposure may remain internally exposed and continue to have EBL for months or even years. The procedures to locate new cases were discussed in detail in previous reports (Annual reports 2005, 2006).

Statistical Report

In calendar year 2008, a total of 106,452 children 0-72 months were tested for lead exposure statewide. Table One provides a summary of statewide statistics of blood lead testing in 2008.

Table One
Calendar Year (CY) 2008 Statistical Report[1]

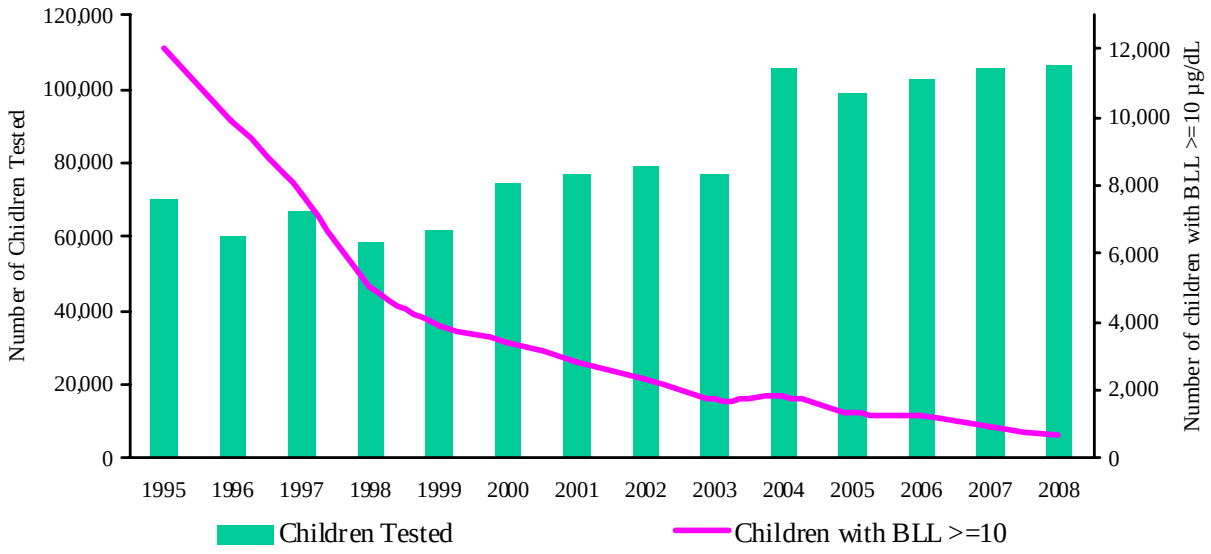
Item	Number	Percent (%)
All Children		
Number of tests	122,285	
Number of children	118,895	
Children 0-72 Months		
Number of tests	109,625	
Number of children	106,452	100.0
Age		
Under One	11,572	10.8
One Year	36,272	34.1
Two Years	28,162	26.5
Three Years	11,602	10.9
Four Years	11,004	10.3
Five Years	7,840	7.4
Sex		
Female	52,121	49.0
Male	53,587	50.4
Undetermined	644	0.6
Highest Blood Lead Level (µg/dL)		
≤4	100,661	94.6
5-9	5,078	4.8
10-14	466	0.4
15-19	140	0.1
≥20	107	0.1
Mean BLL (Geometric mean)	1.51	
Blood Specimen		
Capillary	15,233	14.3
Venous	80,383	75.5
Undetermined[2]	10,836	10.2

1. For detailed analysis and breakdown of numbers refer to Supplementary Data Tables 1-5.
2. In supplemental data tables blood tests with sample type unknown were counted as capillary.

Findings

Childhood lead exposure further declined in 2008 (Figure One). There was 20% decline in prevalence and 25% decline in incidence. The reduction has occurred both statewide and in areas of highest risk such as Baltimore City.

Figure One
Number of Children 0-72 Months Tested for Lead and Number Reported to Have Blood Lead Level ≥10 µg/dL: 1995-2008



The drop in both extent and severity of lead poisoning continued from 2007 to 2008 (Figure Two).

Figure Two
Blood Lead Distribution of Children 0-72 Months Tested for Lead in 2007 and 2008

