Florida Department of Health Lead Poisoning Prevention and Healthy Homes Program

2007-2008 Annual Childhood Lead Poisoning Surveillance Report

DIVISION OF Environmental Health

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FL Childhood Lead Poisoning Prevention Program
2007-2008 Annual Surveillance Report

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Florida's Childhood Lead Poisoning Prevention Program (FL CLPPP)

INTRODUCTION

The continued surveillance of lead poisoning in Florida is essential due to the long-term impact of lead poisoning on children, families and the health, education, and social welfare systems. The irreversible damages caused by lead poisoning at a young age, including developmental delay, lowered IQ, and behavioral problems, can cause avoidable burden on families and state programs. Identification and early intervention for the prevention of lead poisoning among children can reduce this burden significantly.

The goal of Florida Department of Health's Childhood Lead Poisoning Prevention Program (FL CLPPP) is to eliminate childhood lead poisoning in Florida. The program conducts lead poisoning surveillance to identify populations at greatest risk for lead exposure and to develop intervention strategies to achieve this goal. Blood lead test data reported by laboratories and practitioners were used in the preparation of the 2007 and 2008 Florida Childhood Lead Poisoning Surveillance Report. The surveillance findings presented in the annual report provide information on lead poisoning among children less than 72 months in Florida for 2007 and 2008. The surveillance findings will help the program to better understand the lead poisoning trends in Florida. This knowledge will allow for the implementation of more targeted interventions to meet the goal of eliminating lead poisoning in Florida.

In 2008, the number of children less than 72 months of age who received a blood lead screening test in Florida increased when compared to 2007. However, when compared to 2007, the rate of lead poisoning (Blood lead levels ≥10 µg/dL) amongst children who were screened decreased in 2008. In 2007, the rate of new lead poisoned cases was 2.5 per 1,000 children screened and 1.6 per 1,000 children tested in 2008. Although the case rate for 2008 declined, this does not necessarily signify a reduction in lead poisoning in Florida since it is not clear if those being screened represent the children who are at-risk for lead poisoning. Further analysis is needed to assess the statistical significance of these findings and to fully understand the prevalence of lead poisoning amongst high-risk groups in Florida.

The program is currently working to develop mechanisms to automate matching of lead poisoning surveillance data and Medicaid and Refugee Health data. The data matching process will allow the program to calculate screening and case rates amongst known high risk populations on a routine basis. These populations include but are not limited to children living in neighborhoods with high concentrations of pre-1950 and pre-1978 housing, newly arrived refugees and Medicaid eligible children. The program will also use geographic information system techniques to map surveillance data to high-risk areas to determine if screening is fully targeted at children that are at-risk for lead poisoning. With this increased capacity the program will be able to better pinpoint trends amongst these high risk groups and assess racial and/or ethnic disparities for lead poisoning. These efforts will enable the program to improve the design and delivery of intervention activities for the prevention of lead poisoning amongst identified high-risk groups in Florida.

Florida's Childhood Lead Poisoning Prevention Program (FL CLPPP)

HEALTH EFFECTS OF CHILDHOOD LEAD EXPOSIRE

There is no safe level of lead in the blood. Research suggests that even blood lead levels (BLLs) below the current level concern, 10 µg/dL, can have harmful effects (Canfield et al., 2003).The higher the blood lead level the greater the impact on the health and cognitive development of a child, including lowered IQ, behavior problems, hearing loss, and neurological impairments. Very high levels of blood lead concentrations may result in seizures, coma, and death have been reported.

MISSION

The mission of FL CLPPP is to protect the health and cognitive development of all children living in Florida by eliminating childhood exposure to all lead hazards.

ELIMINATING CHILDHOOD LEAD POISONING IN FLORIDA

The United States Department of Health and Human Services' Healthy People 2010 strategy for improving the Nation's health includes an objective to eliminate elevated blood lead levels in children less than 72 months of age. The FL CLPPP formed an advisory committee and created a strategic "elimination plan" to meet this objective in Florida. The committee, now called the Partnership for Lead Poisoning Prevention and Healthy Homes, meets annually.

ABOUT THE FL CLPPP

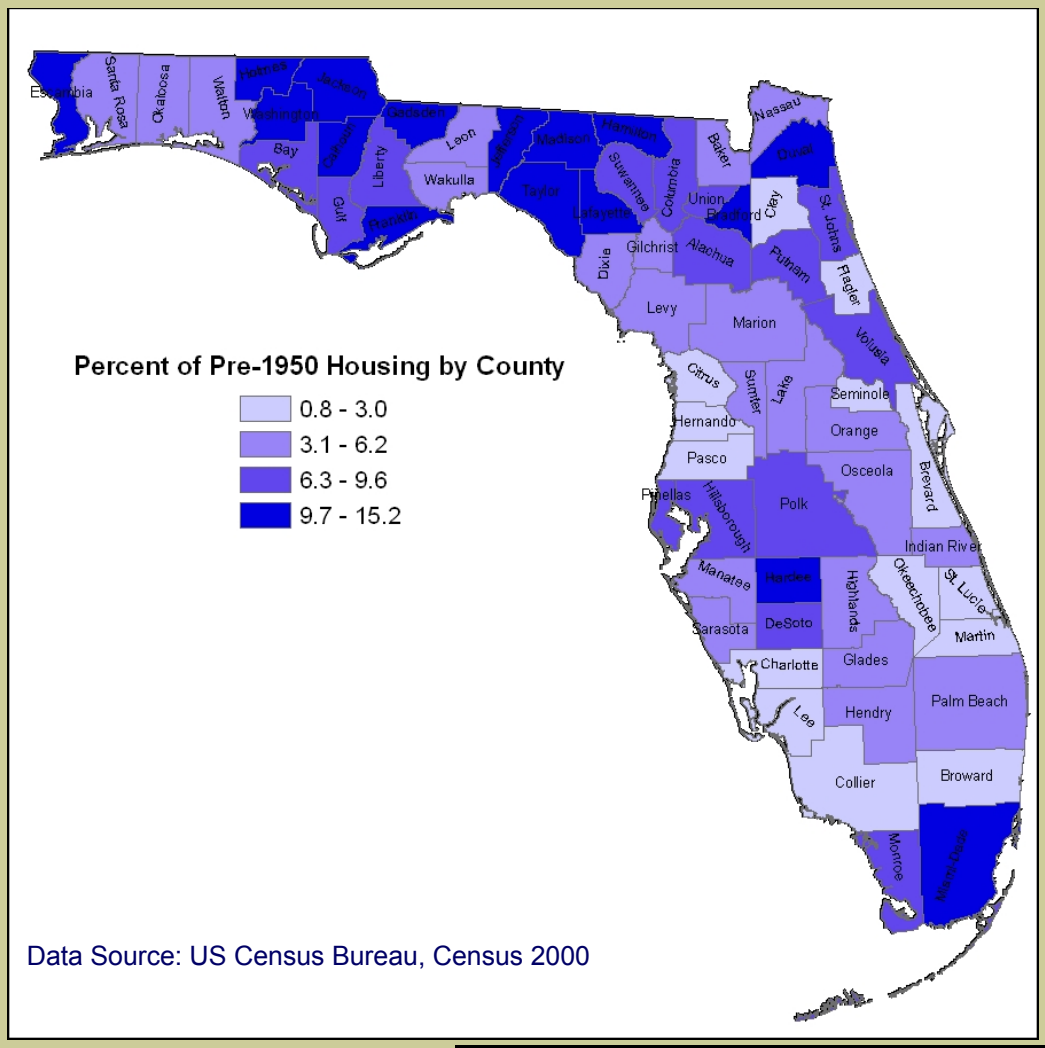
FL CLPPP was established in 1992. The program currently undertakes the activities described below with support from the Centers for Disease Control and Prevention (CDC), the Environmental Protection Agency (EPA), and the Florida Legislature.

Activities are implemented in partnership with the 67 counties in Florida. Miami-Dade, Duval, Hillsborough, and Palm Beach county health departments (CHDs) are funded through the FL CLPPP and operate comprehensive lead poisoning prevention programs that provide case management, public education, and screening. Orange, Polk, Pinellas, Alachua, and Broward counties also received funding in late 2006 to coordinate case management and promote blood lead screening amongst high risk populations in their localities.

- **Surveillance:** The FL CLPPP works closely with laboratories and health care providers to collect the results of all blood lead tests. Data are used for statewide surveillance of lead screening and poisoning. Surveillance data are also used to evaluate the impact of lead screening promotion and lead poisoning prevention initiatives at the state and local levels.
- **Screening:** The FL CLPPP establishes blood lead screening guidelines. The program provides education to health care providers across the state to ensure all children receive a blood lead test as recommended by the guidelines.
- **Case Management:** The FL CLPPP sets the standard of care for lead poisoned children and is establishing monitoring systems to ensure children diagnosed with lead poisoning receive timely and comprehensive case management including proper medical monitoring and services that effectively protect the child from repeat exposure.
- **Primary Prevention / Community Outreach and Education:** The FL CLPPP works to ensure families, communities, and professionals have the knowledge and tools needed to protect children from lead poisoning. The Lead Alert Network is one important primary prevention initiative. The FL CLPPP uses the network to distribute e-mail alerts to families when consumer products are recalled due to lead content. Individuals can sign up by visiting: http://www.doh.state.fl.us/environment/community/lead/The_Lead_Alert_Network.htm
- **Protective Policy:** The FL CLPPP receives funding from the CDC and the EPA to explore the establishment of regulations and policies at the state and local levels to support the primary prevention of lead poisoning and to prioritize and ensure care for children identified as lead poisoned.

