

**Florida Department of Health  
Childhood Lead Poisoning Surveillance Program  
Calendar Year 1999 Annual Report**

Reference #H64/CCH408427-08:

Cooperative agreement for surveillance of elevated blood lead levels in children

**INTRODUCTION**

Florida is the fourth largest state in the nation, has the nation's fourth largest live birth rate, is home to an estimated million children less than 72 months of age and has over 300,000 Medicaid-eligible children in the same age range. The many subtle demographic and socioeconomic differences in this pediatric population underscore the importance of addressing the preventable condition of childhood lead poisoning. The Centers for Disease Control and Prevention's (CDC's) Lead Poisoning Prevention Branch and the national health plan, Healthy People 2010, have established an objective for the elimination of elevated blood lead levels in children. The Florida Department of Health Childhood Lead Poisoning Surveillance Program (Program) is preparing to meet this challenging objective by continuing to develop and enhance its surveillance database, and by preparing for a statewide prevention-oriented approach. For a complete outline of the Program's goals and objectives, please see the non-competing continuation grant submitted to the CDC April 5, 2000.

For calendar year 1999, 38,091 total tests were performed on an unduplicated count of 35,546 children less than 72 months of age. These reports were submitted by the Department of Health, Bureau of Laboratories (state laboratory) and by reporting private laboratories. The Program does not regularly produce rates because many children are not screened and private laboratories often submit data that exclude results less than ten micrograms per deciliter. Therefore a reliable denominator is not available. Although the public laboratory does submit complete records, this subset of children may not be representative for estimating statewide prevalence.

The Program conducts laboratory-based surveillance, though plans to incorporate local-level case management data are underway. The Program was formed in 1992 via a grant from the CDC. The Program began recording data concerning lead poisoning in 1993. The database is housed in the Department of Health, Bureau of Environmental Epidemiology in Tallahassee. Lead poisoning became a notifiable disease in Florida in 1992. The current case definition of childhood lead poisoning is a venous blood sample result of  $\geq 10$  micrograms per deciliter ( $\mu\text{g}/\text{dL}$ ) from a child less than 72 months of age.

The Program's database now contains over 300,000 records. Blood lead level results and accompanying information are routinely entered, checked for quality and merged to the main database. Program staff maintain laboratory data in Microsoft Access. Data are entered into flat ascii files for each calendar year.

The state laboratory and several reporting private laboratories submit records on a weekly or monthly basis. The Florida Statutes, Chapter 381, Report of Diseases of Public Health Significance to Department, and Chapter 64D-3, of the *Florida Administrative Code*, "Control of Communicable Diseases and Conditions Which May Significantly Affect Man" address the reporting of notifiable diseases by laboratories. Laboratories have a 72 -hour time frame in which to report an elevated blood lead level with the following identifying information (also see Appendix B):

1. Name and date of birth of the patient from whom the specimen was taken;
2. Name, address, and telephone number of the processing laboratory; and
3. Diagnostic test performed, specimen type and result

In addition to the above, they must supply **either** of the following:

- a. Address, telephone number, race, sex, ethnicity and social security number (pending) of the patient, or, if these are not available then
- b. Name, address, and telephone number of the submitting physician or health care provider

In addition to these minimum mandatory requirements outlined in the Administrative Code, the Surveillance Program also requests:

1. An indication if the individual is receiving Medicaid;
2. That all blood lead test results (not only those greater than or equal to 10 micrograms per deciliter) be reported; and
3. That all reports be submitted via regular mail service on computer diskette or encrypted and emailed

The statute does not require blood lead levels less than 10 $\mu$ g/dL to be reported. Florida does not have a law mandating that laboratories submit all identifying information for the purpose of notifying the Surveillance Program of blood lead levels. The state laboratory requires that all parties responsible for the collection of blood samples submit complete identifying information. In turn, the state laboratory provides the Surveillance Program with the most complete records (including Medicaid status). Thirteen private laboratories regularly submitted data to the Program during 1999. Some private laboratories report completely, but others do not submit records <10 $\mu$ g/dL or supply information essential for proper surveillance, including Medicaid status and the other variables referred to above. The Surveillance Program Coordinator attempts to contact private laboratories to request that reports be submitted within 72 hours and that complete identifying information for elevated and non-elevated tests be submitted. Private laboratory reporting does continue to improve and remains an important source of data.

### **Lead is an Important Pediatric Health Problem**

Despite the elimination of lead from gasoline and interior house paint in this country, lead from these sources remains in the environment and houses. The Centers for Disease Control and Prevention (CDC) have termed excessive absorption of lead as “one of the most common pediatric health problems in the United States today and it is entirely preventable” (CDC 1991). Though lead has been eliminated from house paint in this country, lead-based paint hazards in older homes remain the primary source of high-dose lead exposure for

preschool-aged children (CDC 1997:13, Children's Environmental Health Network 1997:3).

Children are at particular risk for lead exposure due to their regular hand-to-mouth activity during daily play where lead-based paint is peeling or flaking. The dust from this deteriorating paint is easily ingested and is a significant source of exposure.

Children 9 months of age to 2 1/2 years of age are at greatest risk of lead poisoning. They have greater hand-to-mouth activity, their brains are more sensitive to the toxic effects of lead, and they absorb a greater percentage of the lead that is ingested. For comparison, where an adult will absorb 10% of ingested lead, a toddler will absorb 50% of ingested lead (Children's Environmental Health Network 1997:1). Children's developing nerves are more susceptible because the cell membrane activity and enzymes are affected by lower levels of lead (Cassarett, Dull 1995). Children less than 72 months of age continue to have increased risk for lead poisoning, which gradually decreases until they are 6 years of age. After 6 years of age, the risk is generally low, but special circumstances may increase risk.

Ingested lead is readily available to a child's body during early growth and development. Children are very different from adults physiologically. Pound for pound, young children breathe more, eat more and drink more than adults and double their weight in their first four months of life (Children's Environmental Health Network 1997:1). For example, proportionately, an average one-year-old eats two to seven times more grapes, bananas, pears, carrots and broccoli than an adult (Ibid:2). Children have greater need for calcium than do adults for developing bone and will absorb more of this element when it is ingested. If lead is ingested, the body will mistake it for calcium and absorb the lead in place of calcium.

Other effects of lead poisoning may include diminished intelligence, learning disabilities, delayed congenital development, interference with calcium metabolism, reduced heme syntheses (or the body's ability to manufacture red blood cells), reduced kidney function, and damage to the central nervous system. The damage to the central nervous system is not

reversible. The extent to which these effects will be present in a child depends on a number of factors, including the duration and intensity of exposure. These factors are still being studied to determine long-term effects of exposure on children.