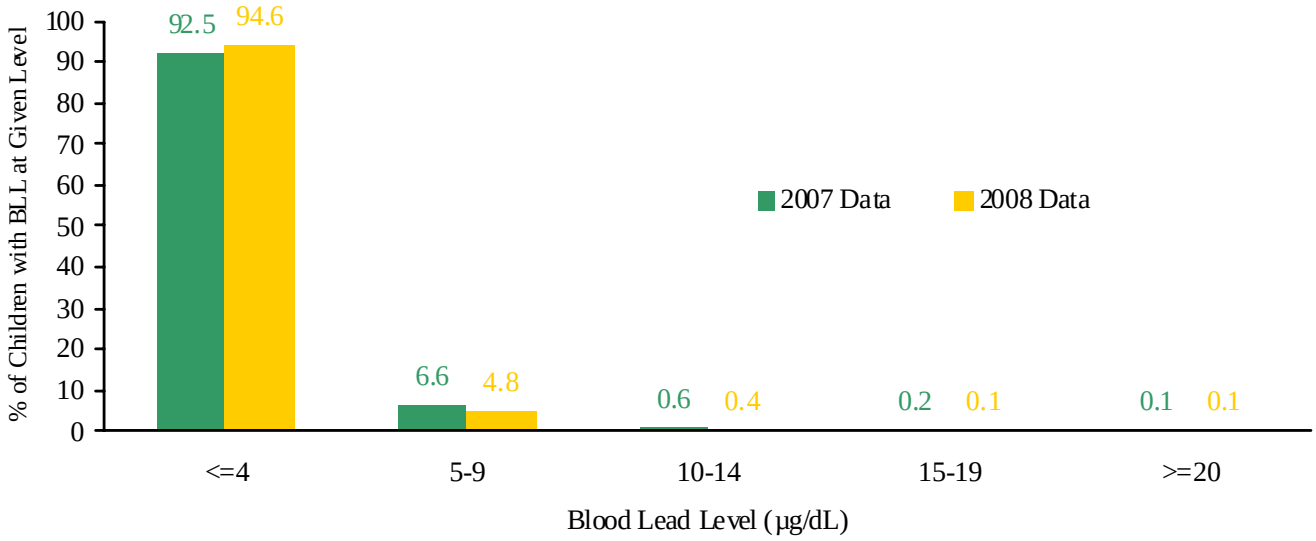


Table Two provides the breakdown of blood lead testing and the status of children with respect to lead exposure by jurisdiction in 2008.

Table Two
Blood Lead Testing of Children 0-72 Months by Jurisdiction in 2008

County	Population of Children[1]	Children Tested		Prevalent Cases[2]		Incident Cases[3]	
		Number	Percent	Number	Percent	Number	Percent
Allegany	4,966	1,323	26.6	11	0.8	8	0.6
Anne Arundel	44,090	6,817	15.5	7	0.1	6	0.1
Baltimore	60,547	15,837	26.2	36	0.2	31	0.2
Baltimore City	55,959	18,622	33.3	468	2.5	302	1.6
Calvert	6,864	768	11.2	0	0.0	0	0.0
Caroline	2,497	852	34.1	7	0.8	3	0.4
Carroll	13,872	1,343	9.7	8	0.6	7	0.5
Cecil	7,965	1,265	15.9	6	0.5	4	0.3
Charles	12,001	2,032	16.9	1	0.0	1	0.0
Dorchester	2,266	680	30.0	9	1.3	5	0.7
Frederick	19,184	3,376	17.6	16	0.5	13	0.4
Garrett	2,468	479	19.4	2	0.4	1	0.2
Harford	21,005	3,258	15.5	5	0.2	5	0.2
Howard	24,777	2,493	10.1	5	0.2	4	0.2
Kent	1,242	303	24.4	5	1.7	3	1.0
Montgomery	80,262	18,587	23.2	36	0.2	25	0.1
Prince George's	77,625	18,732	24.1	41	0.2	33	0.2
Queen Anne's	3,583	594	16.6	1	0.2	1	0.2
Saint Mary's	8,548	1,517	17.7	4	0.3	3	0.2
Somerset	1,521	522	34.3	2	0.4	2	0.4
Talbot	2,399	612	25.5	5	0.8	5	0.8
Washington	11,113	3,041	27.4	13	0.4	11	0.4
Wicomico	6,998	2,420	34.6	20	0.8	13	0.5
Worcester	3,148	910	28.9	5	0.5	3	0.3
County Unknown		69		0		0	
Statewide	**474,900**	**106,452**	**22.4**	**713**	**0.7**	**489**	**0.5**

Notes:

1. Adapted from the Census Bureau: "State Interim Population Projections by Age and Sex: 2000-2030" http://www.census.gov/population/www/projections/projectionsagesex.html.
2. All children with at least one blood lead test ≥10 µg/dL in 2008. The selection is based on the highest venous or the highest capillary in the absence of any venous test.
3. Children with the very first blood lead test ≥10 µg/dL in 2008. These children were either not tested in the past or their blood lead levels were below 10 µg/dL.

Appendix A provides numbers of children by age groups of 0-35 months and 36-72 months, and Appendix B provides summary results for the past eight (8) years at the State, Baltimore City and Counties levels. For detailed breakdown of blood lead data the reader is referred to supplementary data tables: Supplements 1-5.

Statewide activities to reduce (eliminate) childhood lead poisoning

The State Elimination Plan calls for zero new cases of EBL by 2010. The plan focuses on primary prevention (removal and elimination of lead hazards) while maintaining well-established secondary prevention (identifying children who may be at risk of lead exposure) and tertiary prevention (case management of children exposed to lead) efforts in the state.

