Florida Department of Health Lead Poisoning Prevention and Healthy Homes Program

2009 Annual Childhood Lead Poisoning Surveillance Report

DIVISION OF Environmental Health

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INTRODUCTION

The surveillance findings presented in the 2009 Childhood Lead Poisoning Surveillance Annual Report are based on reported blood lead test data for children less than 72 months of age in Florida. Statewide analyses were conducted over a five year period to determine trends in screening and case rates among children tested for lead poisoning. For the last five years (2005 to 2009), the screening rate increased by 24 percent and the percent of newly reported cases declined by 39 percent. It is unclear whether this decline in the number of new cases is due to a decrease in the rate of lead poisoning among children less than 72 months of age. A possible explanation is that high-risk children are not being screened due to limited access to health care services. Lead poisoned children may be missed due to this deficiency in screening. In addition, not all testing facilities report complete information on lead test records to the Florida Childhood Lead Poisoning Prevention and Healthy Homes Program (FL CLPPP). Furthermore, underreporting of demographic information such as race and ethnicity prevents complete evaluation of health disparity among at-risk populations. Absence of data on refugee status, Medicaid eligibility, and age of housing at the time of publication prevents assessment of these risk factors among lead poisoned children.

In light of these data limitations, the FL CLPPP implemented several enhancements to its current functions and expanded its surveillance capabilities. In the latter part of 2009, FL CLPPP expanded its investigation and case management reporting fields in Merlin, the Florida Department of Health (FL DOH) reportable disease surveillance database. These changes will facilitate capturing of electronic data on risk factors such as Medicaid eligibility, refugee status and year housing was built. Reporting of these risk factors will allow the program to more routinely calculate screening and case rates among these high risk groups. The program will also use geographic information systems (GIS) techniques to map surveillance data based on zip codes and to identify areas where children at-risk for lead poisoning reside. This will allow the program to develop and improve interventions to those affected areas and pinpoint areas where screening efforts should be enhanced. With this increased capacity the program will be able to recognize trends among high risk groups and assess racial and ethnic disparities among lead poisoned children in Florida.

Florida's Childhood Lead Poisoning Prevention & Healthy Homes Program

HEALTH EFFECTS OF CHILDHOOD LEAD EXPOSURE
There is no safe level of lead in the blood. Research suggests that even blood lead levels below the current level of 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. Very high levels of blood lead concentrations may result in seizures, coma, and death.

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. Program activities are implemented in partnership with the 67 counties in Florida. FL CLPPP provides funding to six county health departments (CHDs) that serve high-risk areas to conduct screening and case management services.

- **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.

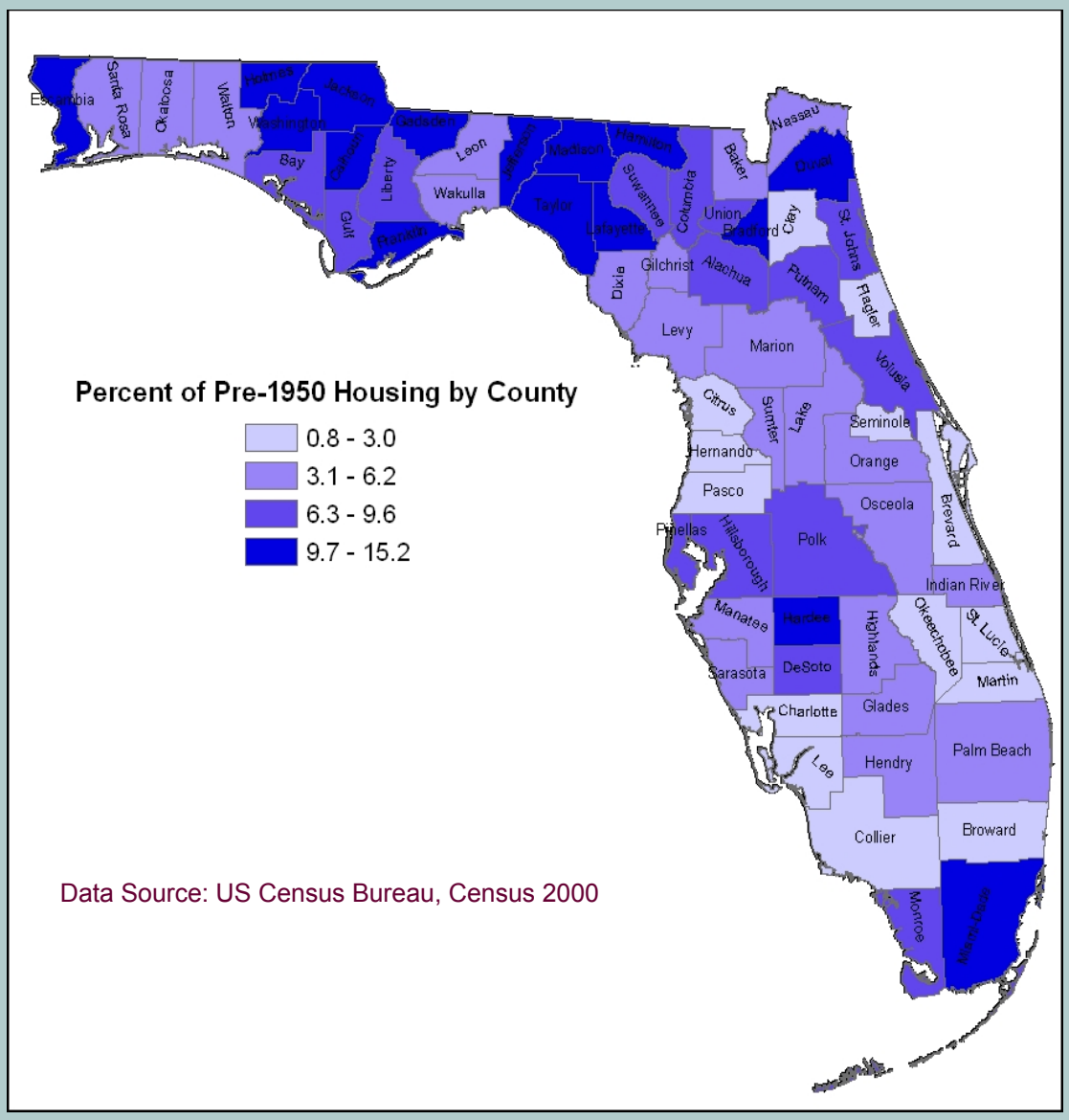
- **Screening & Case Management :** The FL CLPPP establishes blood lead screening guidelines and standard of care for lead poisoned children. The program provides education to health care providers across the state to ensure all children receive a blood lead test. The FL CLPPP is also establishing monitoring 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 repeated lead 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.
  The Healthy Homes Project is another important primary prevention activity. Families with identified lead poisoning risk factors are offered enrollment into the project. Participants receive a comprehensive visual assessment of their homes by trained environmental health specialists. Lead and other environmental health hazards are identified and participants receive one-on-one coaching on how to minimize these hazards to create a healthy home.