### **SELECTED PROGRAM ACTIVITIES CALENDAR YEAR 1999**

- The Program compiled and submitted to the CDC, the annual report for 1998 and the four quarterly reports for 1999. The quarterly and annual reports are sent to all 67 county health departments (CHDs) and other interested parties. The report mailing list numbers over 100.
- The program received a total of 32 requests for data since January 1, 1999. Varying degrees of information were requested by concerned parents, researchers from Florida Universities and graduate students whose projects or theses involves lead poisoning, and CHDs. Fulfilling these requests required simple tasks such as providing educational materials or more complex tasks of querying data from the main database and preparing appropriate explanations.
- In August 1999, Program staff requested that CDC carry forward approximately \$35,000 in funds from the previous grant year for use in the current year. In November 1999 CDC awarded the requested funds. In February 2000 CDC notified the Program that the carry forward amount was overestimated by \$1000. The final amended award of carry forward funds (approximately \$34,855) was forthcoming from the CDC in March 2000.
- On September 17, 1999 the Program aired a satellite broadcast "Childhood Lead Poisoning: Research, Practice and Prevention". This broadcast was made possible by a separate conference grant from the CDC. There was an in-state audience and viewers from the CDC and sister lead programs from around the United States. A summary of this event was submitted with the Program's 4<sup>th</sup> quarterly report of 1999.

- In October Ms. De Etta Irby was hired in the position of Program Assistant, a part-time, thirty hour per week position. Her primary responsibilities are high-volume data entry, extensive quality checking and database management, conducting literature searches, assisting with report compilation and other duties as assigned.
- Two training sessions for the lead module component were held for calendar year 1999, one in April and one in July. Fourteen participants from nine CHDs, two participants from the Bureau of Planning, Evaluation and Data Analysis and one from the Bureau of Environmental Toxicology were trained. One session is scheduled in Marion County for March 29, 2000, one in Alachua County in June and a third at Department of Health headquarters in Tallahassee in October.

## **DATA REVIEW**

The data contained in this report have several limitations. The program does not receive complete information from all private clinical laboratories. Private laboratory data are included in a limited capacity in this report. Counties that use private laboratories for a large portion of their blood lead tests may not have a true representation of the extent of childhood lead poisoning in their area. Since the vast majority of samples received by the Department of Health Bureau of Laboratories are from county health departments (CHDs), most of the tests performed by private physicians are not included in this report. When interpreting the tables and charts contained within this report, one should consider the number of tests performed to accurately interpret the data.

The program is attempting to overcome the data limitations in two ways. The first is the implementation of the Lead Module Component that has been released as part of the CHD clinic management computer system. This module collects additional information that is required for blood lead surveillance and captures basic demographic information entered into other areas of the system. When this module is fully implemented in CHDs, the program will

have access to blood lead test and case management information entered by CHD personnel. The second approach to overcoming the data limitations is to coordinate with the private clinical laboratories to electronically report all blood lead tests performed, with complete identifying information. Program staff contact laboratory representatives to encourage complete reporting.

There has been a decline in the number of samples submitted to the Department of Health, Bureau of Laboratories for blood lead analysis. In 1993, the first year of the Childhood Lead Poisoning Surveillance Program, there were over 95,000 samples submitted to this laboratory. In 1994, the number decreased to approximately 60,000, approximately 40,000 in 1995 and 1996, approximately 35,000 in 1997, approximately 27,000 in 1998 and approximately 24,600 in 1999.

The percentage of samples submitted that were obtained from Medicaid recipients also decreased, although not as dramatically as the total number of samples submitted. In 1993, 72 percent of samples submitted were from Medicaid recipients. This percentage decreased to 66 percent in 1994, 64 percent in 1995, and 57 percent in 1996, increased slightly in 1997 to 59 percent and 55 percent in 1998 and increased again in 1999 with 60 percent. With the advent of managed care for Medicaid recipients, the proportion of Medicaid recipient samples may decrease because most private practitioners send their samples to private laboratories. Many reporting private laboratories, as mentioned above, do not report all blood lead levels completely.

Comparisons of the screened, elevated blood lead, and confirmed lead poisoned populations, by race sex, and age, for 1999 are shown in graphs 1-6. A summary of the data provided by the Bureau of Laboratories follows:

Graph 1  
Screening Tests

- 51% were male and 48% were female.
- 43% were African American and 47% were European American. The remaining 10% were composed of Native American, Asian or Pacific Islander, or had unknown race indications.

- 91% were between 12 and 72 months of age.

#### Graph 2

##### Elevated Screening Tests (All Tests $\geq 10\mu\text{g/dL}$ )

- 55% were male and 45% female.
- 57% were African American and 37% European American. The remaining 6% were composed of Native American, Asian or Pacific Islander, or had unknown race indications.
- 96% were between 12 and 72 months of age.

#### Graph 3

##### Confirmed Elevated Screening Test (Venous Tests $\geq 10\mu\text{g/dL}$ )

- 51% were male and 48% female.
- 74% were African American and 20% were European American. The remaining 6% were composed of Native American, Asian or Pacific Islander, or had unknown race indications.
- 98% were between 12 and 72 months of age.

#### Graph 4

##### Children (all children <72 months of age tested for blood lead)

- 51% were male and 48% were female.
- 42% were African American and 48% were European American. The remaining 10% were composed of Native American, Asian or Pacific Islander, or had unknown race indications.
- 92% were between 12 and 72 months of age.

#### Graph 5

##### Children with Elevated Tests (All Tests $\geq 10\mu\text{g/dL}$ )

- 56% were male and 43% were female.
- 58% were African American and 36% were European American. The remaining 6% were composed of Native American, Asian or Pacific Islander, or had unknown race indications.
- 97% were between 12 and 72 months of age.

#### Graph 6

##### Children Confirmed as Lead Poisoned (Venous Tests $\geq 10\mu\text{g/dL}$ )

- 51% were male and 47% were female.
- 73% were African American and 20% were European American. The remaining 7% were composed of Native American, Asian or Pacific Islander, or had unknown race indications.
- 98% were between 12 and 72 months of age.

These data indicate that male children were slightly more likely to be confirmed as lead poisoned. These data also show that over 3 times as many African American children were confirmed as lead poisoned compared to European American children. These data are consistent with national data showing that non-Hispanic blacks are more at risk for lead poisoning than children in other race groups (MMWR, February 21, 1997)

One trend in statewide case management appears to be low compliance in follow-up testing for children with initial blood lead levels  $\geq 10\mu\text{g/dL}$ . Factors that influence follow-up

tracking include providers using different laboratories for initial and confirmatory test analysis, incomplete reporting by laboratories and providers, and incomplete demographic information for tested children. Individual counties will need to evaluate local follow-up performance, especially if they use private laboratories for blood lead analyses.

