

Childhood Lead Poisoning in The City of St. Louis



Annual Report 2006

City of St. Louis
Department of Health
Childhood Lead Poisoning Prevention Program

Statistics at a Glance

City of St. Louis Childhood Lead Poisoning Surveillance 2004-2006

Demographics	2004		2005		2006	
2000 Census population, children < 6 years of age St. Louis, Missouri	28,369		28,369		28,369	
St. Louis City Children Screened	13,249		11,227		12,779	
Percent eligible screened	46.7%		39.6%		45.0%	
Mean age in years	2.8		3.0		3.0	
Male:Female Ratio	1.03		1.03		1.04	
Race (%)						
African American	5,601	42.3%	8,067	71.9%	9,147	71.6%
White	636	4.8%	2032	18.1%	2,300	18.0%
Asian	101	0.8%	157	1.4%	207	1.6%
Native American	12	< 0.1%	< 10	< 0.1%	10	0.1%
Pacific Islander			< 10	< 0.1%	< 10	< 0.1%
Multiracial	< 10	< 0.1%	-	-	52	0.4%
Other	112	0.8%	-	-	420	3.3%
Race Missing	6,780	51.2%	961	8.6%	642	5.0%
Lead Poisoning, City of St. Louis						
Blood lead level units are based on micrograms per deciliter (µg/dl)	2004		2005		2006	
Prevalent Cases (Pb ≥ 10 µg/dl)	1,189		1,025		892	
Screening Prevalence Rate (%)	9.0%		9.1%		7.0%	
Incident Cases (Pb ≥ 10 µg/dl)	629		406		512	
Screening Incidence Rate (%)	5.5%		4.0%		4.3%	
Case Distribution						
CDC I (Pb < 10)	12,060	91.0%	10,202	90.9%	11,887	93.0%
CDC II (Pb = 10-19)	1,005	7.6%	842	7.5%	769	6.0%
CDC III (Pb = 20-44)	169	1.3%	170	1.5%	120	0.9%
CDC IV (Pb = 45-69)	14	0.1%	10	0.1%	2	< 0.1%
CDC V (Pb ≥ 70)	1	< 0.1%	3	< 0.1%	1	< 0.1%
State of Missouri Screening Prevalence Rate	3.0%		2.8%		2.2%	
U.S. Estimated Prevalence Rate (NHANES 1999-2002)	1.6%		1.6%		1.6%	

Note: Screening Prevalence and Incidence rates are based on the number of children screened not on the actual population (SPR=total number of cases out of the total number screened; SIR=number of new cases for the year out of the number of children that either were not previously screened or previously had a blood lead level below 10 µg/dl).

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The 2006 CLPPP Annual Report can be downloaded from:
<http://stlouis.missouri.org/citygov/health/reportslead.html>

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Executive Summary

Approximately 310,000 U.S. children aged 1-5 years have blood lead levels greater than the Centers for Disease Control (CDC) recommended level of 10 micrograms of lead per deciliter ($\mu\text{g}/\text{dl}$) of blood (NHANES 1999-2002 survey).

Lead poisoning can affect nearly every system in the body. Because lead poisoning often occurs with no obvious symptoms, it frequently goes unrecognized. Lead poisoning can cause learning disabilities, behavioral

problems, and at very high levels, seizures, coma, and even death.

The major source of lead exposure among U.S. children is lead-based paint and lead-contaminated dust found in deteriorating buildings. Lead-based paints were banned for use in housing in 1978. However, approximately 24 million housing units in the United States have deteriorated lead paint and elevated levels of lead-contaminated house dust. More than 4 million of these dwellings are home to one or more young children.

Childhood Lead Poisoning in the City of St. Louis, 2006

More than 90% of the housing stock in the City of St. Louis was built before 1978 when lead-based paints were banned. This puts residents in the City of St. Louis, especially children, at great risk for being lead poisoned.