Risk Factor - Percent of Pre-1950 Housing by County

Figure 1. Percent of Pre-1950 Housing by County

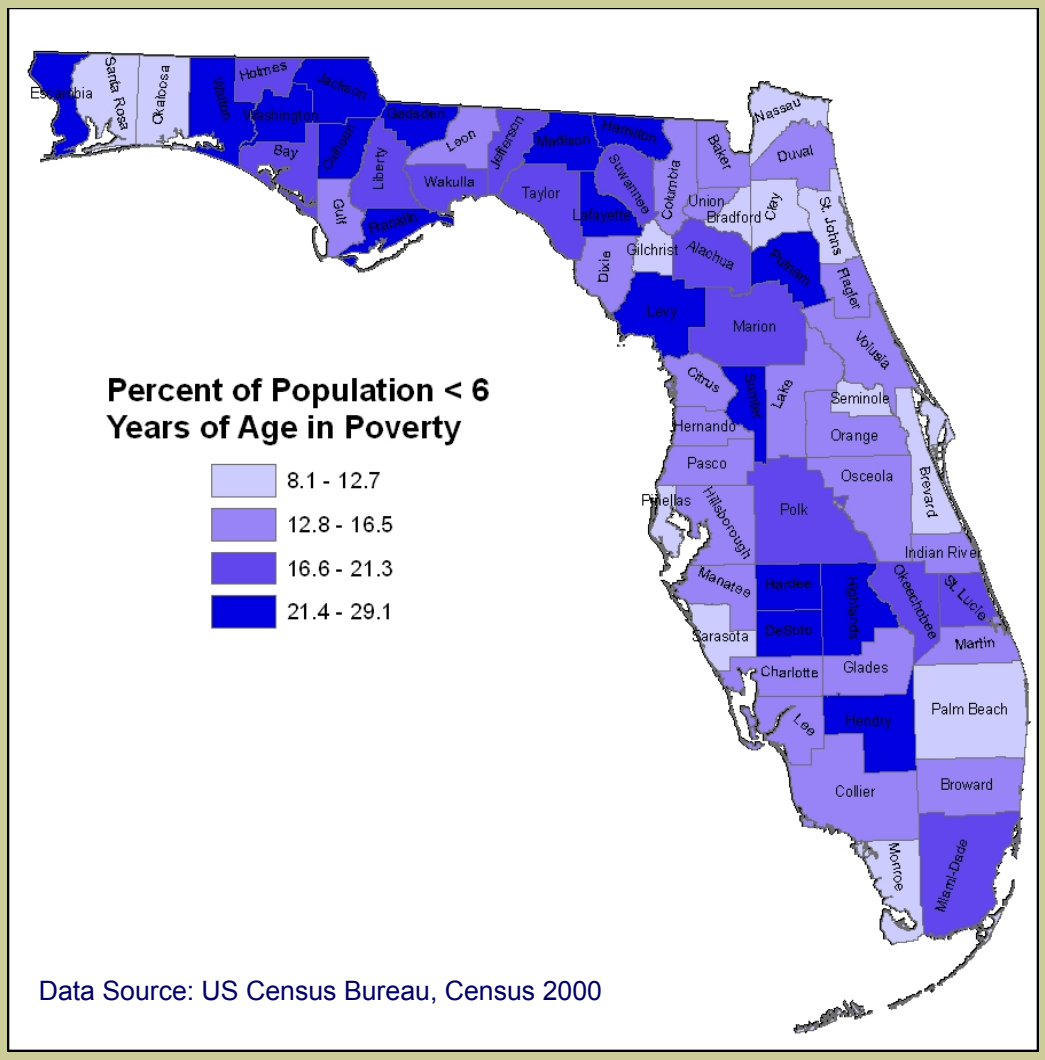


A primary source of lead exposure in children is lead-based paint. Many homes built prior to 1978 contain lead-based paints. Homes built prior to 1950 pose the greatest risk to children since the amount of lead in paints from that time is generally greater and the structural condition of these aging homes often facilitates greater risk of exposure to lead-based hazards.

In Florida, there is substantial variation in the percent of pre-1950 homes by county, as shown in Figure 1.The proportion of pre-1950 housing by county varies from a low of less than 6 percent to over 15 percent.

Risk Factor- Percent of Children less than 72 months in Poverty by County

Figure 2. Percent of Child Population in Poverty by County



Data Source: US Census Bureau, Census 2000

Individuals from all social and economic levels can be affected by lead poisoning. However, children in low income families are more likely to reside in older, substandard homes and are also more likely to suffer from poor nutrition. Poverty is used as a proxy for a multitude of factors that put children under 72 months of age at high risk for lead poisoning. Poverty is considered as one of the greatest risk factor for lead poisoning.

Medicaid eligibility may also serves as a proxy for poverty and for living in old poorly maintained housing which is more likely to contain lead paint hazards. A child that is Medicaid eligible maybe at increased risk for lead poisoning.

Figure 2 shows that there is substantial variation in the level of childhood poverty by county, ranging from less than 8 percent to 29 percent of the population in some Florida counties.

Potential Sources of Lead Exposure

Lead-based paint (pre-1978)
Homes built before 1950 are most likely to contain lead-based paint. Homes built before 1978 may have lead-based paint on the exterior and/or the interior of the dwelling. Children can easily come into contact with paint chips or lead dust created through wear and tear of windows, woodwork, walls, doors, railings or other surfaces covered with lead paint. Children are also susceptible to the extremely high levels of lead dust created in a home undergoing renovation and/or repair.

Lead-contaminated soil
Lead may be found in the soil, especially near busy roadways or factories. The lead from gasoline used in vehicles before the 1980s has settled into the soil and is difficult to remove. Children may come into contact with lead contaminated soil while playing outside. This soil may also be tracked inside on shoes and clothing and increase the risk for lead exposure.

Take-home lead
"Take-home lead" is lead dust carried home on the clothes and/or shoes of individuals whose hobbies or occupations involve lead. Some common jobs and hobbies that uses lead include: battery manufacturing, radiator repair, construction, renovation, soldering, recycling, painting, demolition, scrap metal recycling, working with stained glass, pottery making, target shooting and others.

Imported or handmade pottery with leaded glaze
Lead in ceramic glaze can leach into stored food and beverages, especially food and beverages that are acidic.

Imported food or drinks in cans that are sealed with lead solder
Some countries other than the United States still allow lead solder in food and drink cans.

Imported home remedies and imported cosmetics
Lead has been found in some home remedies and cosmetics often imported from the Middle East, Southeast Asia, India, the Dominican Republic, or Mexico. The remedies are usually bright yellow or orange in color. Examples include: Alarcon, Alkohl, Azarcon, Bali goli, Bint al zahab, Coral, Greta, Farouk, Ghasard, Kandu, Kohl, Liga, Litargirio, Lozeena, Pay-loo-ah, Sindoor, and Surma. There are many others.

Imported candies or foods
Lead has been found in candy, wrappers, and in certain ethnic foods, such as chapulines (dried grasshoppers) and tamarind.

Jewelry and toys
Adult and children's jewelry has been found to have lead. Some toys and other consumer products have also been found to contain lead. For more information please refer to the Consumer Product Safety Commission website at http://www.cpsc.gov/.

Florida Blood Lead Screening Guidelines

FLORIDA'S BLOOD LEAD SCREENING GUIDELINES 2006:

The FL CLPPP recommends that the following children receive a blood lead test:

- Children living in high-risk zip codes (defined as a census block-group with greater than or equal to 27 percent pre-1950 housing, or greater than or equal to 74 percent pre-1978 housing).
- Children less than 72 months of age who do not have a documented blood lead screening by age two and live in high-risk zip codes.
- Children who are Medicaid eligible.
- Immigrant and refugee children.
- Children adopted from outside the U.S.
- Children in foster care.
- Children with a risk factors listed on the Florida Department of Health Lead Poisoning Risk Assessment Questionnaire (Screening & Case Management Guide, 2000).

As a federal requirement, Florida Medicaid guidelines stipulates that all children enrolled in Medicaid must receive a blood lead screening test at 12 and 24 months of age. The law also requires a blood test for children 36 to 72 months if they have not been previously screened for lead poisoning (Florida Medicaid Child Health Check-Up Coverage and Limitations Handbook) .

FLORIDA'S CASE DEFINITION OF CHILDHOOD LEAD POISONING

Florida defines lead poisoning (confirmed cases) as blood lead levels of 10 µg/dL or greater of whole blood measured from a venous specimen or blood lead levels of 10 µg/dL or greater measured from two capillary draws taken within 12 weeks of one another. The population of greatest concern for lead poisoning is children less than 72 months of age. Confirmed cases are classified as new or persistent. A confirmed case is considered a "new case" if it was not previously reported. A persistent case is a case that was confirmed during a previous year and whose blood lead level increased or decrease to at least 10 µg/dL in a subsequent year.

Blood Lead Surveillance in Florida: Understanding the Lead Data

HISTORY OF BLOOD LEAD SURVEILLANCE

Blood lead data collection in Florida dates back to 1992 when lead poisoning became a notifiable disease. Only blood lead levels greater than or equal to 10µg/dL were required to be reported by laboratories and physicians up to 2005. During this time period, some laboratories provided results less than 10 µg/dL voluntarily. On November 20, 2006 laboratory reporting requirements were expanded. State regulations (shown below) now require laboratories to report the results of ALL blood lead tests.