- **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 Factors: Percent of Pre-1950 Housing by County

Figure 1. Percent of Pre-1950 Housing by County

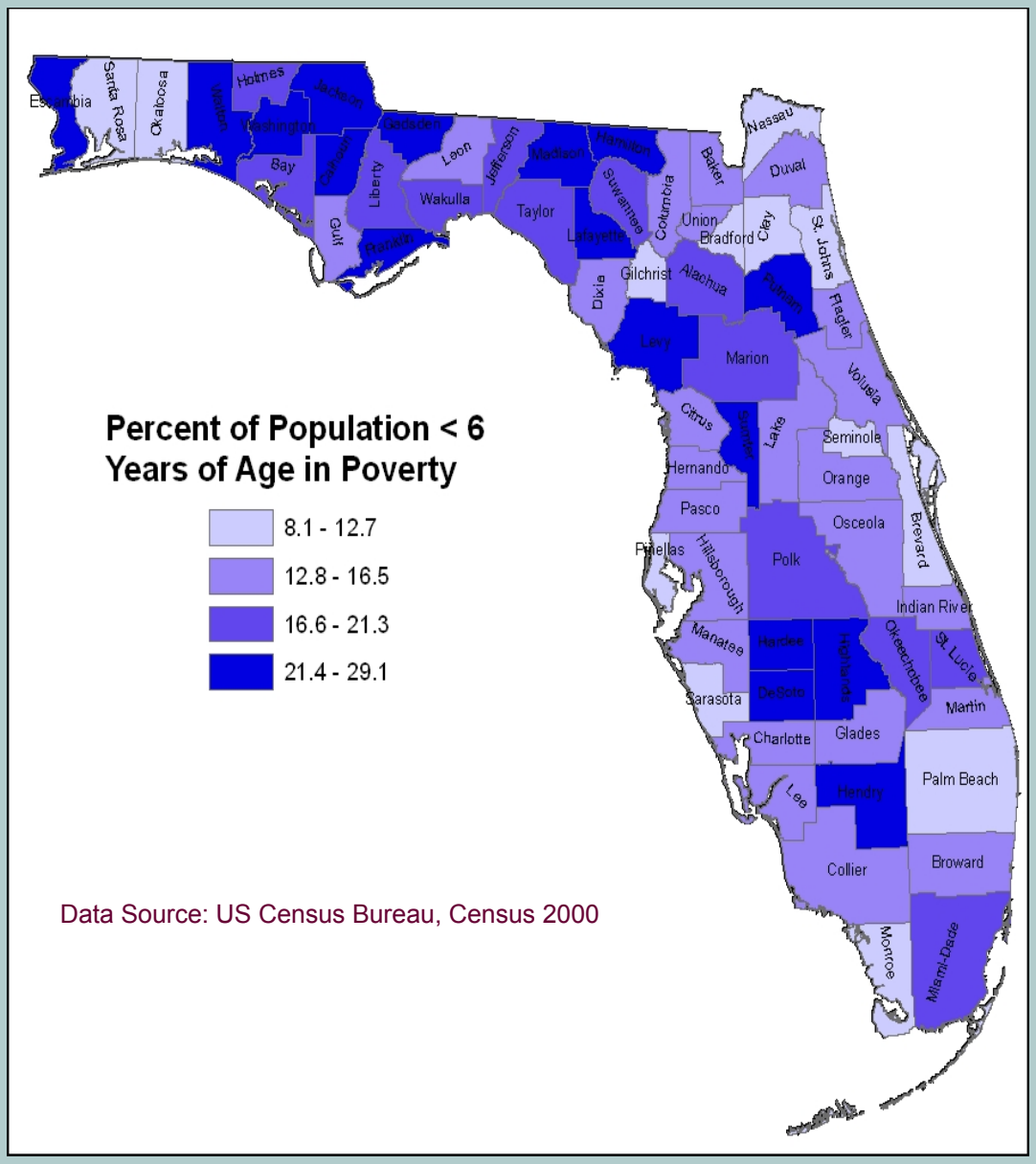


Lead-based paint is a primary source of lead exposure for children. Despite the ban on lead in residential paint in 1978, extensive use of leaded paint prior to 1978 has left many homes with lead-based hazards. Homes built prior to 1950 pose the greatest risk to children since the amount of lead in paints from that time is generally greater and the structural condition of these aging homes often facilitates greater risk of exposure to lead-based paint hazards. Exposures generally occur by ingestion of paint chips and/or inhalation of dust particles from deteriorating lead-based paint surfaces in older buildings.

As shown in figure 1, there is a substantial variation in the percent of pre-1950 homes in Florida. The proportion of pre-1950 housing varies by county from a low of less than 6 percent to over 15 percent. Funding is provided through FL CLPPP to counties with a high number of pre-1950 housing to facilitate targeted screening, case management and educational outreach to areas with the greatest number of high-risk children.

Risk Factors: 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 socioeconomic levels can be affected by lead poisoning. However, children in low income families are more likely to reside in older and substandard homes with flaking lead paint and lead-contaminated dust. Children living in poverty are also more likely to suffer from poor nutrition. Diets deficient in calcium, iron, protein and/or zinc increase the absorption of lead and increase the vulnerability to the adverse effect of lead.

Medicaid eligibility serves as a proxy for poverty. Children that are Medicaid eligible maybe at increased risk for lead poisoning because they are more likely to live in older, poorly maintained housing which is more likely to contain lead paint hazards.

Figure 2 shows that there is large 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. Funding is provided through FL CLPPP to specific counties for lead testing of uninsured children.

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 items such as clothes and shoes of individuals whose hobbies or occupations involve lead. Some common jobs and hobbies that use lead include: battery manufacturing, radiator repair, construction, renovation, soldering, recycling, painting, demolition, scrap metal recycling, working with stained glass, pottery making, and target shooting.

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 risk factors listed on the Florida Department of Health Lead Poisoning Risk Assessment Questionnaire (Screening & Case Management Guide, 2008).

Florida Medicaid guidelines, in accordance with federal requirements, stipulate 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 as a blood lead level 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. A confirmed case is considered a "new case" if it was not previously reported. A persistent case is a case confirmed during a previous year and whose BLL remains elevated (≥10 µg/dL) in subsequent years.

Blood Lead Surveillance in Florida: Understanding the Lead Data

HISTORY OF BLOOD LEAD SURVEILLANCE IN FLORIDA

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 blood lead levels (BLLs) of ALL blood lead tests. This includes users of portable blood lead testing devices.

LABORATORY REPORTING REQUIREMENTS

The Florida Statutes, Chapter 381, stipulates that practitioners and laboratory personnel should report diseases of Public Health Significance to the Department of Health. Chapter 64D-3 of the Florida Administrative Code state 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/Entity Using Portable Lead Testing Devices:

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

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. This enhanced reporting may have increased the screening and case numbers reported when compared to previous years.
- Generally, race and ethnicity are underreported. The information reported on race does not reflect the true racial composition of lead poisoned children in Florida.
- 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, and/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 are screened for lead poisoning, however many of these children are not cared for by traditional health care systems and may not receive an initial blood lead test. As a result, some cases of lead poisoning may never be identified or reported.

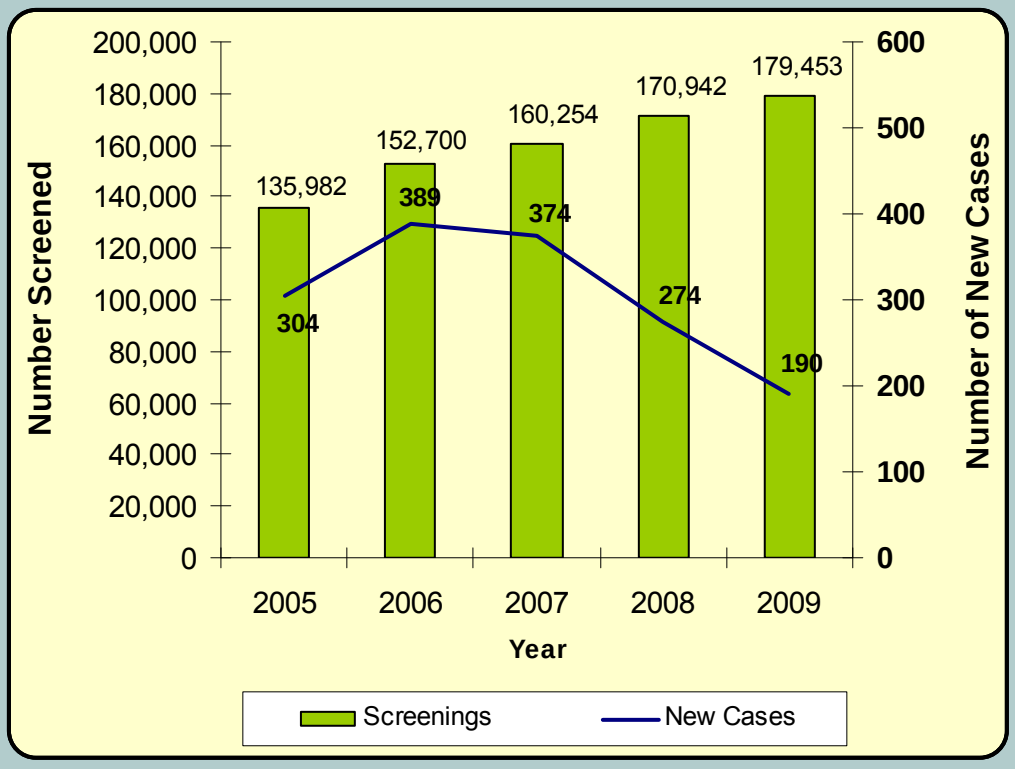
5-Year Statewide Trends: Number of Children Screened and Reported New Cases