Current Florida guidelines for childhood lead poisoning have established specific classes of lead poisoning and standards of care (time limits for venous blood sample follow-up of initial capillary blood sample tests, education, environmental actions, etc.) for each level of lead poisoning based on blood analysis results. The class levels and venous follow-up timeframes for initial capillary tests are:

<u>Class Levels</u>	<u>Follow-up Time</u>
10-14µg/dL	90 days
15-19µg/dL	30 days
20- 44µg/dL	7 days
45- 69µg/dL	2 days
≥70µg/dL	Immediately

Calculations based on elevated (≥10µg/dL) initial capillary test reports received from the Department of Health Bureau of Laboratories for 1998 (See Table 5) show that the following received follow-up tests according to time limits established by Florida guidelines:

- approximately 10.2% of children with initial capillary test results 10-14µg/dL.
- approximately 15.4% of children with initial capillary test results 15-19µg/dL.
- approximately 10.2% of children with initial capillary test results 20-44µg/dL.
- 0% of children with initial capillary test results 45-69µg/dL.
- No initial capillary tests ≥70µg/dL were reported.

The goal is that 100% of children with elevated initial capillary blood lead tests (≥10µg/dL) receive timely follow-up. Ascertaining whether or not capillary testing is an accurate measure of blood lead levels cannot be determined from this data due to the low percentage of initial capillary tests that are followed by a confirmatory venous test in a timely manner.

Private laboratory reporting continues to be challenging for data analysis. For this report, private laboratory data were merged with Bureau of Laboratories' data to facilitate the identification of follow-up tests that were performed by private laboratories (see Tables 2 and 4). Each laboratory has different reporting deficits. Missing data elements include some or all of the following: children's addresses, test type, date of birth, provider of sample and dates of collection and analysis of sample.

With the exception of LeadTech, which analyzes only capillary samples collected on filter paper, many of all elevated reports for children submitted by private laboratories do not indicate if blood samples drawn were capillary or venous. These private laboratories combined analyze a greater number of samples than the public laboratory alone. Given the magnitude of incomplete records submitted by private laboratories, the program may be underestimating (or overestimating) the extent of lead poisoning in Florida. In order to compile the most accurate representation possible of the screened, elevated blood lead and lead poisoned populations, the program continues efforts to improve completeness and accuracy of data reporting by working with private laboratories.

## 1999 Annual Report

### Explanation of Tables and Graphs

TABLE 1. 1999 Data: This table shows the number of specimens collected, the number of children tested (some children may have been tested multiple times), and the number and percentage of children who received Medicaid within each county. "Number of tests done" is a count of the number of blood specimens of sufficient quantity and quality that were received in the specified period. "Number of children tested" is determined by eliminating duplicate records on the same child using the child's last name, first name, and birthday as sort fields. Whether a child is a Medicaid recipient or not is determined by examining if she/he has a corresponding Medicaid number. If there is none, the child is categorized as a non-Medicaid child. The numbers used in this table are based on reports received from the Department of Health Bureau of Laboratories for the time period indicated. Tests performed by private laboratories are not reflected in this table.

TABLE 2. 1999 Data: This table shows the number of specimens collected and the number of children tested (some children may have been tested multiple times). "Number of tests done" is a count of the number of blood specimens of sufficient quantity and quality that were received in the specified period. "Number of children tested" is determined by eliminating duplicate records on the same child using the child's last name, first name, and birthday as sort fields. The numbers used in this table are based on reports received from reporting private laboratories for the time period indicated. Few reporting private laboratories submit Medicaid status, thus it can not be included as in Table 1.

TABLE 3. 1999 Data: This table shows, by county, the number of children with venous tests in the indicated result categories. The Florida case definition for a lead poisoned child is one whose blood lead test of a sample drawn by the venous method is  $10\mu\text{g/dL}$  or higher. The grouping of results follows the Florida guidelines. The numbers used in this table are based on reports received from the Department of Health Bureau of Laboratories for the time period indicated. Tests performed by private laboratories are not reflected in this table.

TABLE 4. 1999 Data: This table shows, by county, the number of children with venous tests in the indicated result categories. The Florida case definition for a lead poisoned child is one whose blood lead test of a sample drawn by the venous method is  $10\mu\text{g/dL}$  or higher. The grouping of results follows the Florida guidelines. The numbers used in this table are based on reports received from reporting private laboratories.

TABLE 5. 1998 Data: This table shows, by county, the number and percent of initial capillary tests with results  $\geq 10\mu\text{g/dL}$  with confirmatory venous tests within the time period specified by Florida guidelines. Ideally, each initial capillary test with a result  $\geq 10\mu\text{g/dL}$  should have a venous confirmatory test within the time period specified by Florida guidelines. The numbers used in this table are based on reports received from the Department of Health Bureau of Laboratories and private clinical laboratories for the time period indicated on the table.

GRAPH 1. 1999 Data: This graph shows the proportion of all reported blood lead analyses by race, gender, and age groups (in months). The total reports received represents all analyses for children less than 72 months of age for whom a blood lead analysis result was reported by the Bureau of Laboratories. Private clinical data were not used for this analysis due to lack of demographic information.

GRAPH 2. 1999 Data: This graph shows the proportion of all reported capillary or venous blood lead analyses  $\geq 10\mu\text{g/dL}$  by race, gender, and age groups in months. The total reports received represents all analyses for children less than 72 months of age for whom a blood lead

analysis result  $\geq 10\mu\text{g/dL}$  was reported by the Bureau of Laboratories. Private clinical data were not used for this analysis due to lack of demographic information.

GRAPH 3. 1999 Data: This graph shows the proportion of all reported venous blood lead analyses  $\geq 10\mu\text{g/dL}$  by race, gender, and age groups in months. The total reports received represents all analyses for children less than 72 months of age for whom a venous blood lead analysis result  $\geq 10\mu\text{g/dL}$  was reported by the Bureau of Laboratories. Private clinical data were not used for this analysis due to lack of demographic information.

GRAPH 4. 1999 Data: This graph shows the proportion of all children with reported blood lead analyses by race, gender, and age groups (in months). The total population represents all children less than 72 months of age for whom a blood lead analysis result was reported by the Bureau of Laboratories. Private clinical data were not used for this analysis due to lack of demographic information.

GRAPH 5. 1999 Data: This graph shows the proportion of all children with capillary or venous blood lead analyses  $\geq 10\mu\text{g/dL}$  by race, gender, and age groups in months. The total population represents all children less than 72 months of age for whom a blood lead analysis result  $\geq 10\mu\text{g/dL}$  was reported by the Bureau of Laboratories. Private clinical data were not used for this analysis due to lack of demographic information.