LABORATORY REPORTING REQUIREMENTS

The Florida Statutes, Chapter 381, "Report of Diseases of Public Health Significance to Department" and Chapter 64D-3 of the Florida Administrative Code states that laboratories are responsible for providing all of the following information with each blood lead record:

(a) The Patient's:

1. first and last name, including middle initial
2. address, including city, state and zip code
3. phone number, including area code
4. date of birth
5. sex
6. race
7. ethnicity (specify if of Hispanic descent or not of Hispanic descent)
8. pregnancy status
9. Social Security number

(b) The Laboratory:

1. name
2. address
3. telephone number of laboratory performing blood lead test
4. type of specimen (for example, venous vs. capillary specimen)
5. date of specimen collection
6. date of report
7. type of test (s) performed
8. all available results

(**c) The Submitting Provider's:**

1. name
2. address
3. telephone number, including area code

THE INFORMATION PRESENTED IN THE ANNUAL REPORT ARE FOR CHILDREN LESS THAN 72 MONTHS OLD.

A NOTE ON DATA LIMITATIONS

There are several limitations inherent in surveillance data. The data collected by the FL CLPPP are no exception. Several caveats are bulleted below.

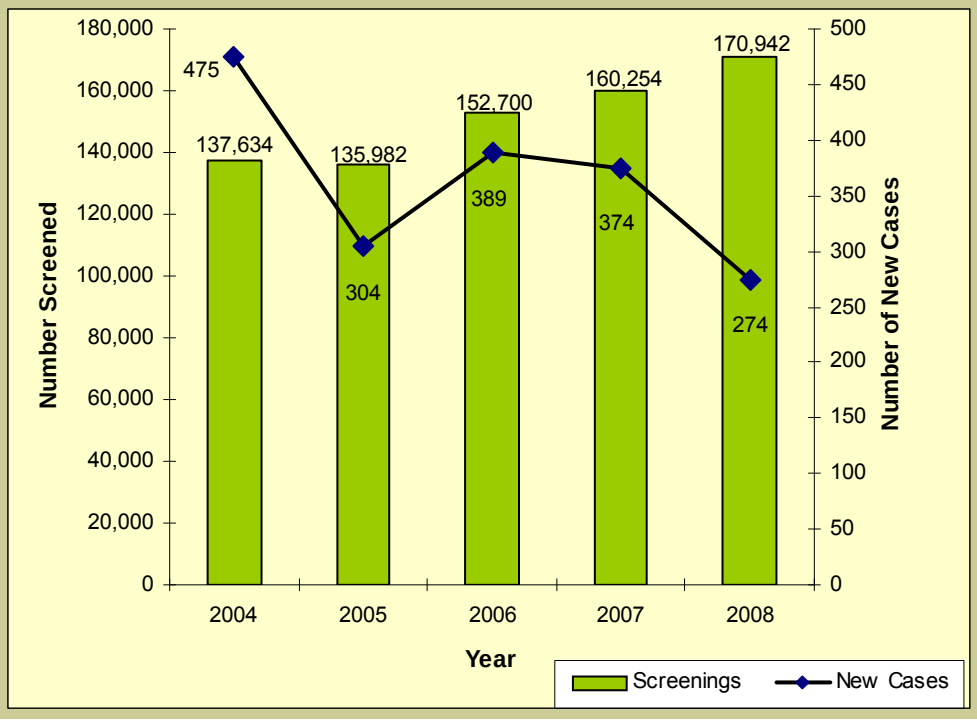
- In late 2006 the FL CLPPP conducted active outreach to laboratories to educate them about the new reporting regulations. Laboratories that had not previously reported lead test results began reporting at this time.
- Data on ethnicity are not discussed in this report due to the extent of data incompleteness.
- Data presented in this report may vary from data reported by other agencies or from other sources due to variation in the data sources, methods of analysis, or data linkage.
- It is important to note that not all children receive a blood lead test in Florida. FL DOH recommends that all at-risk children receive a test, however many at risk populations are not cared for by traditional health care systems and may not be tested. Therefore, some cases of lead poisoning may never be identified or reported.

Statewide Trends: Screenings and Reported New Cases

The FL CLPPP monitors all reported blood lead levels in children under 72 months of age. The program then determines the reported number of children per year who meet the case definition of lead poisoning and the reported number of children screened. Although some children are tested multiple times in a single year, only the first test per year is considered a screening, all subsequent tests are considered follow up tests.

Figure 1 shows an overall increase of 24 percent in the number of screenings from 2004 to 2008. This increase may be due to several reasons including improvement in the reporting of blood test results by laboratories and physicians and targeted screening of high risk populations within specific geographic areas. Conversely, the number of reported new lead poisoning cases in Florida declined by 42 percent from 2004 (475 cases) to 2008 (274 cases). This decline indicates that there were fewer children with a blood lead level of 10ug/dL or greater among the population of children screened from 2004 to 2008. It is not clear if those screened represent the children who are at-risk for lead poisoning. Further analysis is needed to assess the statistical significance of these findings and to fully understand the prevalence of lead poisoning among high-risk groups in Florida.

Figure 3. The number of reported new cases of lead poisoning and blood lead screenings, Florida 2004-2008



5-Year Statewide Trends: Reported New and Persistent Cases

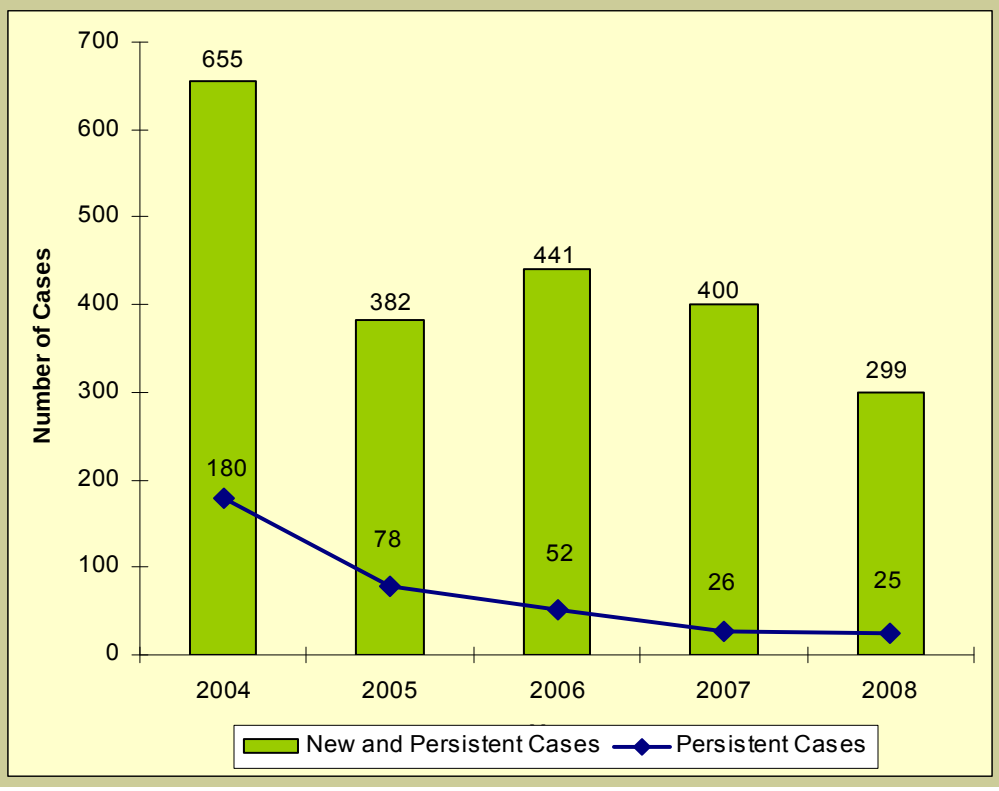
LEAD POISONING CASE MANAGEMENT

The FL CLPPP recommends that all children (less than 72 months of age) with BLLs that meets the case definition for lead poisoning receive case management. The child's blood lead level determines the follow-up testing schedule and the type of case management required.

The goal of case investigation and management is to reduce the child's blood lead level to below the level of concern (10µg/dL) by identifying possible sources of lead and preventing continued exposure and improving nutrition. The child should be monitored by the physician and the case manager until the blood lead level returns to below 10µg/dL. A child is classified as a persistent case if his/her BLL persist at or above 10µg/dL. Case management follow up on persistent cases is essential for identifying continuous sources of exposures.

Figure 4 illustrates the number of reported new and persistent cases per year. In general, the number of reported cases (persistent and new) of lead poisoning decreased by 54 percent from 655 in 2004 to 299 in 2008. Within this time period there were some notable fluctuations in the number of reported cases. For 2007 to 2008, the decline in number of reported cases was less steep (25 percent) with 400 cases being reported in 2007 and 299 in 2008. There was also a substantial decline (86 percent) in the number of persistent cases from 180 in 2004 to 25 in 2008. This decline in persistent cases may be due to enhanced efforts by CHD staff in identifying and recommending services for the management of the disease and the elimination of lead sources amongst this group of cases.

Figure 4. The number of reported new and persistent cases of lead poisoning by year, Florida, 2004 to 2008



5-Year Statewide Trends: Rate of Reported Cases per 1,000 Screenings

Figure 5. Rate of reported new cases of lead poisoning per 1,000 children screened, Florida, 2003 to 2008.