The FL CLPPP monitors reported blood lead levels in children under 72 months of age. From the lead test data received, FL CLPPP determines annually the reported number of children who were lead poisoned 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 3 shows the trend in reported screenings and reported new cases for five years. There was a 34 percent increase in the number of children screened from 2005 to 2009. The increase in screening may be partially accounted for by healthcare providers and community-based organizations such as Head Start that are now promoting lead screening. An increase in the number of testing facilities may have also contributed to the increase. There were 12 additional lead testing facilities (using the LeadCare II analyzers) that started reporting lead test results in 2009.

As shown in figure 3, although the screening number increased, the number of reported lead poisoning cases in Florida declined by 39 percent from 304 in 2005 to 190 in 2009. The difference in the number of cases (114 cases) reported in from 2005 to 2009 may not be accredited to a decline in lead poisoning among Florida children less than 72 months old. The population screened each year is not homogenous and cannot be accurately compared. The CDC recommended in 1997 that lead poisoning screening should be targeted at high risk children. However, further investigation is needed to determine the rate of screening among high-risk groups in Florida.

Figure 3. Reported blood lead screenings and new cases of lead poisoning, Florida, 2005 to 2009



5-Year Statewide Trends: Reported New and Persistent Cases

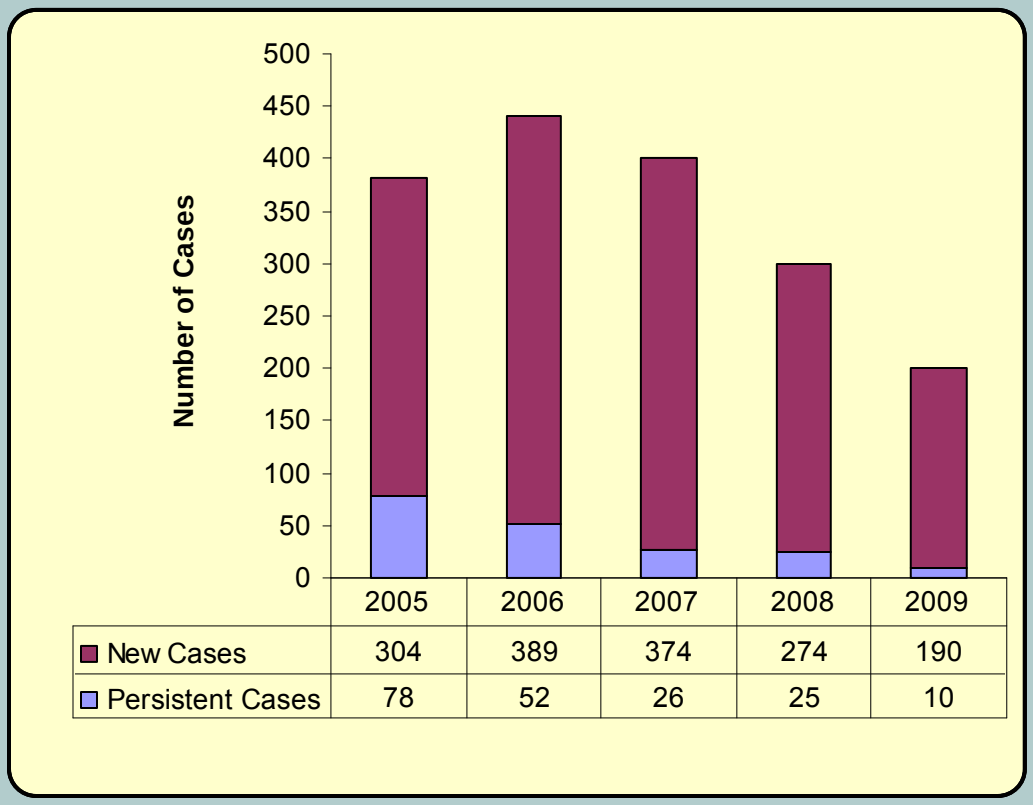
LEAD POISONING CASE MANAGEMENT

The FL CLPPP recommends that all children (less than 72 months of age) that are lead poisoned receive case management. The child's BLL determines the follow-up testing schedule and the type of case management needed. For instance, children with confirmed BLLs of 10-14µg/dL should receive follow-up testing within three months of the confirmatory test but an environmental health investigation of the home is optional. Children with BLLs 20-44µg/dL should be re-tested within a month of the confirmatory test and an environmental health investigation of the home should be conducted.

The goal of case management is to reduce the child's blood lead level to below the level of concern (10µg/dL) by preventing continued exposure and improving nutrition. The child should be monitored by the physician and the case manager until the BLLs returns to below 10µg/dL.

Figure 4 shows the number of reported new and persistent cases per year. The total number of reported lead poisoning cases decreased by 48 percent from 382 in 2005 to 200 in 2009. For 2008 to 2009, the number of reported cases decrease by 15 percent. There was also a substantial decline (87 percent) in the number of persistent cases from 78 in 2005 to 10 in 2009. This decline in persistent cases may be due to enhanced case management activities in identifying and recommending services for the elimination of lead poisonings amongst this group of children. Another possible reason could be that some children with elevated BLLs were "lost to follow up" and did not receive additional test (s) in subsequent years. Further analysis is warranted to differentiate between cases that did not receive follow up tests and those whose BLLs decreased to levels less than 10µg/dL.

Figure 4. Reported new and persistent cases of lead poisoning by year, Florida, 2005 to 2009



	2005	2006	2007	2008	2009
New Cases	304	389	374	274	190
Persistent Cases	78	52	26	25	10

5-Year Statewide Trends: Rate of Reported New Cases per 1,000 Children Screened

Figure 5. Rate of reported new cases of lead poisoning per 1,000 children screened, Florida, 2005 to 2009.