In order to identify children with lead poisoning, the City of St. Louis Department of Health (Health Department) has a surveillance system in place to track the number of children less than 6 years of age screened for lead poisoning in the City each year and their blood lead results. In 2006, 45% of city children less than 6 years of age were screened for lead poisoning. Based on the Missouri Lead Testing Plan updated by the Missouri Department of

Health and Senior Services in 2004, 100% of children under the age of 6 should be screened for lead poisoning annually. The City of St. Louis still has some hurdles to overcome in order to achieve this goal. Even though the primary responsibility for screening children under 6 years of age falls on the private providers, the Health Department's role is to ensure that children in the City of St. Louis are being screened. Of the 12,779 children screened for lead poisoning in 2006, 892 (7.0%) had a blood lead level of 10 $\mu\text{g}/\text{dl}$ or greater, which is the CDC's definition of lead poisoning.

Profile of Lead-Poisoned Children in the City of St. Louis, 2006

Age is an important indicator of lead poisoning among children less than 6 years of age. Children under the age of 1 typically have lower rates of lead poisoning than children over the age of 1. Children 1 year and up are more

mobile, they tend to put things in their mouths and they have poor hygiene, which can all contribute to lead poisoning. In 2006, 6.9% of the 1 year olds screened for lead poisoning had a blood lead level of 10 $\mu\text{g}/\text{dl}$ or greater.

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This is less than the screening prevalence rate for children two years of age (11.3%). Two year olds are more active than 1 year olds and once a child is poisoned, the lead remains in their body so if a child has an elevated blood lead level when they are 1 year of age they may still have an elevated level at 2 years of age. Repeated exposure to lead can also contribute to a child continually being poisoned.

In and of itself, race is not an indicator of childhood lead poisoning (CLP). However, other risk factors such as poverty, poor housing stock and poor access to medical care are higher among minorities and these factors contribute to CLP. In 2006, 71.6% of the children screened and reported to the Health Department were African American. African American children account for

84.4% of all lead poisoned children in 2006.

Where a child lives in the City of St. Louis can also play a role in their exposure to lead. Some areas of the City have older more poorly maintained housing stock than others. When examining lead poisoning in the City it is important to look within geographic boundaries (ZIP code, ward, neighborhood and census tract) to determine the high risk areas of the City. In 2006, the ZIP codes with the highest screening prevalence rates are: 63107, 63120, 63118, 63113, 63112 and 63115. The wards with the highest rates are: 3, 4, 20, 22 and 18, and the neighborhoods with the highest rates are: Hyde Park, Fairground Neighborhood, Hamilton Heights, Academy and Walnut Park East.

St. Louis City's Childhood Lead Poisoning Prevention Program, 2006

The Childhood Lead Poisoning Prevention Program (CLPPP) is located in the City of St. Louis Department of Health and it functions to maintain the blood lead screening surveillance system and perform lead poisoning prevention activities. The CLPPP offers blood lead screenings to children under 6 years of age, case management and risk reduction services, and coordinates educational workshops for parents, daycares, schools, community organizations and health professionals. In 2006, the Health Department screened 1,602 children and presented

at 212 educational events. The Lead Inspection and Hazard Control Section of the Building Division coordinates with the CLPPP and offers environmental investigations and remediation support. The unit consists of certified lead hazard inspectors, certified lead abatement workers and data entry clerks. In 2006, the unit identified 437 units with lead violations and remediated 135 properties out of the 405 remediated by various programs.

Lead Safe St. Louis

The Lead Safe St. Louis (LSSL) Program was initiated in November 2003 when Mayor Francis G. Slay announced the City's new "Comprehensive Action Plan for the Eradication of Childhood Lead Poisoning in St. Louis By 2010."

In 2006, LSSL sponsored several educational and training events and received additional funds from HUD. Also, the City has introduced two new primary prevention remediation and window replacement programs to assist multi-family buildings become lead-safe.

Introduction

Although rates have dropped in the last few years, childhood lead poisoning (CLP), defined as a blood lead level of greater than or equal to 10 micrograms per deciliter (µg/dl) in children less than 72 months of age, remains a problem in the City of St. Louis. The percentage of screened children found to have elevated blood lead levels is substantially higher in the City of St. Louis (7.0%) than in the State of Missouri (2.2%) and the rest of the nation (1.6%). In 2006, CLP in the City of St. Louis accounts for

47.1% of all lead poisoned children in the State of Missouri (892/1894).