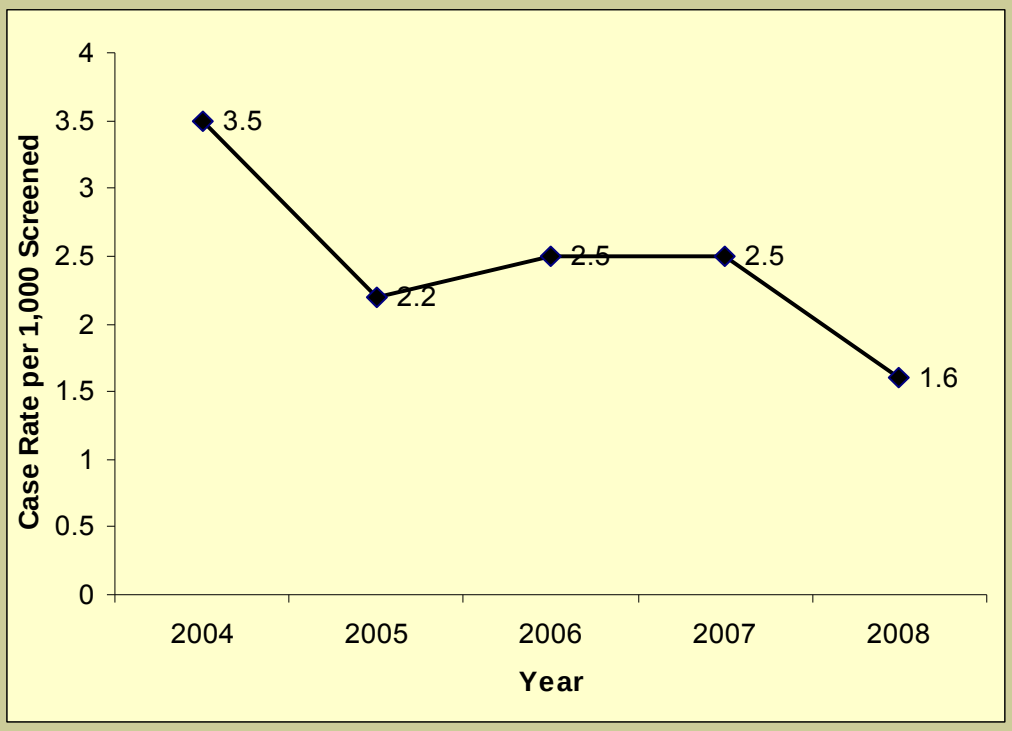


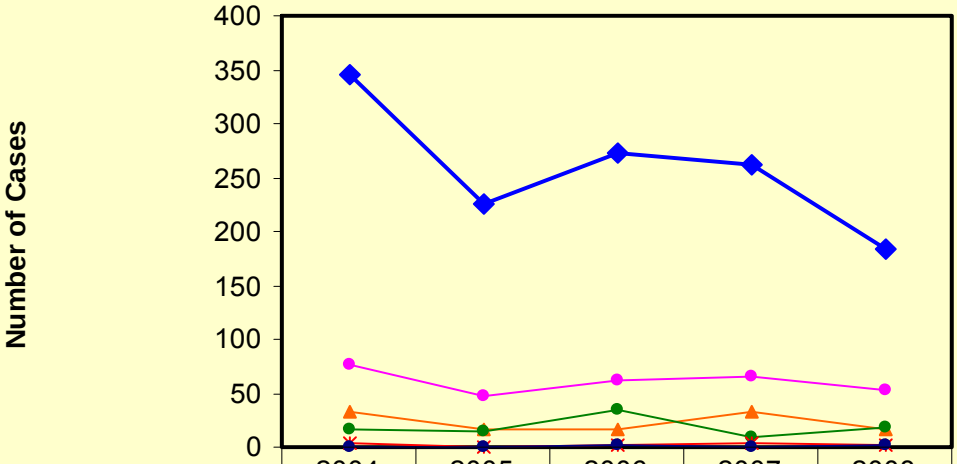
Figure 5 shows that there is an overall decline in the statewide rate of reported new cases per 1,000 children screened from 3.5 in 2004 to 1.6 in 2008. Within the period 2004 to 2008, an increase in the rate of new cases was noted from 2.2 in 2005 to 2.5 in 2006. The case rate remained stable at 2.5 between 2006 and 2007.

5-Year Statewide Trends: Number of Reported New Cases by Blood Lead Level

There is no safe level of lead in the blood. The higher the blood lead level, the more severe the health consequences. Higher levels have an even greater impact on the health and cognitive development of a child, including lowered IQ, behavior problems, hearing loss, neurological impairments. For this reason, it is important to see an overall reduction in all blood lead level categories.

Figures 6 and 7 (page 14) show reported new cases of lead poisoning categorized by the BLL from 2004 through 2008. Figure 6 illustrates the number of reported new cases by BLL category . Here a more visible display of the trend in blood levels by report year can be observed. As shown in figure 6, for the blood lead level category of 10-14 µg/dL, there was a significant reduction (35 percent) in the number of reported new cases from 2004 to 2005. There was a slight increase (21 percent) in the number of reported new cases between 2005 and 2006. For all other BLL categories the fluctuations in the number of reported new cases is less dramatic.

Figure 6. The number of reported new cases by blood lead level categories, Florida, 2004 to 2008.



	2004	2005	2006	2007	2008
10-14 µg/dL	346	226	273	261	184
15-19 µg/dL	76	47	62	66	53
20-24 µg/dL	33	16	16	33	16
25-44 µg/dL	16	15	35	10	19
45-69 µg/dL	4	0	2	4	1
>69 µg/dL	0	0	1	0	1

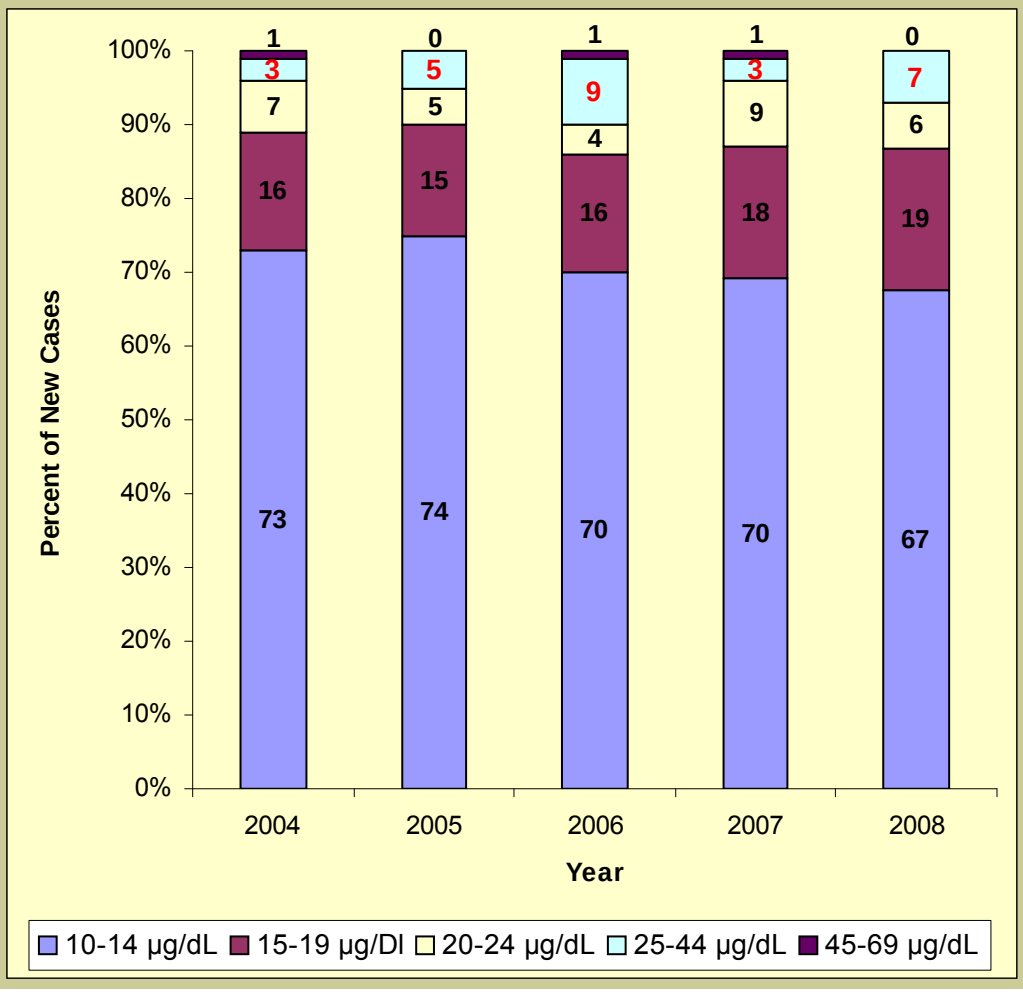
5-Year Statewide Trends: Percent of Reported New Cases by Blood Lead Level

As shown in figure 7, the percent of cases with levels in the 10 to 14 µg/dL range fluctuated between 67 percent and 74 percent over the past five years. The percent of new cases reported with BLLs above 14 µg/dL increased from 27 percent in 2004 to 32 percent in 2008.