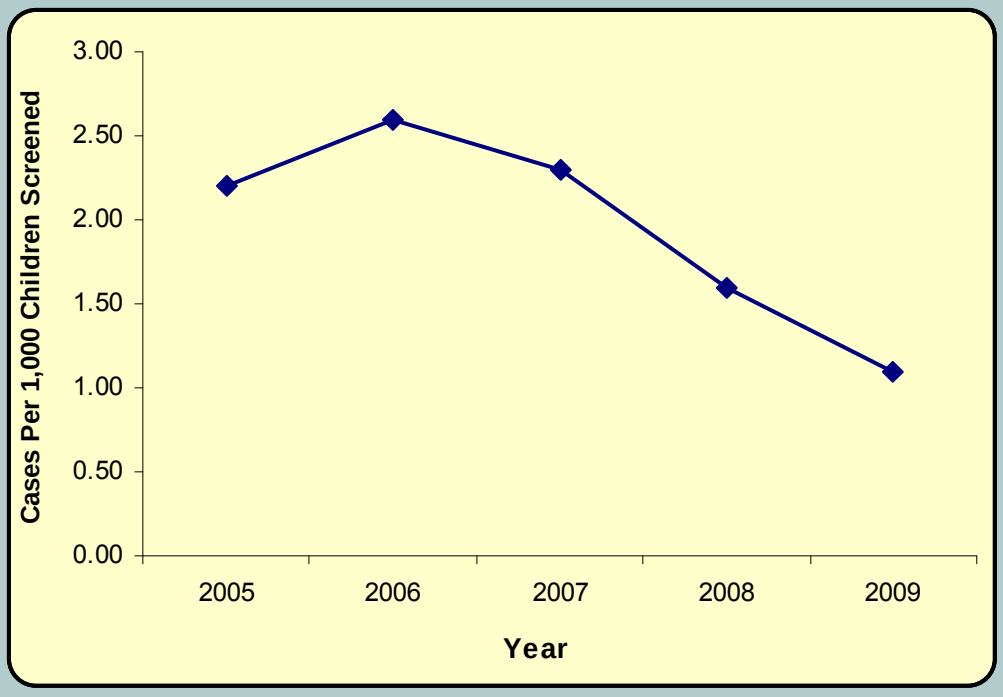


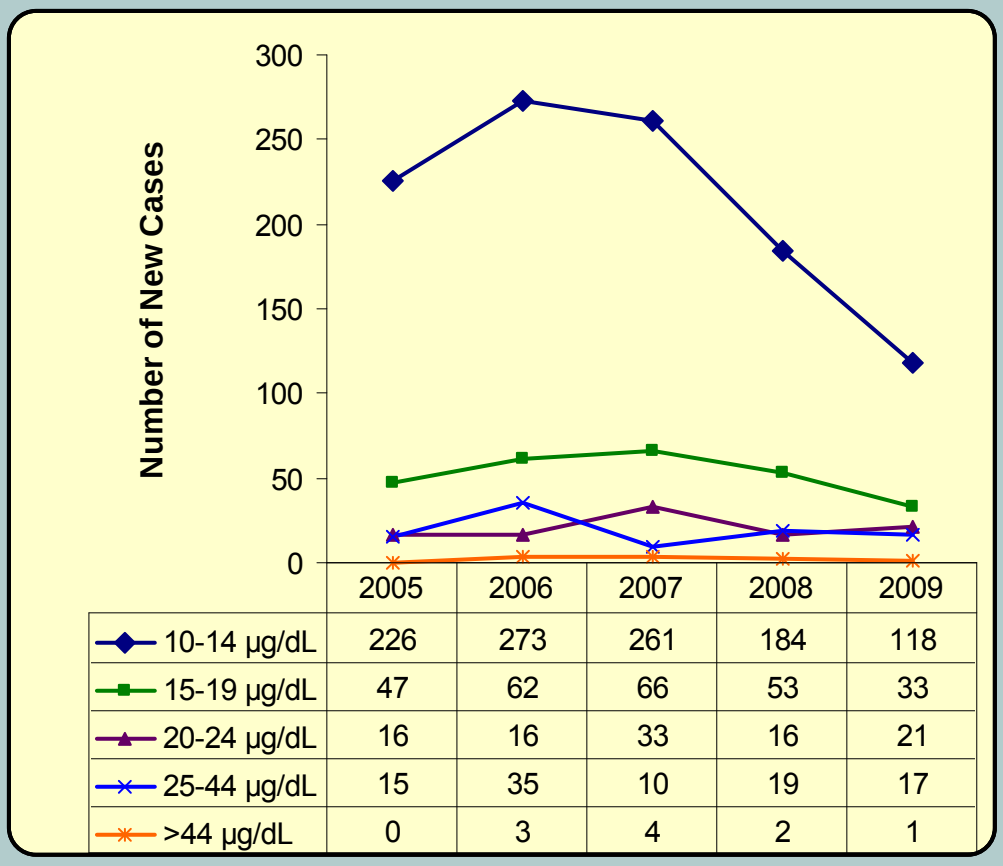
Figure 5 illustrates the statewide rate of reported new cases per 1,000 children screened. The statewide rate of reported new cases per 1,000 children screened is illustrated in Figure 2. Over the five year period, a 50 percent decline in the number of new cases was observed between 2005 (2.2 cases per 1,000 children screened) and 2009 (1.1 cases per 1,000 children screened). The decline in the statewide lead poisoning rate was most noticeable between 2007 and 2008 (30 percent) and

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

The effect of lead on the human body is dependent on the level and length of lead exposure. Higher lead levels have a greater impact on the health and cognitive development of a child. Lead poisoning can result in lowered IQ, behavior problems, hearing loss, and neurological impairments. For this reason, one of the objectives of the FL CLPPP is to reduce the BLLs of the children to levels where its effect is minimal.

Figures 6 illustrates the number of reported new cases categorized by BLL at confirmation from 2005 through 2009. There was a significant decline in the number of reported new cases as BLL categories increases for all five years. There was also a reduction in the number of reported new cases within BLL categories. For the BLL category 10-14 µg/dL this reduction was 48 percent. However, the downward trend in the number of reported new cases with BLLs 10-14 µg/dL occurred after an increase in 2006. The most notable decline in the number of reported new cases with BLLs 10-19 µg/dL occurred between 2008 and 2009.

Figure 6. Reported new cases by confirmation blood lead level categories, Florida, 2005 to 2009.



	2005	2006	2007	2008	2009
10-14 µg/dL	226	273	261	184	118
15-19 µg/dL	47	62	66	53	33
20-24 µg/dL	16	16	33	16	21
25-44 µg/dL	15	35	10	19	17
>44 µg/dL	0	3	4	2	1

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

FL CLPPP supports the lead poisoning prevention activities at CHDs through two funding sources. Miami-Dade, Duval, Hillsborough, and Palm Beach CHDs are funded through the FL CLPPP cooperative agreement with CDC and operate comprehensive programs that focus on lead poisoning prevention. Since 2006, the Lead Poisoning Prevention Screening and Education Act (Section 381.985, F.S.) appropriate recurring general revenue to support lead screening among uninsured and underserved children. In 2009, funds were distributed to six of the original eight CHDs. The funded CHDs are: Miami-Dade, Duval, Orange, Palm Beach, Hillsborough, and Broward.

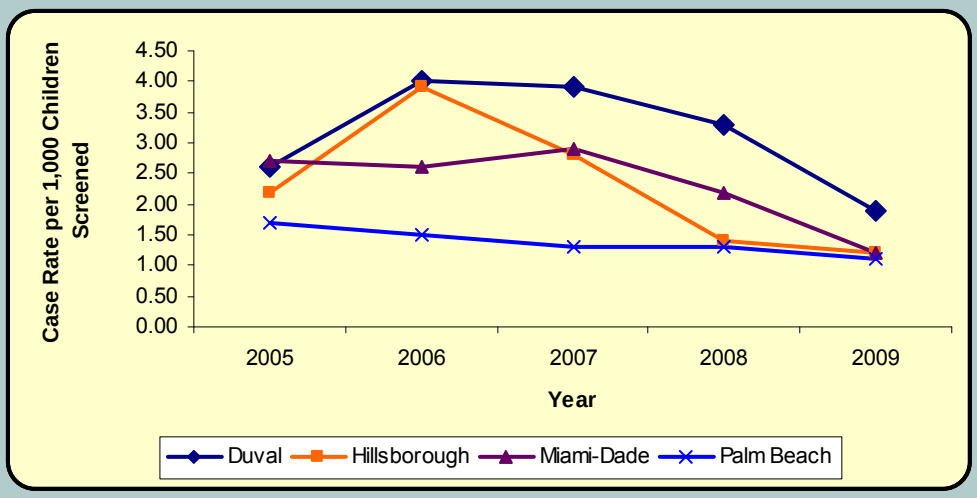
These six funded counties have the largest number of at-risk children. As a result they have typically demonstrated the highest rates of cases per 1,000 children screened. However, since 2005, these counties have observed significant reductions in the rates of reported cases per 1,000 children screened (Table 1). A 45 percent decline in case rate was observed for Miami-Dade County from 2008 to 2009, the highest reduction when compared to the other five funded counties for the same period.