GRAPH 6. 1999 Data: This graph shows the proportion of all children with venous blood lead analyses  $\geq 10\mu\text{g/dL}$  by race, gender, and age groups in months. The total population represents all children less than 72 months of age for whom a venous blood lead analysis result  $\geq 10\mu\text{g/dL}$  was reported by the Bureau of Laboratories. Private clinical data were not used for this analysis due to lack of demographic information.

Table 1. **Number of blood lead tests, number of children <72 months of age tested, and percentage receiving Medicaid\***  
By county and sample type, 1999

County	Number of Tests Performed			Number of Children Tested			Received Medicaid?				
	Capillary	Venous	Total	Capillary	Venous	Total	Yes	%	No	%	Total
Alachua	504	32	536	478	24	502	310	62%	192	38%	502
Baker	75	0	75	73	0	73	68	93%	5	7%	73
Bay	0	52	52	0	52	52	8	15%	44	85%	52
Bradford	327	2	329	314	2	316	133	42%	183	58%	316
Brevard	620	46	666	562	37	599	401	67%	198	33%	599
Broward	1	1	2	1	1	2	2	100%	0	N/A	2
Calhoun	1	2	3	1	2	3	3	100%	0	N/A	3
Charlotte	163	1	164	156	1	157	97	62%	60	38%	157
Citrus	167	6	173	161	6	167	132	79%	35	21%	167
Clay	314	10	324	291	10	301	266	88%	35	12%	301
Collier	66	0	66	66	0	66	9	14%	57	86%	66
Columbia	90	8	98	86	6	92	85	92%	7	8%	92
Dade	5	169	174	5	168	173	0	N/A	173	100%	173
Desoto	10	0	10	10	0	10	9	90%	1	10%	10
Dixie	125	0	125	117	0	117	97	83%	20	17%	117
Duval	4,260	376	4,636	3,939	274	4,213	2,540	60%	1,673	40%	4,213
Escambia	0	0	0	0	0	0	0	N/A	0	N/A	0
Flagler	266	3	269	235	2	237	226	95%	11	5%	237
Franklin	48	5	53	40	4	44	18	41%	26	59%	44
Gadsden	0	2	2	0	2	2	0	N/A	2	100%	2
Gilchrist	108	2	110	100	2	102	92	90%	10	10%	102
Glades	35	3	38	30	2	32	21	66%	11	34%	32
Gulf	13	2	15	13	2	15	14	93%	1	7%	15
Hamilton	47	5	52	43	3	46	32	70%	14	30%	46
Hardee	82	11	93	71	11	82	54	66%	28	34%	82
Hendry	17	0	17	17	0	17	1	6%	16	94%	17
Hernando	89	0	89	87	0	87	85	98%	2	2%	87
Highlands	0	0	0	0	0	0	0	N/A	0	N/A	0
Hillsborough	652	129	781	625	119	744	359	48%	385	52%	744
Holmes	74	3	77	69	2	71	63	89%	8	11%	71
Indian River	7	307	314	7	291	298	246	83%	52	17%	298
Jackson	30	4	34	28	4	32	29	91%	3	9%	32
Jefferson	0	0	0	0	0	0	0	N/A	0	N/A	0
Lafayette	31	2	33	31	1	32	29	91%	3	9%	32
Lake	494	3	497	456	3	459	242	53%	217	47%	459
Lee	0	0	0	0	0	0	0	N/A	0	N/A	0
Leon	90	2	92	88	2	90	40	44%	50	56%	90
Levy	101	2	103	92	1	93	55	59%	38	41%	93
Liberty	0	7	7	0	7	7	6	86%	1	14%	7
Madison	0	0	0	0	0	0	0	N/A	0	N/A	0
Manatee	35	7	42	34	7	41	35	85%	6	15%	41
Marion	1,251	78	1,329	1,131	51	1,182	947	80%	235	20%	1,182
Martin	370	20	390	347	16	363	295	81%	68	19%	363
Monroe	0	0	0	0	0	0	0	N/A	0	N/A	0
Nassau	14	0	14	13	0	13	10	77%	3	23%	13
Okaloosa	0	0	0	0	0	0	0	N/A	0	N/A	0
Okeechobee	0	1	1	0	1	1	0	N/A	1	100%	1
Orange	1,396	16	1,412	1,342	15	1,357	734	54%	623	46%	1,357
Osceola	338	0	338	335	0	335	238	71%	97	29%	335
Palm Beach	1,357	421	1,778	1,279	374	1,653	932	56%	721	44%	1,653
Pasco	200	14	214	188	13	201	139	69%	62	31%	201
Pinellas	4,468	925	5,393	4,050	794	4,844	1,968	41%	2,876	59%	4,844
Polk	632	77	709	571	70	641	429	67%	212	33%	641
Putnam	129	14	143	120	13	133	50	38%	83	62%	133
Santa Rosa	1	2	3	1	2	3	0	N/A	3	100%	3
Sarasota	711	21	732	669	17	686	426	62%	260	38%	686
Seminole	359	8	367	344	7	351	287	82%	64	18%	351
St. Johns	168	2	170	158	2	160	155	97%	5	3%	160
St. Lucie	3	71	74	3	68	71	64	90%	7	10%	71
Sumter	376	59	435	325	47	372	246	66%	126	34%	372
Suwannee	97	3	100	90	2	92	84	91%	8	9%	92
Taylor	2	0	2	2	0	2	2	100%	0	N/A	2
Union	67	1	68	62	1	63	53	84%	10	16%	63
Volusia	590	5	595	569	4	573	500	87%	73	13%	573
Wakulla	8	1	9	8	0	8	8	100%	0	N/A	8
Walton	82	0	82	72	0	72	67	93%	5	7%	72
Washington	132	4	136	129	4	133	129	97%	4	3%	133

\*Based on records from the Department of Health Bureau of Laboratories  
Prepared by the joint CDC and FL Department of Health Childhood Lead Poisoning Surveillance Program

Total	21,698	2,947	24,645	20,134	2,549	22,683	13,570	60%	9,113	40%	22,683
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Table 2. Number of blood lead tests, number of children <72 months of age tested, by county and sample type, 1999\*