There was an overall increase in the percentage of new cases with BLLs of 15 to 19 µg/dL and 25 to 44 µg/dL from 2004 to 2008. Sixteen percent of new cases had a blood lead level of 15 to 19 µg/dL in 2004 in comparison to 19 percent in 2008. Within the same time period, the percent of cases in the 20 to 24 µg/dL blood level category reflects an overall decrease from 7 percent in 2004 to 6 percent in 2008. Additionally, between 2004 and 2008, there was a general increase in the percent (from 3 percent to 7 percent) of new cases with blood lead level of 25 to 44µg/dL.

An average of 0.4 percent of new cases was reported from 2004 to 2008 for 45 to 69 µg/dL level. Although a minimal number of new cases were reported above 44 µg/dL, it is critical to identify these cases (>44 µg/dL) as public health interventions can greatly reduce continued exposure to the lead source. There was little change in the number of cases with blood lead levels greater than 69 µg/dL (not shown) for all five years. For 2004 to 2008, there were two new cases above the 69 µg/dL BLL that were reported to the FL CLPPP. These cases with high BLL occurred in 2006 and 2008.

Figure 7. Percent of reported new cases by five confirmatory blood lead categories, Florida, 2004 to 2008



Select County Trends: Rates of Reported New Cases per 1,000 Screenings

In 2006, the Lead Poisoning Prevention Screening and Education Act (Section 381.985, F.S.) was authorized by the State Legislature. The Act allowed for the provision of recurring general revenue appropriation to support the Lead Screening Program and assure the proper medical management of lead poisoned children. Funds were distributed to eight Florida CHDs to promote blood lead screening and to support case management services that help reduce the blood lead burden of children diagnosed with lead poisoning. The eight CHDs that received funding were: Miami-Dade, Duval, Orange, Polk, Palm Beach, Pinellas, Hillsborough, and Broward. Together, these eight CHDs serve 55 percent of the state population. Funding to these eight counties supported CHDs in developing strategies for providing targeted blood lead screening to high-risk children.

The eight funded counties historically have the largest numbers of children that are at-risk for lead poisoning. Consequently, these CHDs typically report the highest rates of cases per 1,000 children screened on an annual basis. However, since 2004, these CHDs have observed significant decreases in the rates of reported cases per 1,000 children screened within their counties as illustrated in table 1 and figure 6.

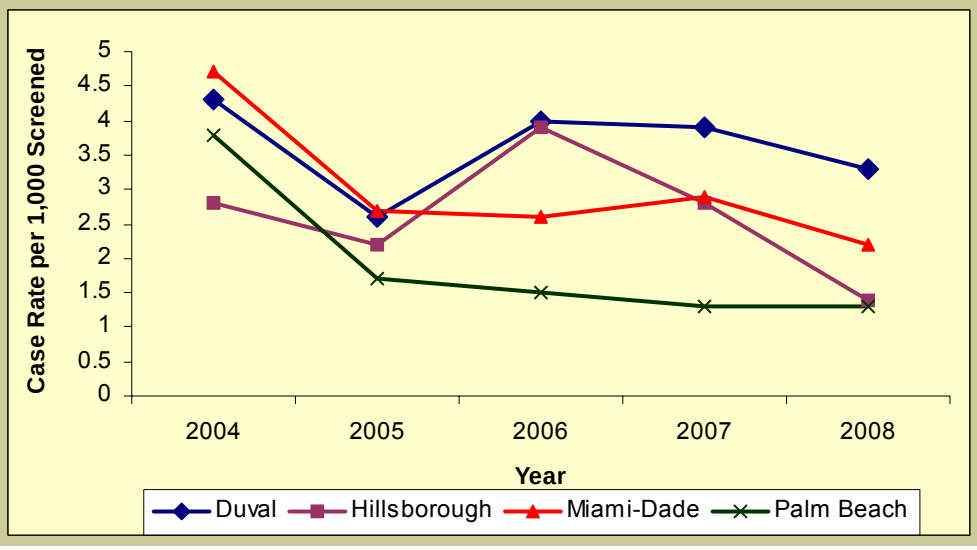
For most funded CHDs the number of cases declined even with an increase in the number of children screened. For example, the number of children screened for Miami-Dade increased from 37,599 in 2007 to 40,918 in 2008. However, the number of new cases declined from 108 in 2007 to 89 in 2008 (figures 9 thru 12). As a result, the case rate in Miami-Dade decreased from a rate of 2.9 confirmed cases per 1,000 children screened in 2007 to 2.2 in 2008**.**

Table 1. The rate of reported cases per 1,000 screened for funded counties, Florida, 2004-2008

County	2004	2005	2006	2007	2008
Broward	2.1	1.0	1.2	2.2	0.9
Duval	4.3	2.6	4	3.9	3.3
Hillsborough	2.8	2.2	3.9	2.8	1.4
Miami-Dade	4.7	2.7	2.6	2.9	2.2
Orange	3	2.8	2.7	3.1	1.2
Palm Beach	3.8	1.7	1.5	1.3	1.3
Pinellas	3.4	2.2	2.5	1.6	1.5
Polk	4.6	2.3	3.4	2.7	1.9

Figure 6 shows the rates of new cases per 1,000 children screened for Miami-Dade, Palm Beach, Duval and Hillsborough. These four CHDs receives additional funding through FL CLPPP to operate comprehensive lead poisoning prevention programs.

Figure 8. The rate of reported new cases reported per 1,000 children screened per year in select counties, Florida, 2004 to 2008.



Lead Poisoning Screening Rate by County for 2007 and 2008

The screening rate for each county was determined by dividing the number of children less than 72 months that were tested for lead poisoning with the total number of children less than 72 months based on the Florida Legislature's Office of Economic Demographic Research data.

The limitations with using the county population estimates in calculating the screening rates are: 1) the assumption of a steady-state population within the year of analysis and 2) the estimates used in the analysis do not necessarily represent the population at risk. Use of Medicaid eligibility, refugee status and/ or at-risk zip code information may be more reflective of the population at-risk for lead poisoning.

Figures 9 and 10 shows the screening rate by county for 2007 and 2008 respectively. In general, the screening rate declined for some of the funded counties which include Miami-Dade, Broward, Palm Beach and Polk. However, the screening rates for Hillsborough, Pinellas and Duval remain relatively constant from 2007 to 2008.

Figure 9: Screening Rate by County, Florida 2007

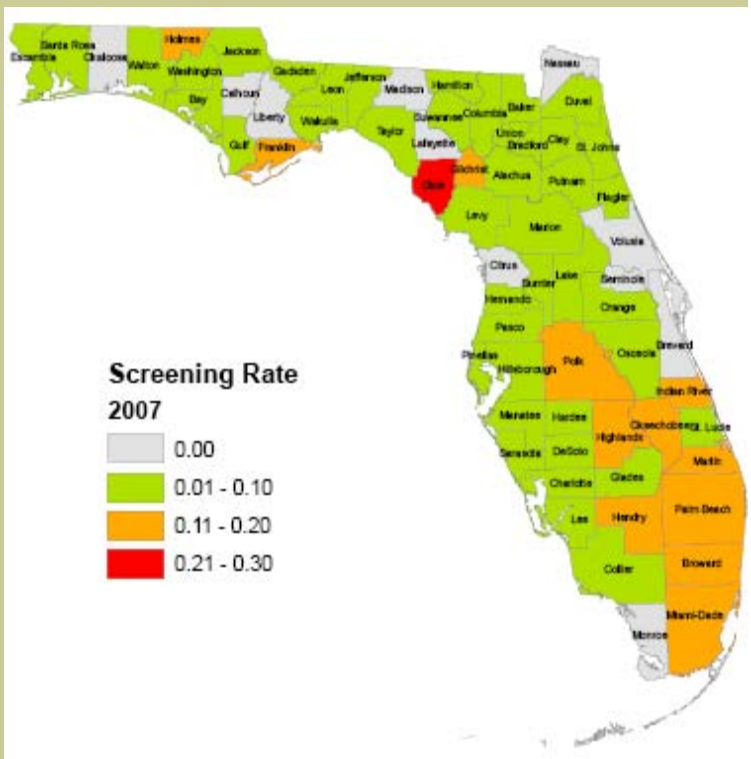
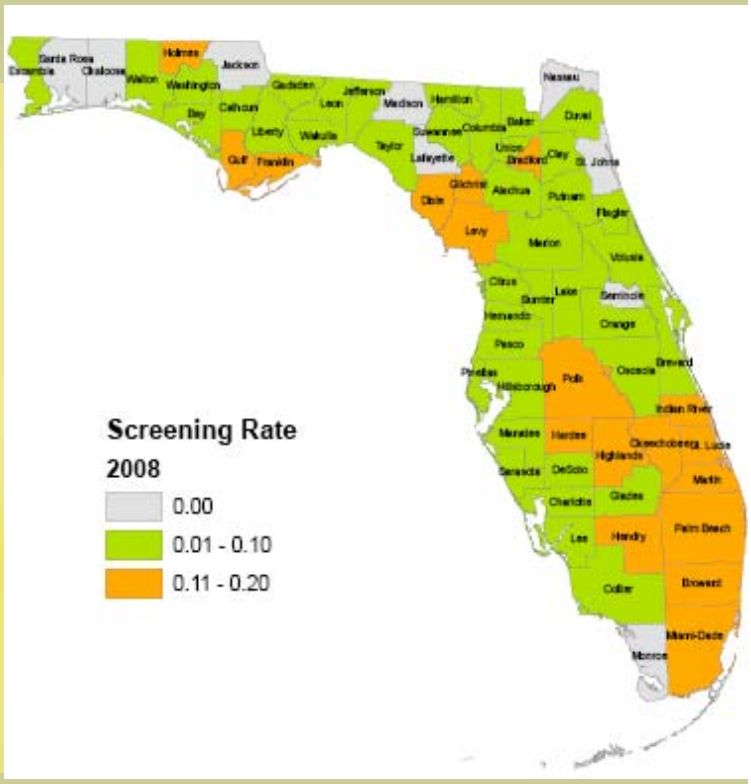


Figure 10: Screening Rate by County, Florida 2008



Source: Population estimates are provided by the Florida Legislature's Office of Economic and Demographic Research

Case Rate per 1,000 Children Screened by County for 2007 and 2008

The case rate was determined by dividing the number of new reported cases with the number of children screened per year for each county.