Table 1. Rate of reported cases per 1,000 screened for funded counties, Florida, 2005-2009

County	2005	2006	2007	2008	2009
Broward	1.0	1.2	2.2	0.9	0.5
Duval	2.6	4.0	3.9	3.3	1.9
Hillsborough	2.2	3.9	2.8	1.4	1.2
Miami-Dade	2.7	2.6	2.9	2.2	1.2
Orange	2.8	2.7	3.1	1.2	0.9
Palm Beach	1.7	1.5	1.3	1.3	1.1

Figure 7 shows the rates of new cases per 1,000 children screened for selected counties. As observed in table 1 (above), case rates have declined in all counties over time.

Figure 7. Rate of reported new cases reported per 1,000 children screened per year in select counties, Florida, 2005 to 2009.



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

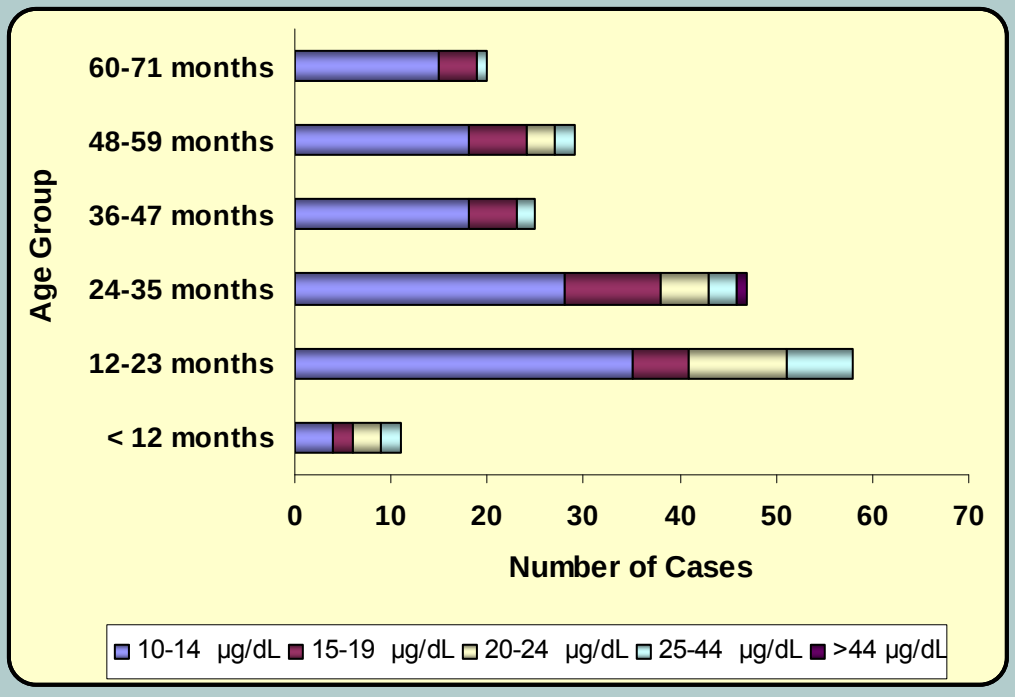
Table 2 and Figure 8 display the number of new cases that were reported for 2009 by age group and BLLs. The information presented here highlights the age group at which children are most likely to be tested for lead poisoning and the highest BLLs of children tested.

For 2009, the age group category with the largest percent (31 percent) of new cases was 12-23 months of age. This age group is highly recommended for initial blood lead testing by the CDC and Medicaid. Over the past five years, most reported new cases have BLLs ranging from 10 to14 µg/dL (not shown). In 2009, 60 percent of reported new cases 12-23 months of age had BLLs within this category.

Table 2. Number of reported new cases by age and blood lead level Florida, 2009

	Blood Lead Level (µg/dL)					
Age (Months)	10-14	15-19	20-24	25-44	>44	Total
< 12	4	2	3	2	0	11
12-23	35	6	10	7	0	58
24-35	28	10	5	3	1	47
36-47	18	5	0	2	0	25
48-59	18	6	3	2	0	29
60-71	15	4	0	1	0	20
Total	118	33	21	17	1	190

Figure 8. Number of reported new cases by age and blood lead level Florida, 2009



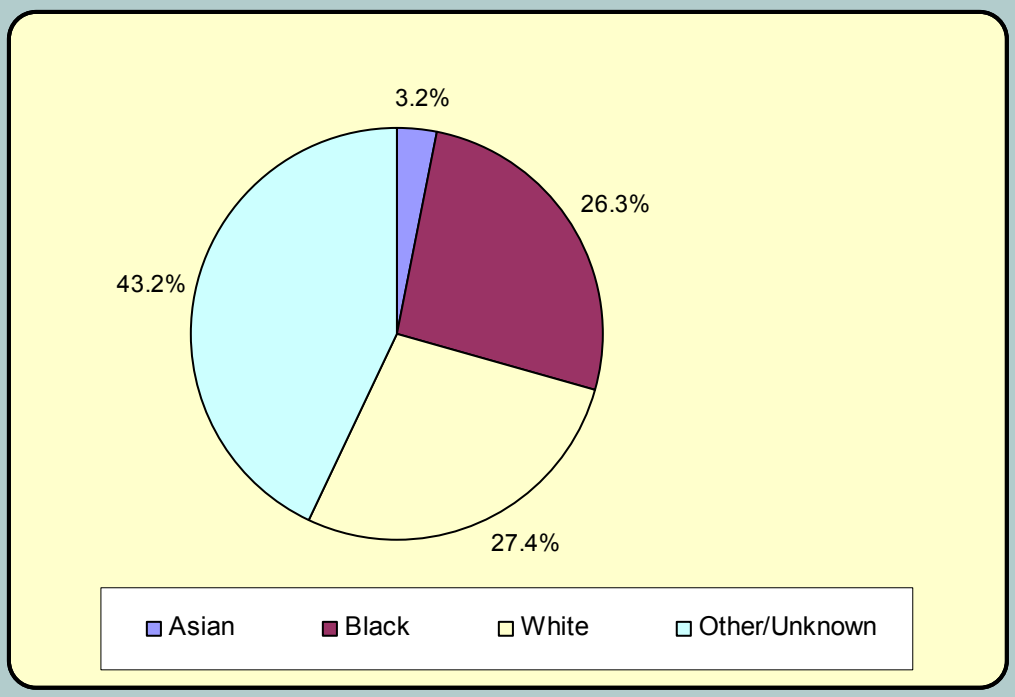
Statewide Trends: Number of Reported New Cases by Race

Race and ethnicity are relatively underreported for lead poisoning cases in Florida. In 2009, the number of reported blood lead test records with complete information for these two variables were 97 percent and 30 percent respectively (not shown). However, race was coded as other on 43 percent of all blood lead test records reported in 2009. It is uncertain if the other category contains unknown races.

Figure 9 illustrates the number of reported new cases by race for 2009. There are three distinct single races that are captured in the lead test reports: Asian, Black/African American, and White.

Of the number of new cases with reported race, 27 percent (n=52) were Whites and 26 percent (n=50) were Black. This finding is inconsistent with national data which indicated that non-Hispanic Black children have the highest BLLs when compared to other racial and ethnic groups (CDC, 2005). Given that there was a large percent of undefined race for 2009, it is not possible to fully assess the impact of lead poisoning by race among at-risk children in Florida.

Figure 9. Number of reported new cases by race, Florida, 2009



Statewide Trends: Number of Reported New Cases by Gender

National data have shown that for children less than 72 months, the difference in BLL between males and females is usually very small (CDC, 2005). Figure 10(a) illustrates the number of reported new cases in Florida by gender for 2009. For 2009, the difference in elevated BLLs (≥10 µg/dL) between males and females was 6 percent. The gender difference observed in 2009 was greater among Whites (12 percent) than Blacks [Figure 10(b)]. It is possible that unknown races were reported in the category coded as "other", therefore the data may not accurately depict the differences among males and females with regards to race.

Figure 10(a). Number of reported new cases by gender, Florida, 2009.