Primary Prevention: Much of the decline in blood lead levels is the result of implementation and enforcement of Maryland's "Reduction of Lead Risk in Housing" law. The law requires each pre-1950 rental dwelling to be issued a Full Risk Reduction certificate at tenant turnover. In 2001, at least 50% of the owner's affected properties were required to be in compliance with the Full Risk Reduction Standard, 100% compliance was required in 2006. Effective October 1, 2004, the law requires rent court Judges and local housing registry officials to not accept cases and applications from pre-1950 rental property owners who can not present lead certificates that indicate that their rental properties are in compliance with the Reduction of Lead Risk in Housing law.

State laws and regulations with impact on childhood lead poisoning

- ✓ Requirements to perform lead hazard reduction at each turnover in rental housing built before 1950. [Environment Article (EA) §6-8]
- ✓ Outreach programs to parents, health care providers, and property owners, especially in at-risk areas. [EA§ 6-8, Health Article §18-106]

Although children living in pre-1950 housing units are much more likely to have EBL, the severity of the exposure in such housing declined significantly over the years (Figures Three, Four).

Figure Three

Percent of Children 0-72 Months with Blood Lead Level ≥10 µg/dL and Age of the Housing

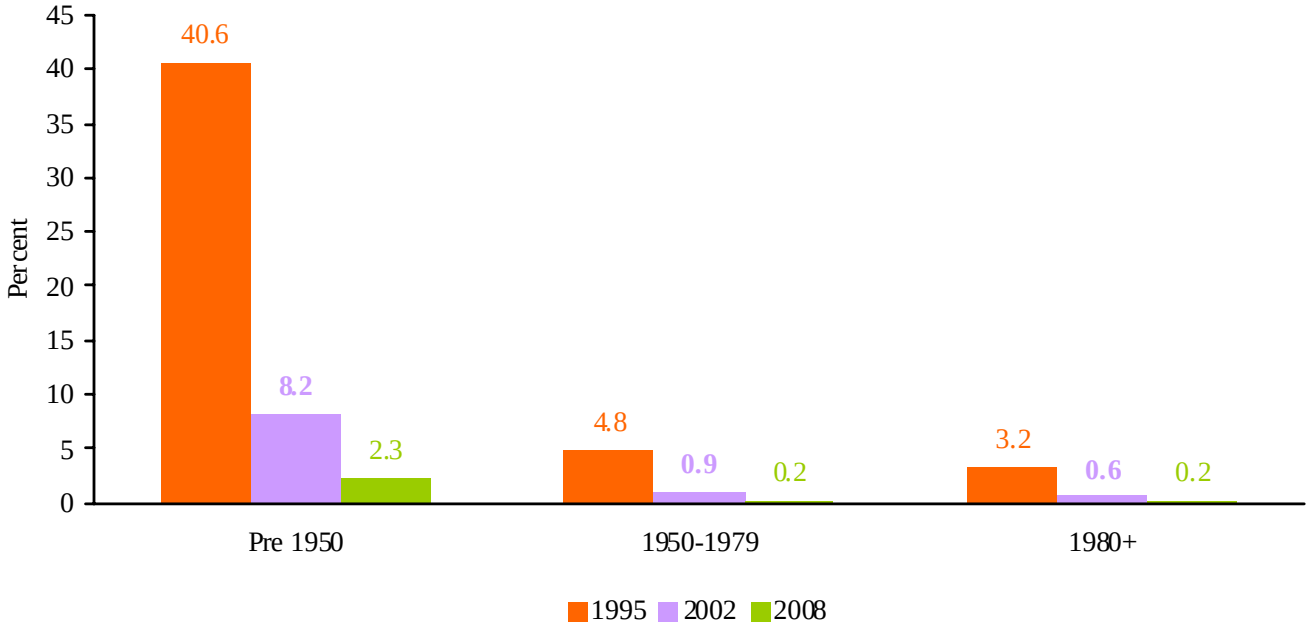
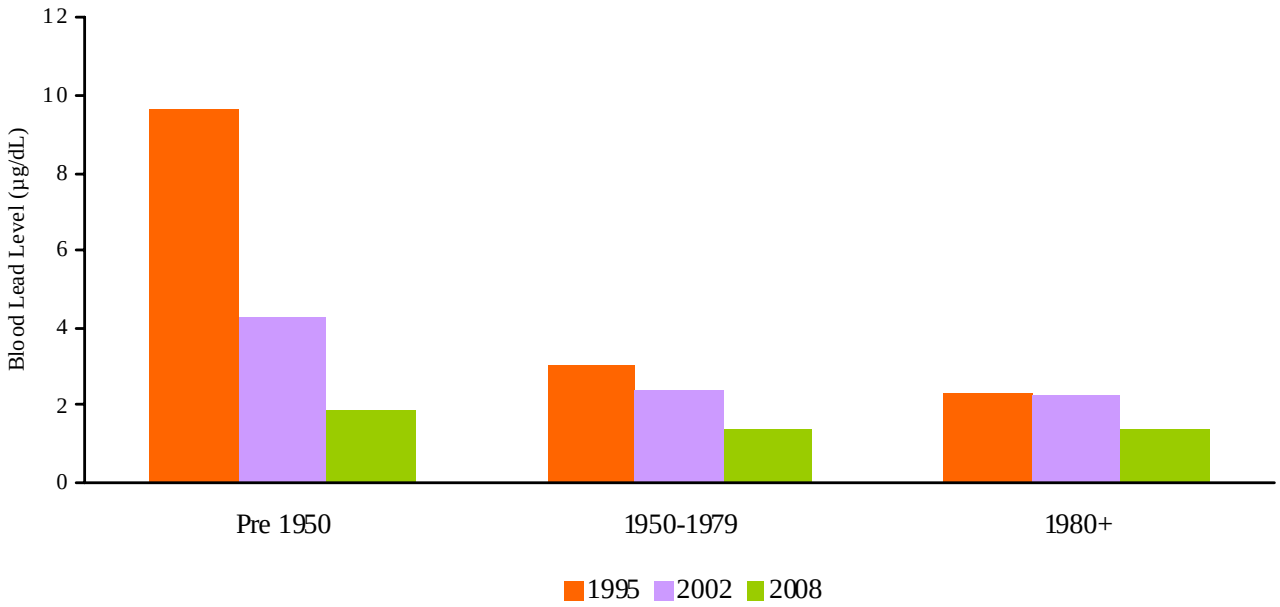