Figures 11 and 12 shows the case rate by county for 2007 and 2008 respectively. Comparing the case rate between counties may be misleading since it is a crude rate and is affected by the case and screening numbers reported from each county. Smaller counties tend to have smaller at-risk populations than larger counties, therefore a small increase in cases may result in a higher case rate if there is little or no change in the screening numbers. For example: a smaller county such as Jackson case rate increased from 4.8 in 2007 to 7.2 in 2008 whereas for a larger county such as Miami-Dade, the case rate declined from 2.9 in 2007 to 2.2 in 2008. This should not be interpreted as an increase in the case load in Jackson county from 2007 to 2008 with respect to Miami-Dade county.

The case rates for the eight funded counties were previously discussed on page 15 and illustrated in table 1.

Figure 11: Case Rate by County Florida, 2007

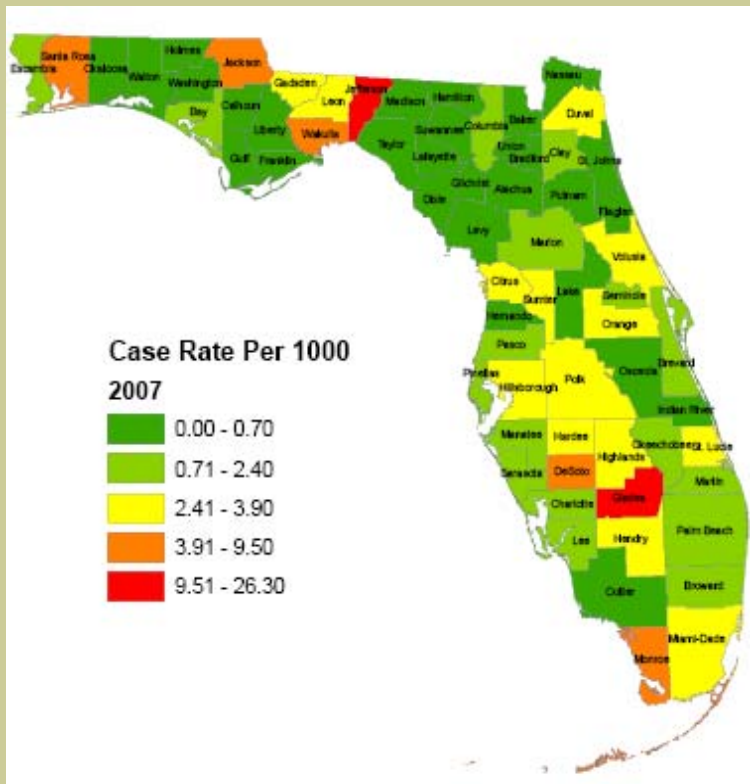
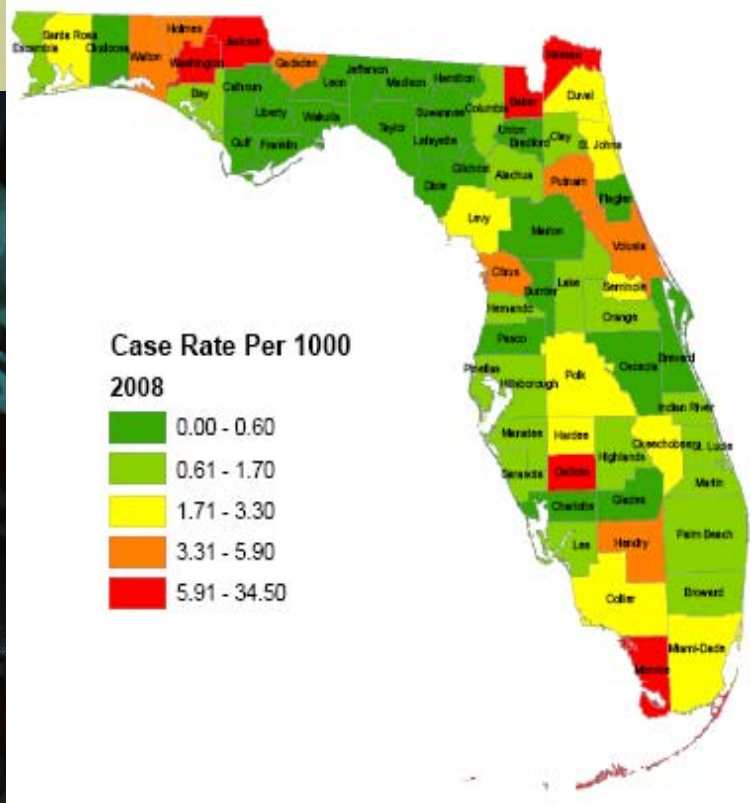


Figure 12: Case Rate by County Florida, 2008



Statewide: Number of Reported New Cases by Age and Blood Lead Level

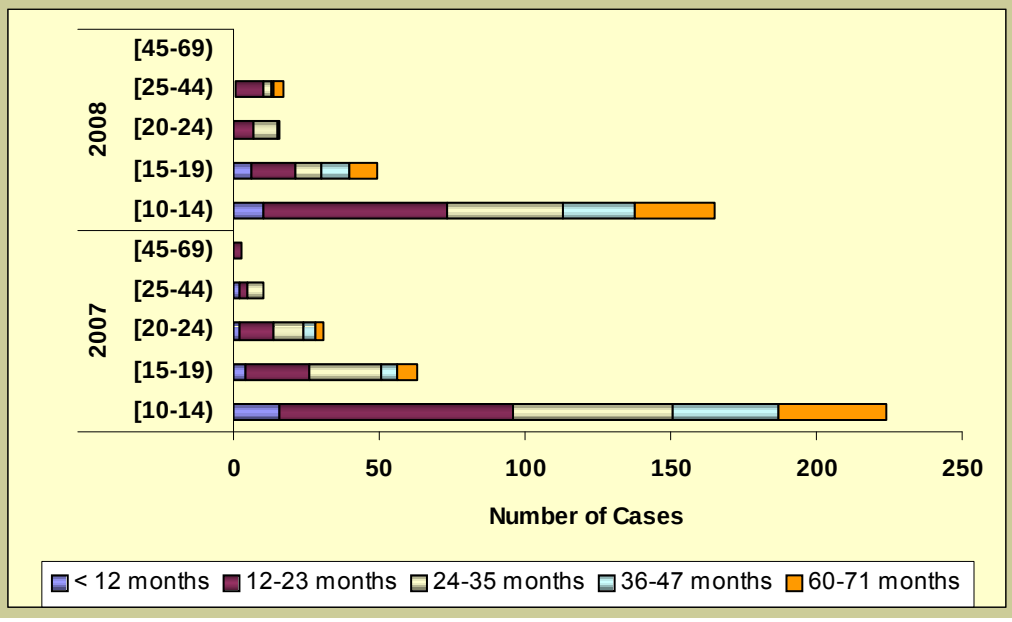
Table 2 and Figure 13 display the number of new cases that were reported for 2007 and 2008 by age group and BLLs. The least number of new cases (6 percent) were reported in both years for children less than 12 months. The age group category with the largest percentage of new cases was 12-23 months with 32 percent of new cases being reported in 2007 and 34 percent in 2008.

The blood lead level category with the highest number of new cases was 10-14 µg/dL. For the 10-14 µg/dL blood lead level category, the largest number of new cases were reported within the age group 12-23 months. This finding indicated that children between 12-23 months are more likely to received a confirmatory blood test for lead poisoning and their blood lead concentration usually fall within the lowest blood lead level category. Within the same blood lead level category, 80 (31 percent) of all new cases were reported for 2007 and 63 (34 percent) new cases for 2008. For the 24-35 blood lead level category, 55 (21 percent) and 40 (22 percent) new cases were reported for 2007 and 2008 respectively. In general, the number of new cases declined from age group 12-24 months to 60-71 months for all other blood lead level categories.