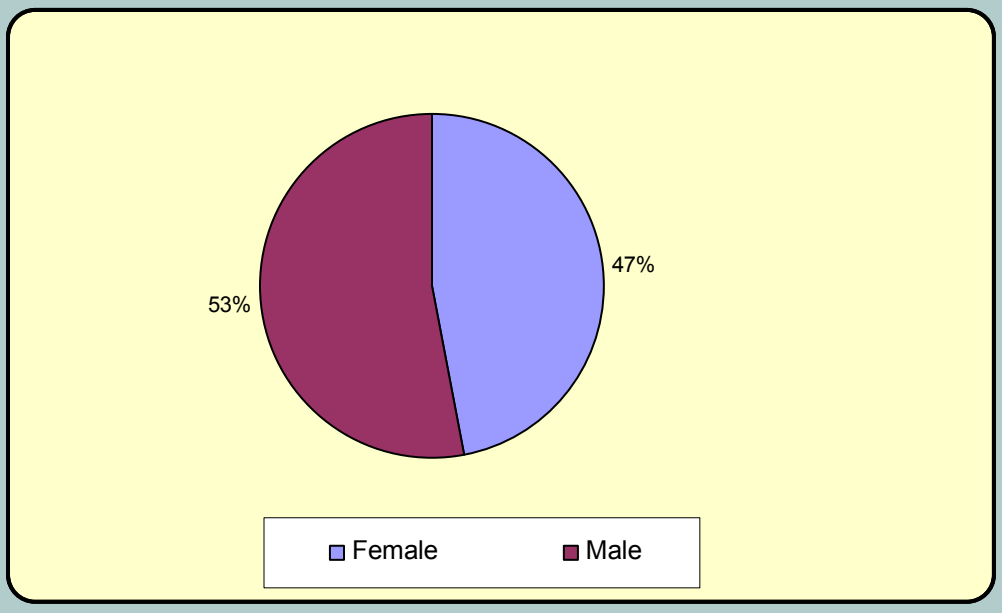
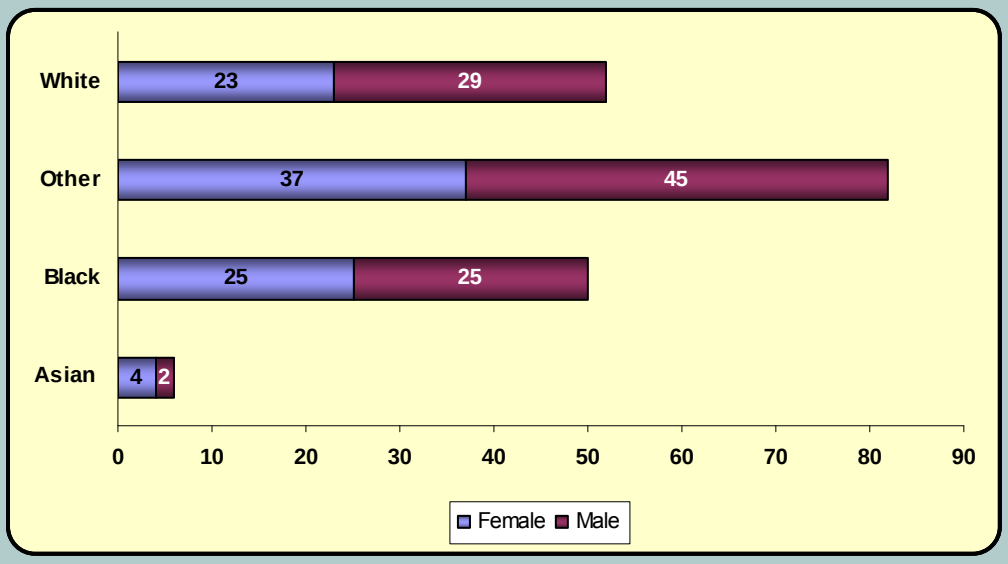


Figure 10(b). Number of reported new cases by gender and race, Florida, 2009



Reported Screenings by County

Table 3. Number of reported screenings among children under 72 months of age by year and county of residence, Florida 2005 to 2009

Overall, the number of screenings for children less than 72 months increased from 2005 to 2009. The highest yearly increase (11 percent) was observed between 2005 and 2006. A increase of 5 percent was also observed between 2008 and 2009. The number of children screened for the six funded CHDs, except Duval, increased in 2009. Other counties such as Bay and Lee also had small increases in screening numbers.

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, general increase in blood lead screening among practitioners, and an improvement in the reporting of children (less than 72 months) screened by practitioners who conduct lead testing.

County	2005	2006	2007	2008	2009
Alachua	2,069	2,127	2,297	2,175	1,705
Baker	134	162	199	130	126
Bay	420	593	728	700	1,033
Bradford	229	300	248	360	440
Brevard	1,648	1,165	1,569	2,049	2,460
Broward	21,298	22,425	23,394	23,481	25,479
Calhoun	17	32	42	49	67
Charlotte	429	555	552	696	645
Citrus	229	244	258	399	484
Clay	732	877	1,017	953	762
Collier	1,790	1,697	1,975	1,609	1,797
Columbia	684	481	487	592	532
Miami-Dade	34,710	38,476	37,599	40,918	41,518
Desoto	251	286	210	277	384
Dixie	231	234	270	258	208
Duval	6,576	6,175	7,496	6,940	5,745
Escambia	878	909	1,676	1,962	2,152
Flagler	400	443	584	526	421
Franklin	113	148	166	132	135
Gadsden	282	244	292	270	232
Gilchrist	227	239	190	206	188
Glades	25	23	38	53	30
Gulf	96	104	119	151	237
Hamilton	186	149	107	99	83
Hardee	495	234	286	674	798
Hendry	604	599	638	846	742
Hernando	207	394	539	768	883
Highlands	392	572	998	1,226	1,452
Hillsborough	9,616	10,224	11,586	11,989	13,797
Holmes	209	193	262	252	198
Indian River	1,425	1,480	1,403	1,552	1,745
Jackson	194	203	254	29	235
Jefferson	48	58	66	71	72
Lafayette	27	42	13	17	31
Lake	1,354	1,895	2,056	2,160	2,041
Lee	2,990	2,979	3,122	4,012	5,440
Leon	1,229	1,544	1,570	1,303	1,068
Levy	407	368	353	444	397
Liberty	12	23	20	27	45
Madison	185	80	36	58	95
Manatee	2,110	2,637	2,882	2,830	2,605
Marion	1,427	1,577	1,410	1,845	1,905
Martin	894	981	1,420	1,294	1,306
Monroe	131	92	161	141	92
Nassau	78	87	116	141	164
Okaloosa	783	706	664	732	910
Okeechobee	398	399	481	509	416
Orange	6,341	7,658	7,688	8,813	9,697
Osceola	1,763	1,954	2,482	2,452	2,135
Palm Beach	10,156	12,910	13,633	14,738	17,006
Pasco	1,990	1,920	2,848	3,493	3,163
Pinellas	3,167	3,246	3,789	4,658	4,752
Polk	5,231	6,853	7,065	7,389	7,015
Putnam	345	410	509	679	454
Saint Johns	236	615	624	325	360
Saint Lucie	1,426	1,975	2,786	3,375	3,653
Santa Rosa	1,044	185	603	330	748
Sarasota	520	1,510	1,584	1,966	2,104
Seminole	1,765	1,020	998	842	945
Sumter	583	568	643	440	400
Suwannee	235	164	224	226	203
Taylor	98	91	105	227	365
Union	78	66	111	95	114
Volusia	1,622	1,463	1,396	1,874	1,653
Wakulla	75	89	105	111	66
Walton	159	109	186	216	241
Washington	108	100	113	165	129
Unknown	121	4,339	913	623	950
Total	135,932	152,700	160,254	170,942	179,453