Figure Four
Mean Blood Lead Level of Children 0-72 Months and Age of the Housing



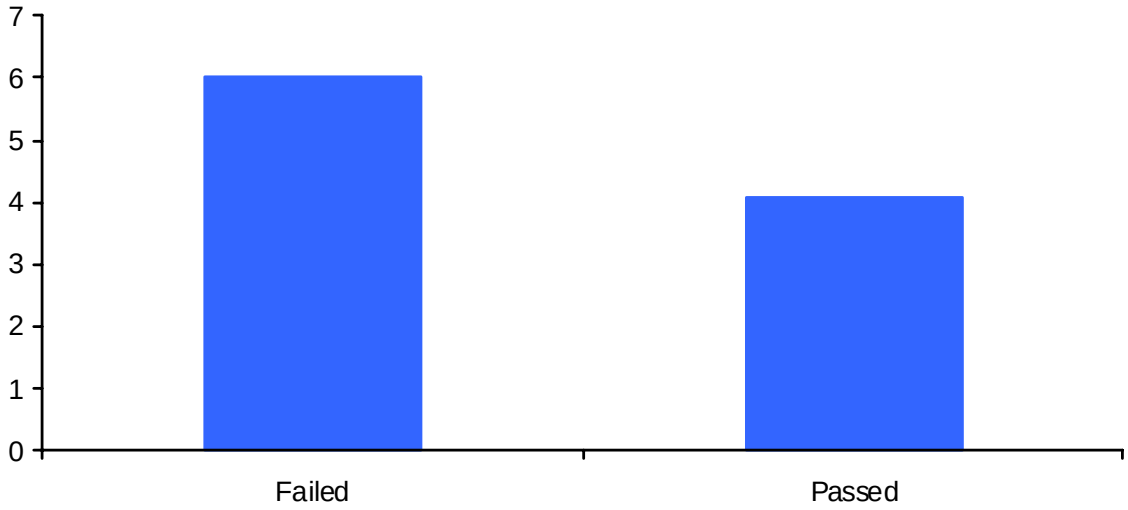
Figures Three and Four are based on matching address information in the surveillance file for these years with the Maryland Department of Assessment and Taxation (MDAT) file in which the year structure built is included. Age of the housing for about 50% of addresses could not be determined. This was because either the addresses could not be matched or the year structure built was missing in the MDAT file. Those addresses are not included in Figures Three and Four.

One requirement of the law calls for the owners of pre-1950 rental units to do lead hazard reduction at each turn over of the occupancy. Since the inception of the law, records of such compliance are maintained in the Lead Program's "Inspection/Certificate" file (Form330.dbf). Upon inspection of the property, the inspector may issue a certificate with grade "Pass" (in compliance with the law) or "Fail" (not in compliance).

To determine the impact of this requirement on blood lead level of children 0-72 months who may have been living in such units, the addresses from 2008 lead surveillance file were matched against the addresses in "Form330.dbf" file. More than 4,000 pre-1950 addresses in the Surveillance file were matched, of which 3,728 had "Pass"ed inspection, 332 addresses "Fail"ed. The remainder (17 addresses) was not coded correctly.

Figure Five shows that the compliance of pre-1950 property owners has impact on children's blood lead level. Close to 6% of children living in properties whose owner did not comply with the law had BLL ≥10 µg/dL, but only 4% of children living in properties whose owner followed the requirements of the law had BLL ≥10 µg/dL. The average blood lead level for the two groups was 2.71 and 2.27 µg/dL respectively.