Table 2. The number of reported new cases by age and blood lead level Florida, 2007-2008

Age (months)	2007					2008				
	10-14	15-19	20-24	25-44	45-69	10-14	15-19	20-24	25-44	45-69
< 12	16	4	2	2	0	10	6	0	1	0
12-23	80	22	12	3	3	63	15	7	9	0
24-35	55	25	10	5	0	40	9	8	3	0
36-47	36	5	4	0	0	25	10	1	1	0
48-59	37	7	3	0	0	27	9	0	3	1
60-71	37	3	2	0	1	19	4	0	2	0
Total	261	66	33	10	4	184	53	16	19	1

Figure 13. The number of reported new cases by age and blood lead level Florida, 2007-2008



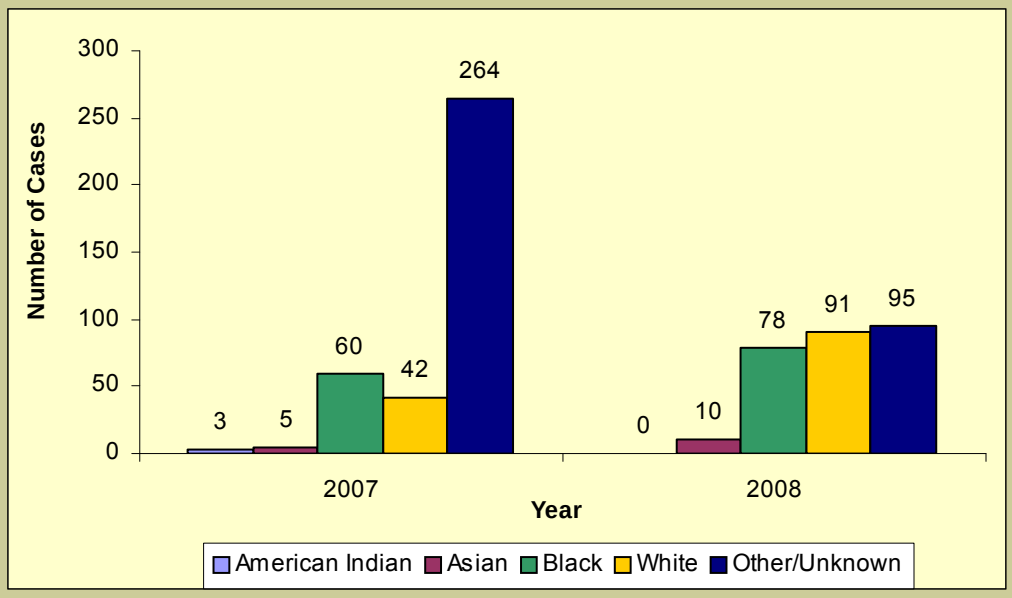
Two-Year Statewide Trends: Number of Reported New Cases by Race

based on

Race and ethnicity are relatively under-reported variables for lead poisoning cases in Florida. Consequently very limited information is captured that can be used to fully assess the impact of race and ethnicity on the disease burden in Florida. Efforts are ongoing to increase the percentage of reports with these and other required variables on blood lead test reports.

Figure 14 illustrates the number of reported new cases by race for 2007 and 2008. There are four distinct single races that are captured in the lead test reports for 2007 and 2008; namely American Indian, Asian, Black/African American, and White. All other or unknown races were captured in the category other/unknown. For 2007 and 2008, the percent of the reported cases classified as other or unknown race were 71 percent and 35 percent respectively. The percent of cases varied between races for both years. For 2007, of the new cases with reported race (110 cases), 42 (38 percent) were Whites and 60 (55 percent) were Black whereas for 2008 (179 cases), 91 (51 percent) were Whites and 78 (44 percent) were Blacks. For 2007, the finding is consistent with the CDC national lead poisoning surveillance findings (1999-2002) on race and ethnicity. In 2005, the CDC indicated that overall, non-Hispanic Blacks have higher BLLs than non-Hispanic Whites (CDC, 2005). Further investigation and analysis is warranted to determine the prevalence of lead poisoning in Florida

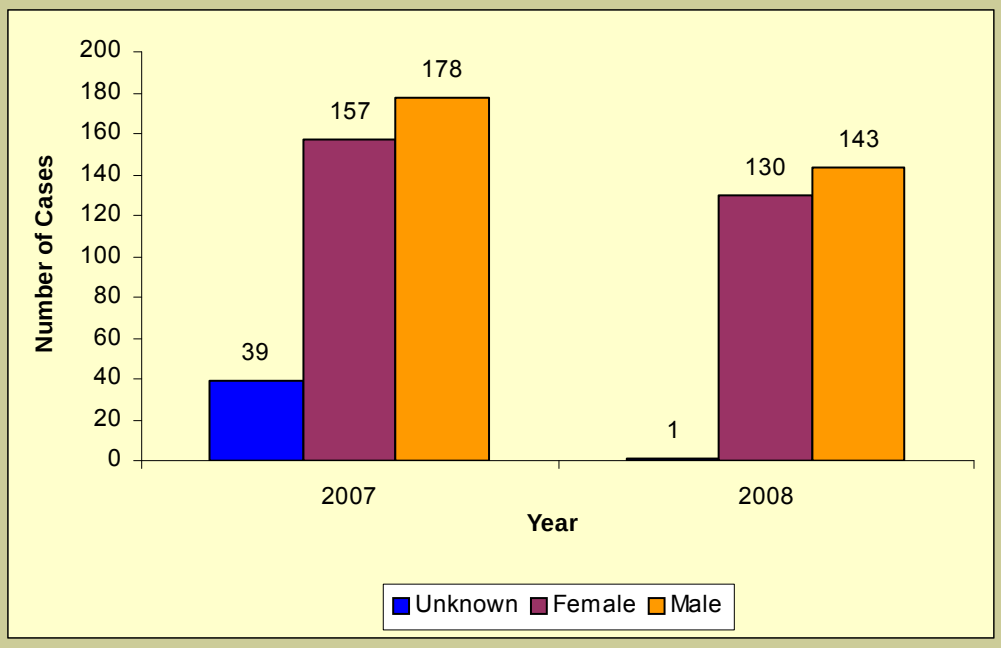
Figure 14. The number of reported new cases by race, Florida, 2007-2008



Two-Year Statewide Trends: Number of Reported New Cases by Gender

Figure 15 illustrates the number of reported new cases by gender for 2007 and 2008. Compared to race and ethnicity, gender was more completely reported for 2007 (90 %) and 2008 (100%). For 2007 and 2008, there was a differences in gender for lead poisoning among children less than 72 months. Overall, for 2007 and 2008, more males with elevated BLLs than females. However, the gender difference was small. In 2007, of the new cases with reported gender (335 cases), 178 (53 percent) were males and 157 (47 percent) were females; which accounted for a difference of 6 percent. A difference of 4 percent was noted in 2008 (273 cases) with 143 males (52 percent) and 130 (48 percent) females with reported gender. The reason for this difference in gender is unclear. Further evaluation of the 2007 and 2008 surveillance findings as it relates to gender is not possible without fully defining the composition of the at-risk population based on gender.

Figure 15. Number of reported new cases by gender, Florida, 2007- 2008.



Reported Number of Screenings by County

Table 3. Number of reported screenings among children under 72 months of age by year and county of residence, Florida 2004 to 2008.

Overall, the number of screenings for children less than 72 months increases from 2004 to 2008. The highest yearly increase (12 percent) was observed between 2005 and 2006. A increase of 6 percent was observed between 2007 and 2008.

As mentioned previously, the increase in the number of reported screening may be due to multiple factors, including an increase in the number of practitioners using the LeadCare II analyzer to perform screening during routine office visits and an improvement in the reporting of screened children (less than 72 months) by practitioners who conduct blood lead testing.

County	2004	2005	2006	2007	2008
Alachua	1,903	2,069	2,127	2297	2175
Baker	117	134	162	199	130
Bay	519	420	593	728	700
Bradford	212	229	300	248	360
Brevard	1,075	1,648	1,165	1569	2049
Broward	21,542	21,298	22,425	23394	23481
Calhoun	25	17	32	42	49
Charlotte	380	429	555	552	696
Citrus	295	229	244	258	399
Clay	687	732	877	1017	953
Collier	1,906	1,790	1,697	1975	1609
Columbia	762	684	481	487	592
Miami-Dade	36,221	34,710	38,476	37599	40918
Desoto	291	251	286	210	277
Dixie	267	231	234	270	258
Duval	5,593	6,576	6,175	7496	6940
Escambia	733	878	909	1676	1962
Flagler	303	400	443	584	526
Franklin	132	113	148	166	132
Gadsden	316	282	244	292	270
Gilchrist	229	227	239	190	206
Glades	66	25	23	38	53
Gulf	113	96	104	119	151
Hamilton	165	186	149	107	99
Hardee	558	495	234	286	674
Hendry	639	604	599	638	846
Hernando	211	207	394	539	768
Highlands	384	392	572	998	1226
Hillsborough	9,676	9,616	10,224	11586	11989
Holmes	197	209	193	262	252
Indian River	1,378	1,425	1,480	1403	1552
Jackson	46	194	203	254	29
Jefferson	40	48	58	66	71
Lafayette	24	27	42	13	17
Lake	1,444	1,354	1,895	2056	2160
Lee	2,507	2,990	2,979	3122	4012
Leon	1,160	1,229	1,544	1570	1303
Levy	418	407	368	353	444
Liberty	17	12	23	20	27
Madison	163	185	80	36	58
Manatee	2,221	2,110	2,637	2882	2830
Marion	1,592	1,427	1,577	1410	1845
Martin	800	894	981	1420	1294
Monroe	220	131	92	161	141
Nassau	84	78	87	116	141
Okaloosa	738	783	706	664	732
Okeechobee	334	398	399	481	509
Orange	7,737	6,341	7,658	7688	8813
Osceola	1,923	1,763	1,954	2482	2452
Palm Beach	10,132	10,156	12,910	13633	14738
Pasco	2,291	1,990	1,920	2848	3493
Pinellas	3,878	3,167	3,246	3789	4658
Polk	4,537	5,231	6,853	7065	7389
Putnam	370	345	410	509	679
Saint Johns	142	236	615	624	325
Saint Lucie	1,393	1,426	1,975	2786	3375
Santa Rosa	1,298	1,044	185	603	330
Sarasota	524	520	1,510	1584	1966
Seminole	1,597	1,765	1,020	998	842
Sumter	427	583	568	643	440
Suwannee	264	235	164	224	226
Taylor	116	98	91	105	227
Union	79	78	66	111	95
Volusia	1,898	1,622	1,463	1396	1874
Wakulla	76	75	89	105	111
Walton	139	159	109	186	216
Washington	106	108	100	113	165
Unknown	4	121	4,339	913	623
Total	137,634	135,932	152,700	160,254	170,942

Reported Number of New Cases by County

Table 4. The number of reported new cases of lead poisoning among children under 72 months of age by year and county of residence, Florida 2004 to 2008.