Lead Poisoning Screening Rate by County

Figure 11: Screening Rate by County, Florida 2009

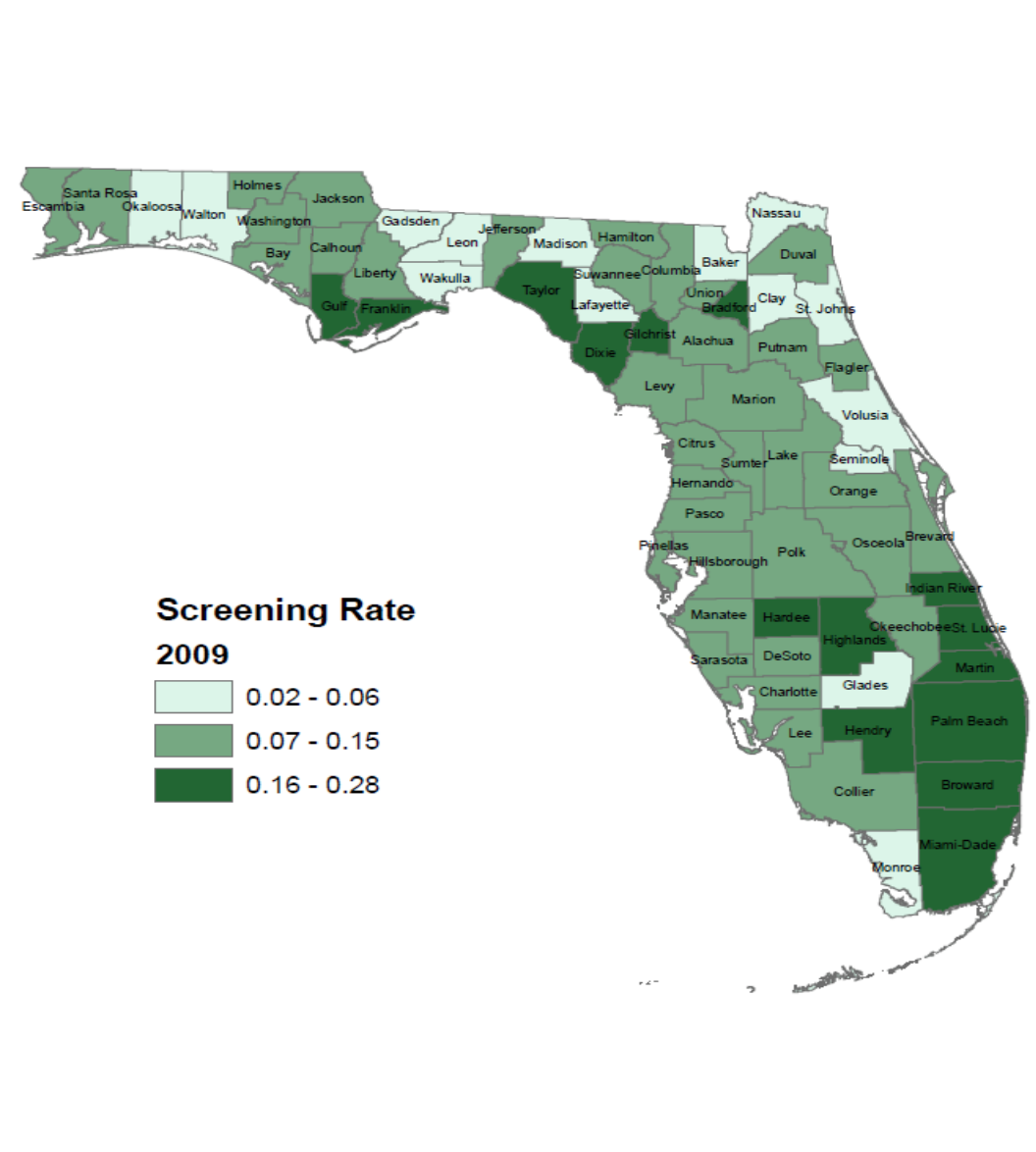


Figure 11 shows the screening rate by county for 2009. The screening rate for each county was determined by dividing the number of children less than 72 months of age who received a blood lead test with the total number of children less than 72 months of age. The population estimates were obtained from the Florida Legislature's Office of Economic Demographic Research data.

There are limitations when using population estimates to calculate the screening rates by county. The estimated population includes the at-risk groups for lead poisoning in addition to the general population and therefore does not accurately characterize the targeted population for lead screening. Use of Medicaid eligibility, refugee status and/or at-risk zip code information would allow for a more accurate assessment of the screening rates among at-risk groups. Data at this level of detail was not available at the time of publication and therefore the rates could not be determined for these high risk groups. It should be noted that the screening rate among the six funded counties ranged from 0.07 in Duval county to 0.21 in Miami-Dade county.

Reported New Cases by County

Table 4. Reported new cases of lead poisoning among children under 72 months of age by year and county of residence, Florida 2005 to 2009.

Overall, there was a significant decline in the number of new cases from 2005 to 2009. A more dramatic decline in the number of reported new cases was observed among four (Broward, Miami-Dade, Duval, and Orange) of the six funded counties. It should be noted that despite this decline, Miami-Dade reported the largest number of new cases for each of the five years.

For 2009, 60 percent (119 cases) of all new cases were reported by the six funded counties. Miami-Dade reported 41 percent (49 cases) of all new cases. However, when compared to 2008, there was a 34 percent decline in the number of reported new cases from the six funded CHDs for 2009.

County	2005	2006	2007	2008	2009
Alachua	1	3	1	2	1
Baker	2	0	0	1	1
Bay	1	4	1	1	2
Bradford	0	0	0	0	0
Brevard	6	0	3	0	3
Broward	22	28	51	21	14
Calhoun	1	0	0	0	0
Charlotte	0	0	1	0	0
Citrus	0	0	1	2	0
Clay	3	0	1	1	1
Collier	5	9	1	3	1
Columbia	4	1	1	1	0
Miami-Dade	92	100	108	89	49
Desoto	1	0	1	2	0
Dixie	2	0	0	0	0
Duval	17	25	29	22	11
Escambia	3	2	4	2	3
Flagler	0	2	0	0	0
Franklin	0	1	0	0	0
Gadsden	0	0	1	1	0
Gilchrist	0	0	0	0	0
Glades	1	0	1	0	0
Gulf	0	0	0	0	1
Hamilton	1	0	0	0	0
Hardee	1	1	1	2	1
Hendry	2	0	2	3	0
Hernando	0	1	0	1	3
Highlands	2	9	3	2	1
Hillsborough	21	40	33	17	17
Holmes	0	0	0	1	1
Indian River	3	0	1	2	1
Jackson	0	0	2	1	1
Jefferson	0	0	1	0	1
Lafayette	0	0	0	0	0
Lake	3	5	1	3	4
Lee	4	11	6	5	4
Leon	5	7	4	0	0
Levy	0	0	0	1	0
Liberty	0	0	0	0	0
Madison	0	1	0	0	0
Manatee	10	11	5	3	3
Marion	7	3	2	1	0
Martin	1	5	2	2	3
Monroe	0	0	1	1	0
Nassau	0	1	0	1	2
Okaloosa	0	2	0	0	1
Okeechobee	0	2	1	1	0
Orange	18	21	24	11	9
Osceola	2	5	0	1	3
Palm Beach	17	19	18	19	19
Pasco	4	2	4	2	4
Pinellas	7	8	6	7	3
Polk	12	23	19	14	3
Putnam	0	1	0	4	3
Saint Johns	1	1	0	1	0
Saint Lucie	7	11	11	3	5
Santa Rosa	1	1	5	1	1
Sarasota	2	6	3	2	1
Seminole	3	5	1	2	0
Sumter	0	0	2	0	1
Suwannee	2	0	0	0	0
Taylor	1	0	0	0	0
Union	0	0	0	0	1
Volusia	5	3	5	7	2
Wakulla	0	0	1	0	0
Walton	1	0	0	1	4
Washington	0	0	0	1	0
Unknown	0	9	5	2	1
Total	304	389	374	274	190