Figure Five
Percent of Children 0-72 Months Living in Pre-1950 Housing with EBL and the Inspection Status of the House

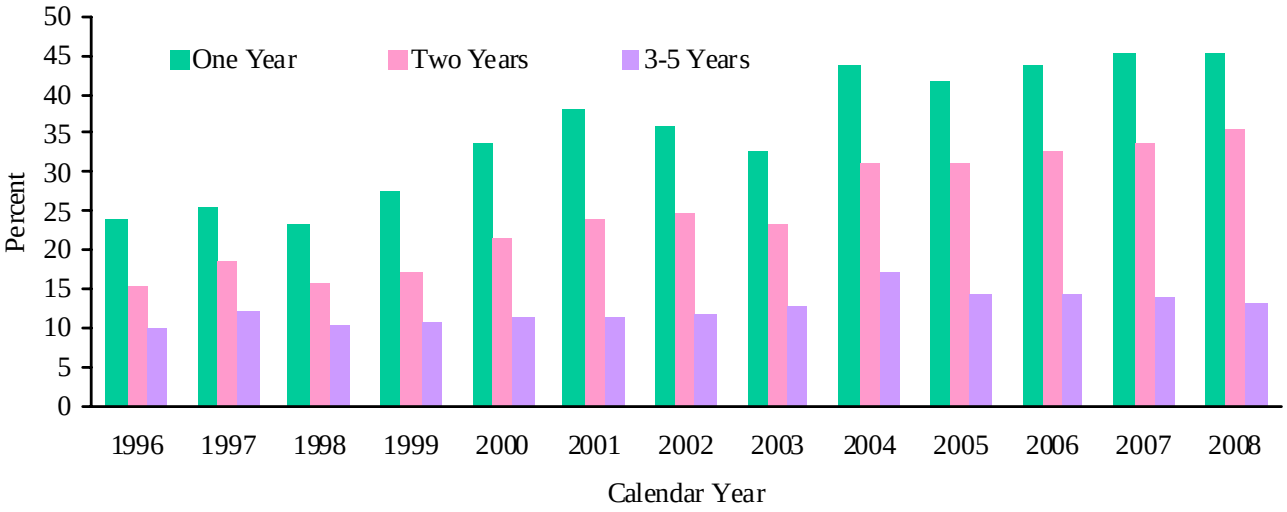


Secondary Prevention: The second element of the Elimination Plan is to identify children who may be at risk of lead exposure, so that preventive action can be implemented. Children age one and two, and children living in areas with high proportion of pre 1950 housing units are most likely to be exposed to lead. To that end, Maryland requires that children at ages one and two years and children living in "at-risk" areas be tested. The State has a targeted testing plan that identifies "at-risk areas." Universal blood lead testing applies to Baltimore City children (Ordinance 20 effective July 2000) and children on Medical Assistance programs. The percentage of one and two year old children tested for lead has increased substantially since 2004 (Figure Six).

Identifying Children with Lead Exposure

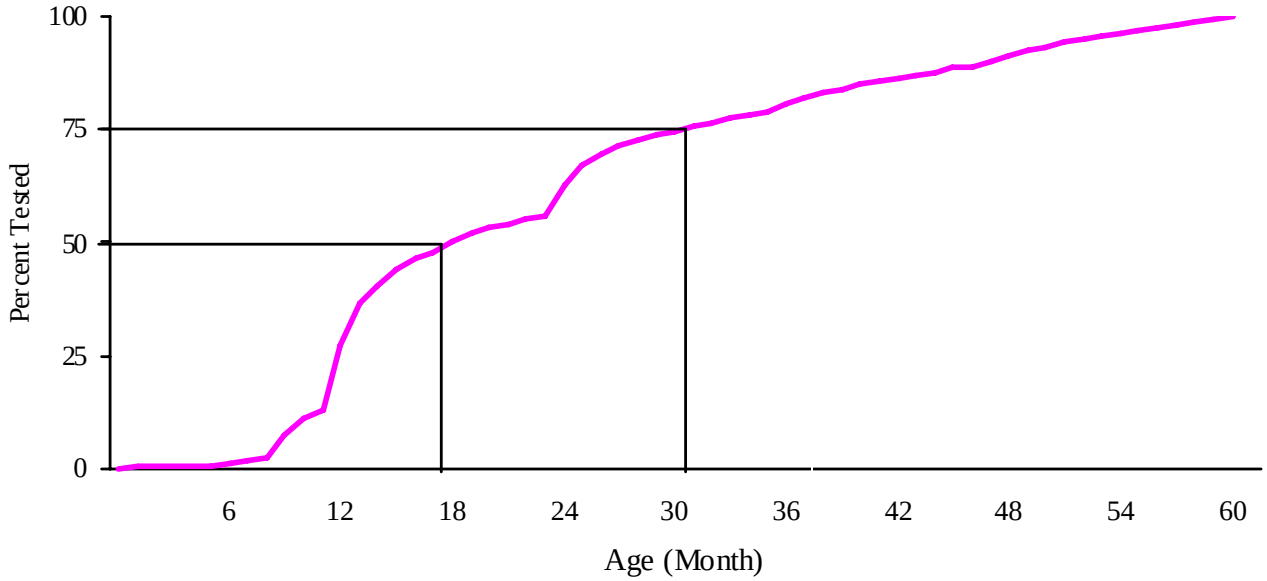
The critical issue in childhood lead poisoning is early detection. Because there are no specific clinical symptoms, a blood lead test is the most reliable technique to identify children with elevated blood lead levels. If there is any suspicion that a child is exposed to lead, a health care provider should do a blood lead test.