County	Number of Tests Performed				Number of Children Tested			
	Capillary	Venous	Unknown	Total	Capillary	Venous	Unknown	Total
Alachua	426	27	3	30	419	23	2	442
Baker	1	0	0	0	1	0	0	1
Bay	4	3	3	6	4	3	3	7
Bradford	9	0	0	0	9	0	0	9
Brevard	4	12	279	291	3	12	268	15
Broward	1,270	196	270	466	1,244	172	244	1,416
Calhoun	0	2	4	6	0	2	4	2
Charlotte	14	2	1	3	14	2	0	16
Citrus	141	20	28	48	138	20	27	158
Clay	6	0	0	0	6	0	0	6
Collier	10	2	208	210	9	2	139	11
Columbia	98	55	12	67	97	53	11	150
Dade	1,362	517	140	657	1,332	474	129	1,806
Desoto	3	0	0	0	3	0	0	3
Dixie	21	15	3	18	21	15	3	36
Duval	282	300	426	726	278	295	422	573
Escambia	1	16	940	956	1	15	912	16
Flagler	16	2	6	8	16	2	6	18
Franklin	38	0	0	0	37	0	0	37
Gadsden	3	51	11	62	3	50	10	53
Gilchrist	38	8	0	8	37	7	0	44
Glades	1	0	0	0	1	0	0	1
Gulf	53	1	0	1	52	1	0	53
Hamilton	38	4	0	4	34	4	0	38
Hardee	1	6	0	6	1	6	0	7
Hendry	1	1	0	1	1	1	0	2
Hernando	6	4	0	4	5	2	0	7
Highlands	4	9	0	9	4	8	0	12
Hillsborough	504	174	10	184	472	154	10	626
Holmes	0	0	30	30	0	0	30	0
Indian River	2	0	0	0	2	0	0	2
Jackson	6	3	27	30	6	3	24	9
Jefferson	1	0	0	0	1	0	0	1
Lafayette	2	3	0	3	2	3	0	5
Lake	22	6	84	90	22	6	80	28
Lee	65	7	1,450	1,457	65	4	1,372	69
Leon	62	182	0	182	60	181	0	241
Levy	88	21	1	22	88	21	1	109
Liberty	1	0	0	0	1	0	0	1
Madison	0	0	0	0	0	0	0	0
Manatee	2	9	0	9	2	9	0	11
Marion	23	7	9	16	22	6	9	28
Martin	6	5	0	5	6	5	0	11
Monroe	0	1	7	8	0	1	7	1
Nassau	0	0	0	0	0	0	0	0
Okaloosa	42	36	231	267	42	35	218	77
Okeechobee	56	1	0	1	55	1	0	56
Orange	374	25	38	63	367	21	38	388
Osceola	18	0	1	1	18	0	1	18
Palm Beach	93	41	23	64	93	32	22	125
Pasco	41	12	0	12	40	10	0	50
Pinellas	300	120	385	505	299	115	358	414
Polk	268	37	2	39	256	35	2	291
Putnam	19	50	8	58	19	45	8	64
Santa Rosa	5	0	31	31	5	0	31	5
Sarasota	43	2	24	26	43	1	21	44
Seminole	235	6	3	9	230	6	3	236
St. Johns	120	46	0	46	119	37	0	156
St. Lucie	92	9	0	9	91	9	0	100
Sumter	5	2	0	2	5	2	0	7
Suwannee	36	1	1	2	36	1	1	37
Taylor	4	1	0	1	4	1	0	5
Union	9	1	0	1	8	1	0	9
Volusia	23	18	215	233	23	16	212	39
Wakulla	1	0	0	0	1	0	0	1
Walton	1	0	5	5	1	0	5	1
Washington	0	0	28	28	0	0	26	0

\*Based on records from reporting private laboratories. Medicaid status is not included because it is not consistently submitted.  
Prepared by the joint CDC and FL Department of Health Childhood Lead Poisoning Surveillance Program

Total	6,420	2,079	4,947	13,446	6,274	1,930	4,659	12,863
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Table 3. **Children <72 months of age, venous samples grouped by county, 1999**  
 Based on records from the Department of Health Bureau of Laboratories

County	Venous Test Results (mg/dL)					Total
	0-9	10-14	15-19	20-44	45-69	
Alachua	23	1	0	0	0	24
Baker	0	0	0	0	0	0
Bay	52	0	0	0	0	52
Bradford	2	0	0	0	0	2
Brevard	33	3	1	0	0	37
Broward	1	0	0	0	0	1
Calhoun	2	0	0	0	0	2
Charlotte	1	0	0	0	0	1
Citrus	6	0	0	0	0	6
Clay	10	0	0	0	0	10
Collier	0	0	0	0	0	0
Columbia	4	0	1	1	0	6
Dade	137	23	5	3	0	168
Desoto	0	0	0	0	0	0
Dixie	0	0	0	0	0	0
Duval	231	31	9	3	0	274
Escambia	0	0	0	0	0	0
Flagler	2	0	0	0	0	2
Franklin	3	1	0	0	0	4
Gadsden	2	0	0	0	0	2
Gilchrist	2	0	0	0	0	2
Glades	2	0	0	0	0	2
Gulf	2	0	0	0	0	2
Hamilton	2	1	0	0	0	3
Hardee	10	1	0	0	0	11
Hendry	0	0	0	0	0	0
Hernando	0	0	0	0	0	0
Highlands	0	0	0	0	0	0
Hillsborough	112	3	4	0	0	119
Holmes	2	0	0	0	0	2
Indian River	287	4	0	0	0	291
Jackson	4	0	0	0	0	4
Jefferson	0	0	0	0	0	0
Lafayette	0	0	1	0	0	1
Lake	3	0	0	0	0	3
Lee	0	0	0	0	0	0
Leon	2	0	0	0	0	2
Levy	1	0	0	0	0	1
Liberty	6	1	0	0	0	7
Madison	0	0	0	0	0	0
Manatee	7	0	0	0	0	7
Marion	39	8	4	0	0	51
Martin	15	1	0	0	0	16
Monroe	0	0	0	0	0	0
Nassau	0	0	0	0	0	0
Okaloosa	0	0	0	0	0	0
Okeechobee	1	0	0	0	0	1
Orange	11	3	1	0	0	15
Osceola	0	0	0	0	0	0
Palm Beach	340	18	9	7	0	374
Pasco	12	1	0	0	0	13
Pinellas	752	27	9	6	0	794
Polk	63	5	2	0	0	70
Putnam	8	3	0	2	0	13
Santa Rosa	2	0	0	0	0	2
Sarasota	16	1	0	0	0	17
Seminole	6	1	0	0	0	7
St. Johns	2	0	0	0	0	2
St. Lucie	64	3	0	1	0	68
Sumter	45	0	1	1	0	47
Suwannee	1	1	0	0	0	2
Taylor	0	0	0	0	0	0
Union	0	1	0	0	0	1
Volusia	3	1	0	0	0	4
Wakulla	0	0	0	0	0	0
Walton	0	0	0	0	0	0
Washington	4	0	0	0	0	4

Total	2,335	143	47	24	0	2,549
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Table 4. Children <72 months of age, venous samples grouped by results, by county, 1999  
Based on records from reporting private laboratories.