Case Rate per 1,000 Children Screened by County

Figure 12: Case Rate by County Florida, 2009

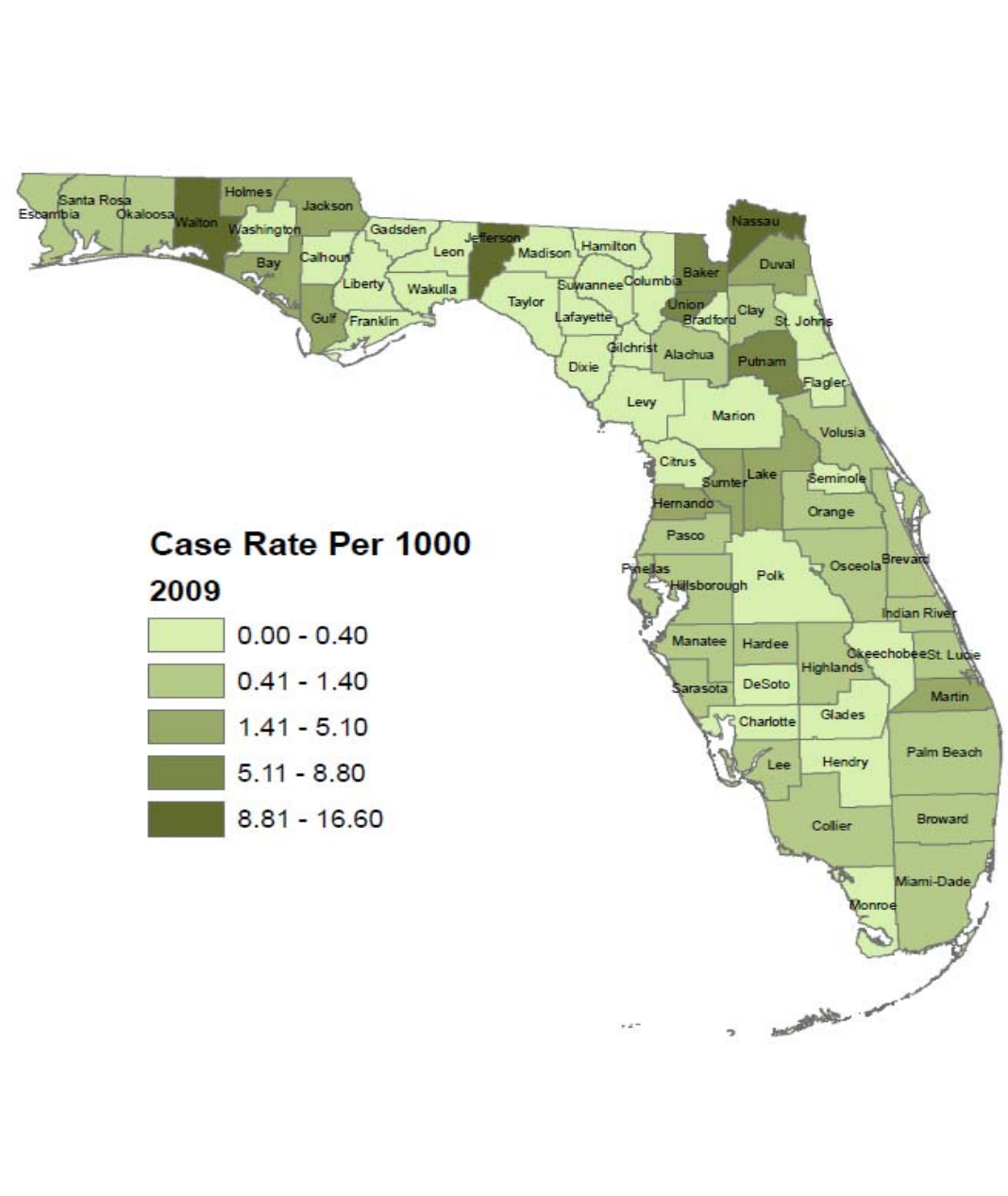


Figure 12 shows the case rate by county for 2009. The case rate was determined by dividing the number of new reported cases with the number of children screened per year for each county. Comparing the case rate between counties may be misleading since it is a crude rate and is affected by the case and screening numbers reported from each county. Smaller counties tend to have lower numbers of at-risk children compared to 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. The screening rates for the six funded counties for 2009 ranged 0.5 (Broward) to 1.9 (Duval) per 1000 screened children. See page 15 for more details.

Reported New and Persistent Cases by County

Table 5. Number of reported new and persistent cases combined among children under 72 months of age by year and county, Florida 2005 to 2009.

There was a decline in the total number of cases from 2005 to 2009. In general, the six funded counties reported 63 percent of cases with 37 percent reported for all other counties combined.

For the six funded CHDs, the number of reported cases declined from 2005 to 2009. The largest decrease in total cases was observed for Miami-Dade and Orange with a decline of 59 percent and 57 percent respectively.

County	2005	2006	2007	2008	2009
Alachua	2	3	1	2	1
Baker	3	0	0	1	1
Bay	1	4	1	1	2
Bradford	0	1	0	0	0
Brevard	6	3	3	0	3
Broward	33	28	51	25	15
Calhoun	1	0	0	0	0
Charlotte	0	0	1	0	0
Citrus	0	1	1	2	0
Clay	3	15	1	1	1
Collier	5	9	1	3	1
Columbia	6	7	1	1	0
Miami-Dade	121	100	115	94	50
Desoto	0	0	1	2	0
Dixie	2	0	0	0	0
Duval	23	25	31	25	11
Escambia	3	2	4	2	3
Flagler	0	2	0	0	0
Franklin	0	1	0	0	0
Gadsden	3	0	1	1	0
Gilchrist	0	0	0	0	0
Glades	1	0	1	0	0
Gulf	0	5	0	0	1
Hamilton	1	0	0	0	0
Hardee	1	1	1	2	1
Hendry	2	0	2	3	0
Hernando	0	1	0	1	3
Highlands	2	9	3	2	1
Hillsborough	27	42	35	21	19
Holmes	0	0	0	1	1
Indian River	5	0	1	2	1
Jackson	0	0	2	1	1
Jefferson	0	1	1	0	1
Lafayette	0	0	0	0	0
Lake	4	10	1	3	4
Lee	5	11	7	5	5
Leon	6	12	5	0	0
Levy	0	3	0	1	0
Liberty	0	1	0	0	0
Madison	0	3	0	0	0
Manatee	10	11	5	3	3
Marion	7	3	2	1	0
Martin	1	7	2	2	0
Monroe	0	0	1	1	4
Nassau	0	1	0	1	2
Okaloosa	0	2	0	0	1
Okeechobee	0	2	1	1	0
Orange	21	21	27	12	9
Osceola	2	5	1	1	3
Palm Beach	23	19	21	22	21
Pasco	5	2	4	3	5
Pinellas	9	8	7	8	3
Polk	17	23	19	15	3
Putnam	0	1	1	4	3
Saint Johns	2	1	0	1	0
Saint Lucie	9	11	14	5	5
Santa Rosa	1	1	5	1	1
Sarasota	3	6	3	2	1
Seminole	5	5	2	2	1
Sumter	1	0	2	0	1
Suwannee	2	0	0	0	0
Taylor	1	0	0	0	0
Union	0	0	0	0	1
Volusia	5	3	5	7	2
Wakulla	0	0	1	0	0
Walton	1	0	0	1	4
Washington	0	0	0	1	0
Unknown	0	9	5	3	1
Total	391	441	400	299	200

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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 and Healthy Homes 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 and Healthy Homes Program.

LeadCare II Analyzer: A portable device that is waived under the Clinical Laboratory Improvement Amendment (CLIA) to perform blood lead testing based on a capillary blood draw.

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

Test: Any blood lead sample type (i.e. capillary, venous, or unknown) 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: A case with a blood lead concentration greater than or equal to 10µg/dL that was drawn from a single venous specimen or from two capillary specimens 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 confirmed case.

Persistent Case: A case confirmed during a previous year and whose blood lead level remains 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 Legislature’s Office of Economic Demographic Research).

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