A larger number of new cases were reported from the CHDs that were funded to conduct screening of high-risk children under 72 months of age. Of total number of new cases reported from all CHDs for 2007 and 2008, the funded CHDs reported 282 (75 percent) in 2007 and 194 (71 percent) in 2008.

Generally, for most funded CHDs the largest number of reported new cases was in 2004 and the least in 2008. Of all the funded counties, Miami-Dade reported the largest number of new cases for all five years. Of the 475 new cases reported in 2004, 171 (36 percent) was from Miami-Dade. In 2008, of the 274 new cases reported, 89 (32 percent) were also from Miami-Dade.

County	2004	2005	2006	2007	2008
Alachua	2	1	3	1	2
Baker	1	2	0	0	1
Bay	0	1	4	1	1
Bradford	0	0	0	0	0
Brevard	6	6	0	3	0
Broward	45	22	28	51	21
Calhoun	0	1	0	0	0
Charlotte	1	0	0	1	0
Citrus	0	0	0	1	2
Clay	1	3	0	1	1
Collier	10	5	9	1	3
Columbia	0	4	1	1	1
Miami-Dade	171	92	100	108	89
Desoto	2	1	0	1	2
Dixie	0	2	0	0	0
Duval	24	17	25	29	22
Escambia	2	3	2	4	2
Flagler	0	0	2	0	0
Franklin	1	0	1	0	0
Gadsden	4	0	0	1	1
Gilchrist	0	0	0	0	0
Glades	0	1	0	1	0
Gulf	0	0	0	0	0
Hamilton	0	1	0	0	0
Hardee	2	1	1	1	2
Hendry	1	2	0	2	3
Hernando	0	0	1	0	1
Highlands	6	2	9	3	2
Hillsborough	27	21	40	33	17
Holmes	0	0	0	0	1
Indian River	2	3	0	1	2
Jackson	0	0	0	2	1
Jefferson	0	0	0	1	0
Lafayette	0	0	0	0	0
Lake	5	3	5	1	3
Lee	6	4	11	6	5
Leon	8	5	7	4	0
Levy	0	0	0	0	1
Liberty	0	0	0	0	0
Madison	0	0	1	0	0
Manatee	7	10	11	5	3
Marion	3	7	3	2	1
Martin	2	1	5	2	2
Monroe	0	0	0	1	1
Nassau	0	0	1	0	1
Okaloosa	1	0	2	0	0
Okeechobee	0	0	2	1	1
Orange	23	18	21	24	11
Osceola	3	2	5	0	1
Palm Beach	39	17	19	18	19
Pasco	6	4	2	4	2
Pinellas	13	7	8	6	7
Polk	21	12	23	19	14
Putnam	0	0	1	0	4
Saint Johns	0	1	1	0	1
Saint Lucie	6	7	11	11	3
Santa Rosa	1	1	1	5	1
Sarasota	3	2	6	3	2
Seminole	7	3	5	1	2
Sumter	3	0	0	2	0
Suwannee	1	2	0	0	0
Taylor	2	1	0	0	0
Union	0	0	0	0	0
Volusia	7	5	3	5	7
Wakulla	0	0	0	1	0
Walton	0	1	0	0	1
Washington	0	0	0	0	1
Unknown	0	0	9	5	2
Total	475	304	389	374	274

Reported Number of New and Persistent Cases

Table 5. The number of reported new and persistent cases combined among children under 72 months of age by year and county, Florida 2004 to 2008.

Overall, 72 percent of all cases were reported from the eight funded counties. A similar trend was observed for all reported cases as with new cases. For all eight funded CHDs, the number of reported cases declined by 55 percent from 497 in 2004 to 222 in 2008 with a slight increase in 2007 (306 cases).

For the period 2004 to 2008, the largest number of reported cases (new and persistent) were reported from Miami-Dade CHD (657 cases, 30 percent).

County	2004	2005	2006	2007	2008
Alachua	3	2	3	1	2
Baker	1	3	0	0	1
Bay	0	1	4	1	1
Bradford	0	0	1	0	0
Brevard	8	6	3	3	0
Broward	60	33	28	51	25
Calhoun	0	1	0	0	0
Charlotte	1	0	0	1	0
Citrus	0	0	1	1	2
Clay	1	3	15	1	1
Collier	19	5	9	1	3
Columbia	4	6	7	1	1
Miami-Dade	227	121	100	115	94
Desoto	2	0	0	1	2
Dixie	0	2	0	0	0
Duval	38	23	25	31	25
Escambia	4	3	2	4	2
Flagler	0	0	2	0	0
Franklin	1	0	1	0	0
Gadsden	4	3	0	1	1
Gilchrist	0	0	0	0	0
Glades	0	1	0	1	0
Gulf	0	0	5	0	0
Hamilton	1	1	0	0	0
Hardee	2	1	1	1	2
Hendry	3	2	0	2	3
Hernando	0	0	1	0	1
Highlands	6	2	9	3	2
Hillsborough	41	27	42	35	21
Holmes	0	0	0	0	1
Indian River	6	5	0	1	2
Jackson	0	0	0	2	1
Jefferson	0	0	1	1	0
Lafayette	0	0	0	0	0
Lake	5	4	10	1	3
Lee	8	5	11	7	5
Leon	10	6	12	5	0
Levy	0	0	3	0	1
Liberty	0	0	1	0	0
Madison	0	0	3	0	0
Manatee	8	10	11	5	3
Marion	3	7	3	2	1
Martin	4	1	7	2	2
Monroe	0	0	0	1	1
Nassau	0	0	1	0	1
Okaloosa	1	0	2	0	0
Okeechobee	0	0	2	1	1
Orange	28	21	21	27	12
Osceola	3	2	5	1	1
Palm Beach	53	23	19	21	22
Pasco	8	5	2	4	3
Pinellas	21	9	8	7	8
Polk	29	17	23	19	15
Putnam	0	0	1	1	4
Saint Johns	2	2	1	0	1
Saint Lucie	11	9	11	14	5
Santa Rosa	1	1	1	5	1
Sarasota	4	3	6	3	2
Seminole	7	5	5	2	2
Sumter	4	1	0	2	0
Suwannee	2	2	0	0	0
Taylor	2	1	0	0	0
Union	0	0	0	0	0
Volusia	8	5	3	5	7
Wakulla	1	0	0	1	0
Walton	0	1	0	0	1
Washington	0	0	0	0	1
Unknown	0	0	9	5	3
Total	655	391	441	400	299

References & Resources

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Florida Chapter of the American Academy of Pediatrics
http://www.medicalhomeinfo.org/states/state/florida.html

The United States Centers for Disease Control and Prevention. http://www.cdc.gov/lead/

Glossary and Acknowledgements

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GLOSSARY

FL CLPPP: Florida Childhood Lead Poisoning Prevention Program.

Children: For the purposes of this report, children are defined as those less than 72 months of age.

CHD: County Health Department.

Reported: For the purposes of this report, reported refers to all blood lead test results received by the Florida Department of Health, Childhood Lead Poisoning Prevention Program.

µg/dL: Micrograms per deciliter, the standard unit of measure for blood lead levels.

Test: Any blood lead sample (i.e. capillary, venous, or unknown type) that produces a quantifiable result and is analyzed by a Clinical Laboratory Improvement Amendments (CLIA) certified facility or an approved portable device. Blood for a lead test can be collected for a screening, confirmation, or follow up.

Screening: The initial blood lead test occurring within one year. Any subsequent blood lead draws are defined as follow up tests.

Follow up Test: Any blood lead test that occurs subsequent to a confirmation test and any test that occurs subsequent to a screening in a calendar year.

Confirmed Case: One venous specimen greater than or equal to 10µg/dL; or two capillary specimens greater than or equal to10 µg/dL drawn within 12 weeks (84 days) of each other.

New Case: A confirmed case (see “confirmed case” above) that has not been previously identified as a case.

Persistent Case: A case confirmed during a previous year and whose blood lead level increased or decreased to at least 10 µg/dL in a subsequent year.

Case Rate: The number of children less than 72 months old with a confirmed BLL ≥ 10µg/dL divided by the number of children less than 72 months old screened for lead poisoning in a particular year.

Screening Rate: The number of children less than 72 months old without a previous confirmed BLL who were screened for blood lead level in a particular year divided by the number of children less than 72 months old in Florida (based on Florida Legislatives Office of Economic Demographic Research).

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