County	Venous Test Results (mg/dL)					Total
	0-9	10-14	15-19	20-44	45-69	
Alachua	16	3	2	2	0	23
Baker	0	0	0	0	0	0
Bay	0	2	1	0	0	3
Bradford	0	0	0	0	0	0
Brevard	0	10	1	1	0	12
Broward	13	123	24	12	0	172
Calhoun	0	1	1	0	0	2
Charlotte	0	2	0	0	0	2
Citrus	19	1	0	0	0	20
Clay	0	0	0	0	0	0
Collier	0	2	0	0	0	2
Columbia	50	1	1	1	0	53
Dade	215	192	40	25	1	473
Desoto	0	0	0	0	0	0
Dixie	13	1	1	0	0	15
Duval	268	23	2	2	0	295
Escambia	5	7	2	1	0	15
Flagler	0	2	0	0	0	2
Franklin	0	0	0	0	0	0
Gadsden	49	1	0	0	0	50
Gilchrist	6	0	1	0	0	7
Glades	0	0	0	0	0	0
Gulf	0	0	1	0	0	1
Hamilton	2	1	1	0	0	4
Hardee	0	5	1	0	0	6
Hendry	0	1	0	0	0	1
Hernando	0	1	0	1	0	2
Highlands	0	7	1	0	0	8
Hillsborough	67	65	15	7	0	154
Holmes	0	0	0	0	0	0
Indian River	0	0	0	0	0	0
Jackson	0	3	0	0	0	3
Jefferson	0	0	0	0	0	0
Lafayette	3	0	0	0	0	3
Lake	0	6	0	0	0	6
Lee	0	3	0	0	1	4
Leon	170	8	2	1	0	181
Levy	21	0	0	0	0	21
Liberty	0	0	0	0	0	0
Madison	0	0	0	0	0	0
Manatee	0	6	1	2	0	9
Marion	5	1	0	0	0	6
Martin	2	2	0	1	0	5
Monroe	0	1	0	0	0	1
Nassau	0	0	0	0	0	0
Okaloosa	28	5	2	0	0	35
Okeechobee	0	1	0	0	0	1
Orange	1	17	3	0	0	21
Osceola	0	0	0	0	0	0
Palm Beach	10	14	6	2	0	32
Pasco	0	9	1	0	0	10
Pinellas	89	16	0	10	0	115
Polk	3	20	11	1	0	35
Putnam	45	0	0	0	0	45
Santa Rosa	0	0	0	0	0	0
Sarasota	1	0	0	0	0	1
Seminole	0	4	1	1	0	6
St. Johns	32	4	1	0	0	37
St. Lucie	1	6	2	0	0	9
Sumter	0	0	0	2	0	2
Suwannee	0	1	0	0	0	1
Taylor	1	0	0	0	0	1
Union	1	0	0	0	0	1
Volusia	0	11	4	1	0	16
Wakulla	0	0	0	0	0	0
Walton	0	0	0	0	0	0
Washington	0	0	0	0	0	0

Total	1,136	589	129	73	2	1,929
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Table 5. Venous confirmation of initial capillary test results  $\geq 10\mu\text{g/dL}$ , children  $<72$  months of age, by county, 1998\*

County	Initial Capillary 10-14mg/dL				Initial Capillary 15-19mg/dL				Initial Capillary 20-44mg/dL				Initial Capillary 45-69mg/dL			
	Total	Venous Confirmation		% Confirmed Per Guidelines	Total	Venous Confirmation		% Confirmed Per Guidelines	Total	Venous Confirmation		% Confirmed Per Guidelines	Total	Venous Confirmation		% Confirmed Per Guidelines
		$\leq 90$ Days	$>90$ Days			$\leq 30$ Days	$>30$ Days			$\leq 7$ Days	$>7$ Days			$\leq 2$ Days	$>2$ Days	
Alachua	60	1	1	1.7%	7	1	1	14.3%	10	3	2	30.0%	1	0	0	0.0%
Baker	2	0	0	0.0%	1	1	0	100.0%	0	0	0	N/A	0	0	0	N/A
Bay	0	0	0	N/A	1	1	0	100.0%	0	0	0	N/A	0	0	0	N/A
Bradford	2	0	1	0.0%	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Brevard	45	9	1	20.0%	12	3	1	25.0%	8	1	3	12.5%	1	0	0	0.0%
Broward	189	5	3	2.6%	52	6	3	11.5%	26	0	2	0.0%	1	0	0	0.0%
Calhoun	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Charlotte	1	0	0	0.0%	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Citrus	8	3	0	37.5%	2	2	0	100.0%	2	0	1	0.0%	0	0	0	N/A
Clay	13	1	2	7.7%	5	1	2	20.0%	1	1	0	100.0%	0	0	0	N/A
Collier	26	0	0	0.0%	4	0	0	0.0%	10	0	1	0.0%	0	0	0	N/A
Columbia	15	1	0	6.7%	6	1	0	16.7%	4	0	2	0.0%	0	0	0	N/A
Dade	68	0	0	0.0%	13	0	1	0.0%	11	1	2	9.1%	0	0	0	N/A
Desoto	7	1	0	14.3%	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Dixie	19	0	1	0.0%	5	2	0	40.0%	5	2	0	40.0%	0	0	0	N/A
Duval	42	14	5	33.3%	6	3	0	50.0%	9	0	5	0.0%	0	0	0	N/A
Escambia	1	1	0	100.0%	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Flagler	5	0	0	0.0%	1	0	0	0.0%	0	0	0	N/A	0	0	0	N/A
Franklin	0	0	0	N/A	1	0	0	0.0%	0	0	0	N/A	0	0	0	N/A
Gadsden	2	0	0	0.0%	1	0	0	0.0%	0	0	0	N/A	0	0	0	N/A
Gilchrist	7	0	1	0.0%	1	0	0	0.0%	0	0	0	N/A	0	0	0	N/A
Glades	5	0	0	0.0%	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Gulf	5	0	0	0.0%	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Hamilton	7	4	0	57.1%	1	0	0	0.0%	0	0	0	N/A	0	0	0	N/A
Hardee	5	4	0	80.0%	1	0	1	0.0%	1	0	0	0.0%	0	0	0	N/A
Hendry	1	0	0	0.0%	1	0	1	0.0%	3	0	2	0.0%	0	0	0	N/A
Hernando	1	0	0	0.0%	0	0	0	N/A	1	0	0	0.0%	0	0	0	N/A
Highlands	3	0	0	0.0%	3	0	0	0.0%	0	0	0	N/A	0	0	0	N/A
Hillsborough	174	8	3	4.6%	40	2	3	5.0%	15	0	3	0.0%	1	0	0	0.0%
Holmes	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Indian River	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Jackson	8	0	0	0.0%	2	2	0	100.0%	0	0	0	N/A	0	0	0	N/A
Jefferson	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Lafayette	5	0	0	0.0%	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Lake	31	0	0	0.0%	9	0	1	0.0%	10	0	1	0.0%	0	0	0	N/A
Lee	9	1	0	11.1%	3	0	0	0.0%	0	0	0	N/A	0	0	0	N/A
Leon	1	0	0	0.0%	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Levy	9	0	1	0.0%	3	0	0	0.0%	0	0	0	N/A	0	0	0	N/A
Liberty	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Madison	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Manatee	0	0	0	N/A	1	0	0	0.0%	0	0	0	N/A	0	0	0	N/A
Marion	26	15	2	57.7%	11	5	3	45.5%	2	0	1	0.0%	0	0	0	N/A
Martin	15	6	1	40.0%	4	1	0	25.0%	2	0	2	0.0%	0	0	0	N/A
Monroe	1	0	0	0.0%	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Nassau	5	0	1	0.0%	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Okaloosa	0	0	0	N/A	1	0	0	0.0%	0	0	0	N/A	0	0	0	N/A