Since 1996, the City of St. Louis Department of Health (Health Department) has published annual reports on lead surveillance data and related program activities. The purpose of these reports is to inform residents, caregivers, health care providers and policy makers of the presence of CLP in the City of St. Louis so they can take the necessary steps to address this problem.

Screening Guidelines

It is important to detect and treat lead poisoning at a young age to mitigate the impact of CLP on a child. In 2006,

screening for CLP in the City of St. Louis follows guidelines contained in the Missouri Lead Testing Plan (Table I).

Table I
Missouri Lead Testing Plan (updated in 2004)

Devised by the Missouri Department of Health and Senior Services (DHSS)

High-Risk Areas	Non-High Risk Areas
<ul style="list-style-type: none"> • Any <u>child under the age of six years</u> living in or visiting for 10 hours per week or more, the high-risk area, <u>will be tested annually</u> for lead. • Daycare facilities are required to record a "<u>proof of lead testing</u>" signed by the Health Care Provider performing the test <u>within thirty (30) days of the child's enrollment</u>. If the parent/guardian does not provide it or a written statement stating why they do not want the child tested, the daycare facility is to offer the parent assistance in scheduling a test. • Any <u>child found to be at High-Risk</u>, is living in a residence that was built before 1978, and is <u>undergoing renovation, may be tested every six months</u> and once following completion of the work. (Also applies to children found to be at high-risk in non high-risk areas.) 	<ul style="list-style-type: none"> • Any <u>child under the age of six years</u> visiting for 10 hours per week or more, a high-risk area, <u>will be tested annually</u> for lead. • All <u>Medicaid eligible children</u> will be blood tested for lead at 12 and 24 months of age. It is recommended that all children (regardless of Medicaid eligibility) be <u>tested for lead at 12 and 24 months of age</u>. (This statement does not appear in the law, but applies as HCFA policy and DHSS recommendations.) • Beginning at <u>age six months up to age six years</u> every child will <u>be screened by verbal risk assessment</u> (DHSS/DSS questionnaire) to determine whether they are at high risk. • <u>Every child, less than age six, found to be at high risk, will be tested for lead.</u>

Note: The entire City of St. Louis is considered a high risk area.

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These guidelines incorporate recommendations from the Centers for Disease Control and Prevention (CDC), the American Academy of Pediatrics and the Missouri Medicaid Program, and call for the testing of children less than 72 months of age at least twice between 12 and 24 months of age. Preferably one test is given at 12 months and another test at 24 months.

The City of St. Louis is defined as a high risk area; therefore, all children less than 6 years of age are required to receive an annual blood lead test. A

child's primary health care provider should offer screening as part of their routine care. Such testing permits the early identification of CLP during a child's most vulnerable years. Any child between the ages of 12 and 72 months who has never been tested needs to be tested immediately.

The CDC, the State of Missouri and the City of St. Louis Department of Health all recommend follow-up actions when a child is found to be lead poisoned (Table 2). The Health Department provides many of these follow-up actions.

Table 2
CDC Classification of Childhood Lead Poisoning and Follow-up Actions

CDC Class	Blood Lead Level (µg/dl)	CDC/State Recommended Actions
Class I	< 9	No action, acceptable risk
Class II	10-19	Risk reduction education
Class II (After repeat test)	15-19	Risk reduction education, environmental investigation, case management
Class III	20-44	Risk reduction education, environmental investigation, case management
Class IV	45-69	Chelation therapy and same as Class III actions
Class V	≥ 70	Two drug chelation and same as Class III actions

The CLPPP offers case management and risk reduction education for uninsured

children who have blood lead levels of 10 µg/dl or greater.

Surveillance of Childhood Lead Poisoning

The City of St. Louis Department of Health collects and analyzes all reports of blood lead tests performed on children under the age of 6 living in the City of St. Louis. State regulation and local code require the reporting of all blood lead test results whether elevated or not to the local health department.

The Health Department is responsible for the daily entry of lead test results for those children who reside in the City into **Missouri Health Strategic Architectures and Information Cooperative (MOHSAIC)**, which is a statewide database created and maintained by the Missouri Department of Health and Senior Services to centralize surveillance data.