Figure Six
Percent of Children One and Two Years Old Tested for Lead vs. Children of Other Ages



To determine the extent of blood lead testing of children 0-72 months we looked at the 2002 birth cohort. Using the US Census Bureau population estimate for up to one year old in 2002 for the state of Maryland (76,283), we found that 57,261 (75.1%) had at least one blood lead test before age 6 years. Those who were tested mostly were tested when they were one year or two years old. Close to 50% of the children received their first blood lead test before they reached 18 months of age, and more than three quarters of children were tested before they reach their 3rd birthday (Figure Seven).

Figure Seven
Cumulative Blood Lead Testing of Children 0-72 Months by Age (Birth cohort 2002)



Tertiary Prevention: Maryland's Lead Poisoning Prevention Program has well-established case management guidance and environmental investigation protocols for follow-up of children with elevated blood lead level. As of February 24, 2006, one venous or two capillary blood lead tests ≥10 μg/dL trigger the Notice of EBL under the Reduction of Lead Risk in Housing Law. A venous blood lead test ≥10 μg/dL in Baltimore City or a venous blood lead test ≥15 μg/dL in Maryland counties initiates environmental investigation. Tables Three and Four outline the State's protocol for diagnostic and follow up blood lead testing.

Table Three
Blood Lead Diagnostic and Follow-Up: Confirmation of a Capillary Blood Lead Test

BLL (μg/dL)	Confirm with venous blood lead test within
≤9	Routine blood lead test according to protocol
10 –19	3 months
20 – 44	1 week to 1 month*
45 – 59	48 hours
60-69	24 hours
≥70	Immediately as an emergency lab test

* The higher the BLL, the more urgent the need for confirmatory testing.

Table Four
Blood Lead Diagnostic and Follow-Up: Follow-Up for Venous Blood Lead Testing[1]

BLL (μg/dL)Venous	Early follow-up(First 2-4 tests after identification)	Late follow-up (After BLL begins to decline)
≤9	Routine blood lead test according to protocol	
10 - 14	3 months [2]	6 – 9 months
15 - 19	1 - 3 months [2]	3 – 6 months
20 - 24	1 - 3 months [2]	1 – 3 months
25 - 44	2 weeks – 1 month	1 month
≥45	As soon as possible	Chelation with subsequent follow-up

1. Seasonal variation of BLLs exists and may be more apparent in colder climate areas. Greater exposure in the summer months may necessitate more frequent follow-up.
2. Some case managers or health care providers may choose to repeat blood lead tests on all new patients within a month to ensure that their BLL level is not rising more quickly than anticipated.

Tables adapted from: *Centers for Disease Control and Prevention. Managing Elevated Blood Lead Levels Among Children: Recommendations from the Advisory Committee on Childhood Lead Poisoning Prevention. Atlanta: CDC, 2002.*

Data Quality

The CLR is maintained in the "Systematic Tracking of Elevated Lead Levels and Remediation" (STELLAR) surveillance system, obtained from CDC Lead Poisoning Prevention Program. CLR staff make all efforts to further improve data quality with respect to completeness, timeliness, and accuracy. Staff keep track of laboratory reporting to make sure laboratories are reporting all blood lead tests no later than biweekly. The law requires blood lead results ≥20 μg/dL to be reported (fax) within 24 hours after result is known. However, upon CLR request, laboratories agreed to report (fax) the result of all blood lead test ≥10 μg/dL within 24 hours For all blood lead tests ≥10 μg/dL, staff check the completeness of data in particular with respect to child's and guardian's name, address, and telephone number.

In 2008, more than 92% of blood lead tests were reported to the registry electronically. The average reporting time, from the time sample is drawn to time the result enters the CLR database is approximately 6 days. The average time for elevated blood lead results (≥10 μg/dL) is approximately 30 hours. Table Five provides the summary reports for completeness of data as required by law.