Table 5. Continued

County	Initial Capillary 10-14mg/dL				Initial Capillary 15-19mg/dL				Initial Capillary 20-44mg/dL				Initial Capillary 45-69mg/dL			
	Total	Venous Confirmation		% Confirmed Per Guidelines	Total	Venous Confirmation		% Confirmed Per Guidelines	Total	Venous Confirmation		% Confirmed Per Guidelines	Total	Venous Confirmation		% Confirmed Per Guidelines
		<= 90 Days	>90 Days			<= 30 Days	>30 Days			<= 7 Days	>7 Days			<= 2 Days	>2 Days	
Okeechobee	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Orange	33	1	0	3.0%	7	0	1	0.0%	4	1	0	25.0%	0	0	0	N/A
Osceola	1	0	0	0.0%	1	0	0	0.0%	0	0	0	N/A	0	0	0	N/A
Palm Beach	145	11	15	7.6%	50	12	8	24.0%	18	4	4	22.2%	0	0	0	N/A
Pasco	26	0	0	0.0%	7	0	0	0.0%	7	0	0	0.0%	0	0	0	N/A
Pinellas	148	25	15	16.9%	30	5	16	16.7%	15	3	7	20.0%	0	0	0	N/A
Polk	45	4	4	8.9%	10	1	4	10.0%	1	0	0	0.0%	1	0	0	0.0%
Putnam	7	1	3	14.3%	2	0	1	0.0%	6	0	3	0.0%	0	0	0	N/A
Santa Rosa	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Sarasota	4	1	0	25.0%	0	0	0	N/A	1	0	1	0.0%	0	0	0	N/A
Seminole	12	1	1	8.3%	3	0	0	0.0%	1	1	0	100.0%	0	0	0	N/A
St. Johns	25	1	0	4.0%	11	1	2	9.1%	10	0	4	0.0%	0	0	0	N/A
St. Lucie	5	0	0	0.0%	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Sumter	38	18	6	47.4%	10	1	6	10.0%	9	1	4	11.1%	0	0	0	N/A
Suwannee	6	0	0	0.0%	1	0	1	0.0%	0	0	0	N/A	0	0	0	N/A
Taylor	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Union	2	0	0	0.0%	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Volusia	22	0	0	0.0%	6	1	0	16.7%	3	1	0	33.3%	1	0	0	0.0%
Wakulla	1	0	0	0.0%	0	0	0	N/A	0	0	0	N/A	0	0	0	N/A
Walton	1	0	0	0.0%	0	0	0	N/A	1	0	0	0.0%	0	0	0	N/A
Washington	0	0	0	N/A	1	0	0	0.0%	1	1	0	100.0%	0	0	0	N/A
<b>Total</b>	<b>1,344</b>	<b>137</b>	<b>67</b>	<b>10.2%</b>	<b>337</b>	<b>52</b>	<b>56</b>	<b>15.4%</b>	<b>197</b>	<b>20</b>	<b>50</b>	<b>10.2%</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0.0%</b>

\*Based on records from the Department of Health Bureau of Laboratories. Confirmation time periods conform to Florida guidelines.

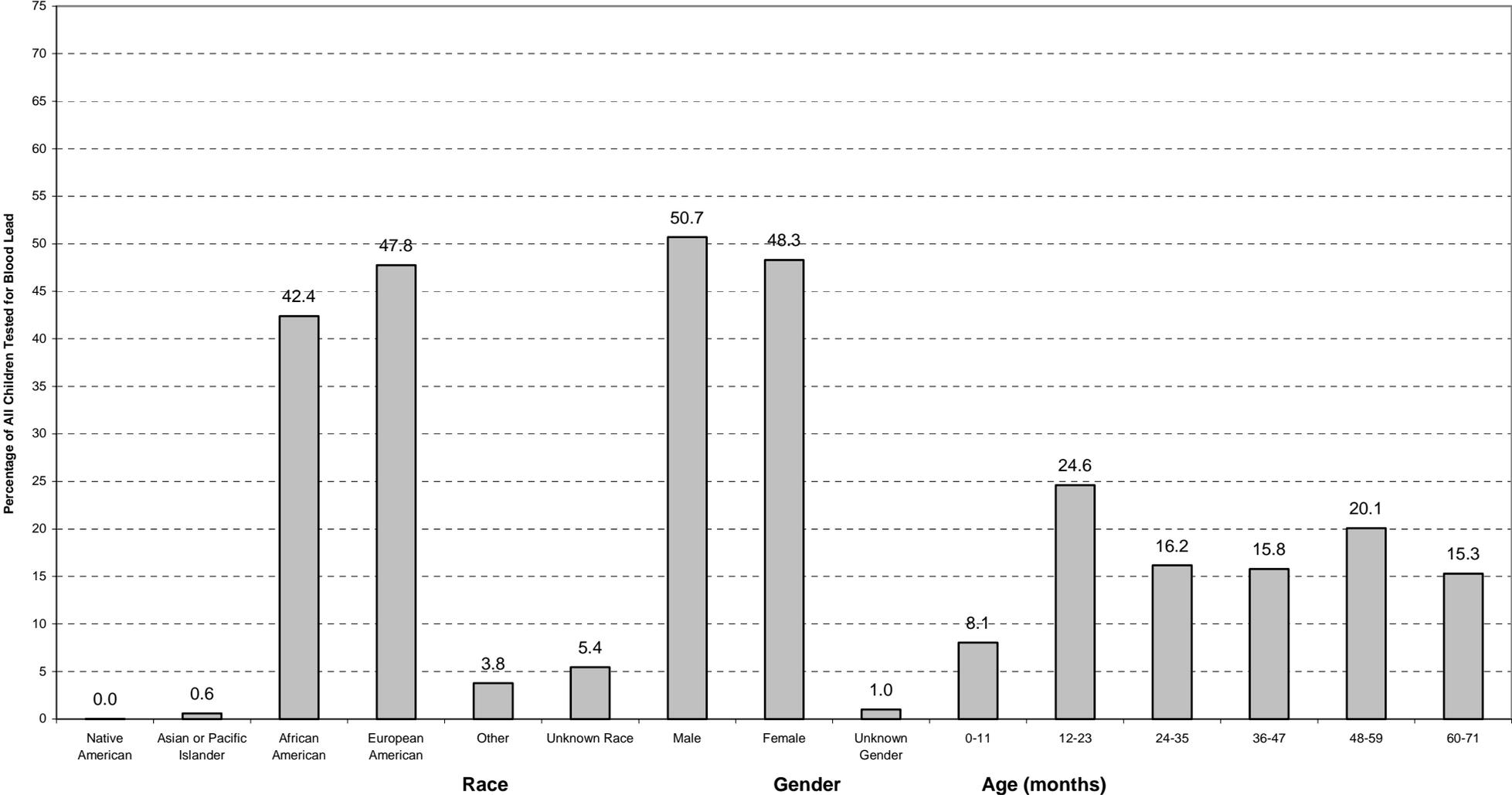
Per Florida guidelines, all initial capillary tests with results  $\geq 10\mu\text{g/dL}$  should have **venous confirmation** tests within a time period specified by the same guidelines. The confirmation time period depends upon the category within which the initial capillary tests results fall.



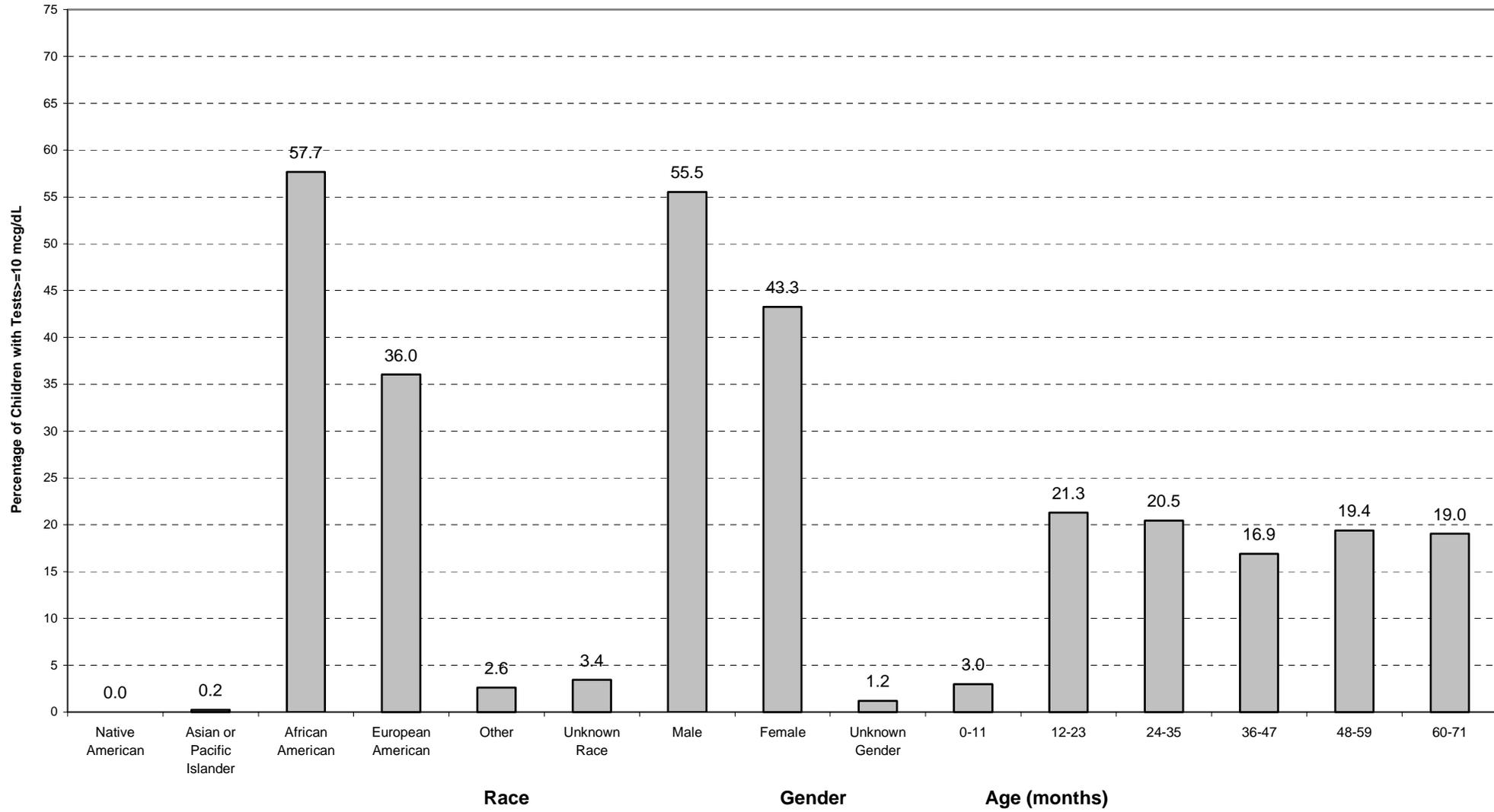
TOTALS	0	0	0	0	0	0	#DIV/0!
PERCENT	#DIV/0!						

Prepared by the joint CDC and FL. HRS Childhood Lead Poisoning Surveillance Program.

Graph 1: All Children <72 Months of Age , by Race, Gender and Age (months), 1999, n=25,475\*



Graph 2: All Children <72 months of Age with Tests  $\geq 10$  mcg/dL by Race, Gender and Age (months), 1999  
n=841\*



Graph 3: Children <72 Months of Age with Venous Tests  $\geq 10$ mcg/dL, by Race, Gender and Age (months), 1999  
n=240\*