Table Five
Completeness of Data for 2007

Item	% Complete
Child's name	100
Date of Birth	99.8
Sex/Gender	99.4
Race	51.8
Guardian's name	53.8
Sample type	89.7
Blood lead level	100.0
Address (geocoded)	89.6

Blood Lead Laboratory Reporting Requirement

The amended law and regulations* of 2001 and 2002 require that:

1-The following child's demographic data should be included in each blood lead test reported:

- Date of Birth
- Sex
- Race
- Address
- Test date
- Sample type
- Blood lead level

2-Blood lead results ≥20 µg/dL to be reported (fax) within 24 hours after result is known. All other results to be reported every two weeks.

3-Reporting format should comply with the format designed and provided by the Registry.

4-Data should be provided electronically.

* EA §6-303, Blood lead test reporting (COMAR 26.02.01, Blood lead test reporting)

Appendix A
Blood Lead Testing of Children 0-72 Months by Major Age Group and Jurisdiction in 2008

Age Group	Population of Children	Children Tested Number	Children Tested Percent	Prevalent Cases Number	Prevalent Cases Percent	Incident Cases Number	Incident Cases Percent
			Allegany County				
0-35 Months	2,542	1,088	42.8	7	0.6	6	0.6
36-72 Months	2,424	235	9.7	4	1.7	2	0.9
Total	4,966	1,323	26.6	11	0.8	8	0.6
			Anne Arundel County				
0-35 Months	22,570	5,128	22.7	6	0.1	6	0.1
36-72 Months	21,520	1,689	7.8	1	0.1	0	0.0
Total	44,090	6,817	15.5	7	0.1	6	0.1
			Baltimore County				
0-35 Months	29,927	12,007	40.1	28	0.2	26	0.2
36-72 Months	30,621	3,830	12.5	8	0.2	5	0.1
Total	60,547	15,837	26.2	36	0.2	31	0.2
			Baltimore City				
0-35 Months	29,085	13,243	45.5	306	2.3	241	1.8
36-72 Months	26,874	5,379	20.0	162	3.0	61	1.1
Total	55,959	18,622	33.3	468	2.5	302	1.6
			Calvert County				
0-35 Months	3,302	631	19.1	0	0.0	0	0.0
36-72 Months	3,562	137	3.8	0	0.0	0	0.0
Total	6,864	768	11.2	0	0.0	0	0.0
			Caroline County				
0-35 Months	1,225	694	56.7	4	0.6	3	0.4
36-72 Months	1,272	158	12.4	3	1.9	0	0.0
Total	2,497	852	34.1	7	0.8	3	0.4
			Carroll County				
0-35 Months	6,735	1,033	15.3	4	0.4	4	0.4
36-72 Months	7,137	310	4.3	4	1.3	3	1.0
Total	13,872	1,343	9.7	8	0.6	7	0.5
			Cecil County				
0-35 Months	4,136	857	20.7	5	0.6	4	0.5
36-72 Months	3,829	408	10.7	1	0.2	0	0.0
Total	7,965	1,265	15.9	6	0.5	4	0.3

Appendix A (continued)
Blood Lead Testing of Children 0-72 Months by Major Age Group and Jurisdiction in 2008

			Charles County				
0-35 Months	5,670	1,453	25.6	1	0.1	1	0.1
36-72 Months	6,331	579	9.1	0	0.0	0	0.0
Total	12,001	2,032	16.9	1	0.0	1	0.0
			Dorchester County				
0-35 Months	1,138	533	46.8	7	1.3	5	0.9
36-72 Months	1,128	147	13.0	2	1.4	0	0.0
Total	2,266	680	30.0	9	1.3	5	0.7
			Frederick County				
0-35 Months	9,656	2,279	23.6	12	0.5	11	0.5
36-72 Months	9,529	1,097	11.5	4	0.4	2	0.2
Total	19,184	3,376	17.6	16	0.5	13	0.4
			Garrett County				
0-35 Months	1,320	365	27.7	2	0.5	1	0.3
36-72 Months	1,148	114	9.9	0	0.0	0	0.0
Total	2,468	479	19.4	2	0.4	1	0.2
			Harford County				
0-35 Months	10,756	2,361	22.0	2	0.1	2	0.1
36-72 Months	10,249	897	8.8	3	0.3	3	0.3
Total	21,005	3,258	15.5	5	0.2	5	0.2
			Howard County				
0-35 Months	12,351	1,769	14.3	4	0.2	3	0.2
36-72 Months	12,426	724	5.8	1	0.1	1	0.1
Total	24,777	2,493	10.1	5	0.2	4	0.2
			Kent County				
0-35 Months	650	238	36.6	4	1.7	3	1.3
36-72 Months	592	65	11.0	1	1.5	0	0.0
Total	1,242	303	24.4	5	1.7	3	1.0
			Montgomery County				
0-35 Months	41,272	13,097	31.7	29	0.2	21	0.2
36-72 Months	38,990	5,490	14.1	7	0.1	4	0.1
Total	80,262	18,587	23.2	36	0.2	25	0.1

Appendix A (continued)
Blood Lead Testing of Children 0-72 Months by Major Age Group and Jurisdiction in 2008

			Prince George's County				
0-35 Months	39,600	12,044	30.4	28	0.2	26	0.2
36-72 Months	38,024	6,688	17.6	13	0.2	7	0.1
Total	77,625	18,732	24.1	41	0.2	33	0.2
			Queen Anne's County				
0-35 Months	1,824	435	23.9	1	0.2	1	0.2
36-72 Months	1,759	159	9.0	0	0.0	0	0.0
Total	3,583	594	16.6	1	0.2	1	0.2
			Saint Mary's County				
0-35 Months	4,213	1,276	30.3	3	0.2	3	0.2
36-72 Months	4,335	241	5.6	1	0.4	0	0.0
Total	8,548	1,517	17.7	4	0.3	3	0.2
			Somerset County				
0-35 Months	760	411	54.1	1	0.2	1	0.2
36-72 Months	761	111	14.6	1	0.9	1	0.9
Total	1,521	522	34.3	2	0.4	2	0.4
			Talbot County				
0-35 Months	1,162	515	44.3	4	0.8	4	0.8
36-72 Months	1,237	97	7.8	1	1.0	1	1.0
Total	2,399	612	25.5	5	0.8	5	0.8
			Washington County				
0-35 Months	5,640	2,062	36.6	11	0.5	10	0.5
36-72 Months	5,473	979	17.9	2	0.2	1	0.1
Total	11,113	3,041	27.4	13	0.4	11	0.4
			Wicomico County				
0-35 Months	3,669	1,794	48.9	10	0.6	8	0.4
36-72 Months	3,329	626	18.8	10	1.6	5	0.8
Total	6,998	2,420	34.6	20	0.8	13	0.5
			Worcester County				
0-35 Months	1,667	640	38.4	4	0.6	3	0.5
36-72 Months	1,481	270	18.2	1	0.4	0	0.0
Total	3,148	910	28.9	5	0.5	3	0.3

Appendix A (continued)
Blood Lead Testing of Children 0-72 Months by Major Age Group and Jurisdiction in 2008

County Unknown							
0-35 Months		53		0	0.0	0	0.0
36-72 Months		16		0	0.0	0	0.0
Total		69		0	0.0	0	0.0
Statewide							
0-35 Months	240,868	76,006	31.6	483	0.6	393	0.5
36-72 Months	234,032	30,446	13.0	230	0.8	96	0.3
Total	474,900	106,452	22.4	713	0.7	489	0.5

Appendix B
Blood Lead Testing of Children 0-72 Months: 2001-2008

Calendar Year		Population	Blood Lead Tests		BLL ≥10 µg/dL		Lead Poisoning –	
			Number	Percent	Number	Percent	Number	Percent
2001								
	Baltimore City	53,149	21,231	40.0	2,027	9.5	230	1.1
	Counties	387,289	55,470	14.3	814	1.5	58	0.1
	Unknown		41		0		0	
	Total	431,438	76,742	17.8	2,841	3.7	288	0.4
2002								
	Baltimore City	52,744	16,595	31.5	1,558	9.4	183	1.1
	Counties	384,073	62,822	16.4	737	1.2	77	0.1
	Unknown		90		2		0	
	Total	436,817	79,507	18.2	2,297	2.9	260	0.3
2003								
	Baltimore City	51,892	18,242	35.2	1,166	6.4	160	0.9
	Counties	386,076	58,470	15.1	552	0.9	77	0.1
	Unknown		9		1		0	
	Total	437,968	76,721	17.5	1,719	2.2	237	0.3
2004								
	Baltimore City	52,796	18,970	35.9	1183	6.2	147	0.8
	Counties	395,310	83,002	21.0	573	0.7	83	0.1
	Unknown		3,577		55			
	Total	448,106	105,549	23.6	1,811	1.7	230	0.2
2005					Prevalent cases		Incident cases	
	Baltimore City	53,626	17,943	33.5	854	4.8	534	3.0
	Counties	401,888	80,848	20.1	463	0.6	382	0.5
	Unknown		357		14		0	
	Total	455,514	99,148	21.8	1,331	1.3	916	0.9
2006								
	Baltimore City	54,547	18,363	33.7	843	4.6	573	3.1
	Counties	408,784	84,611	20.7	431	0.5	363	0.4
	Unknown		199		21		20	
	Total	463,331	102,974	22.2	1,274	1.2	936	0.9
2007								
	Baltimore City	55,142	17,670	32.0	624	3.5	435	2.5
	Counties	413,248	87,760	21.2	267	0.3	218	0.2
	Unknown		278		1		1	
	Total	468,390	105,708	22.6	892	0.8	654	0.6
2008								
	Baltimore City	55,959	18,622	33.3	468	2.5	302	1.6
	Counties	418,941	87,830	21.0	245	0.3	187	0.2
	Unknown		69		0		0	
	Total	474,900	106,452	22.4	713	0.7	489	0.5