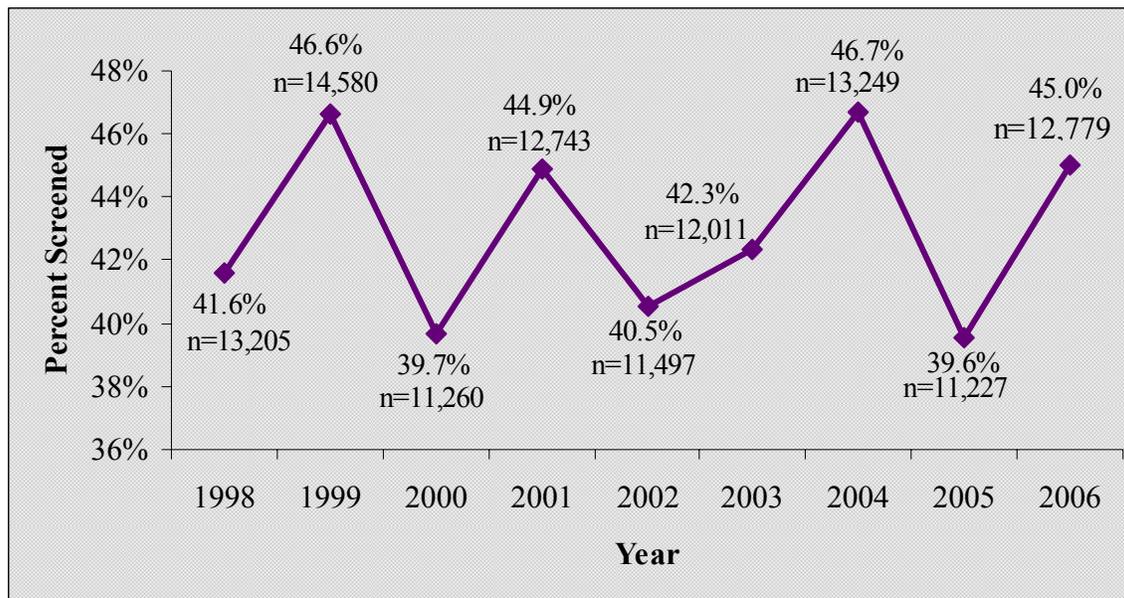
Childhood Lead Poisoning in the City of St. Louis, 2006

Screening for Lead Poisoning

In 2006, 45.0% (12,779/28,369) of St. Louis City children less than 6 years of age were screened for lead poisoning (Figure 1). The rate of children screened increased in 2006 after decreasing in 2005. Based on the Missouri Lead Testing Plan, all St. Louis City children under the age of 6 should

be tested annually for lead poisoning. This means that all estimated 28,369 children under the age of 6 should have been tested in 2006 and that 55% of these children are not being tested according to the recommended timeframe.

Figure 1
Children Screened for Lead Poisoning, City of St. Louis 1998-2006



Health Providers of Lead Screenings

A substantial drop in the number of children under 6 screened for lead was detected early on in 2005. This decrease in screenings led to the implementation of the Physician Outreach Program. Lead Safe St. Louis trained 13 teams to educate and encourage physicians to screen children

under the age of 6 for lead poisoning. This program seems to have had some positive outcomes as screening numbers across all areas increased in 2006 (Table A-1). This is an encouraging trend as increasing awareness and education about childhood lead poisoning continues to grow.

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Blood Lead Test Results

The screening prevalence rate (SPR) of CLP is the number of children screened with blood lead levels $\geq 10 \mu\text{g/dl}$ out of the total number of children screened. It includes those who test elevated for the first time (incident cases) and those with elevated test results from prior screenings. It is difficult to reduce the lead body burden in children, especially if continued exposure occurs. Once poisoned, children can maintain elevated levels for some time unless aggressive measures are taken. The screening incidence rate (SIR) is the number of

new cases of lead poisoning out of the number of children being tested for the first time plus the number of children that had previously tested negative.

The City of St. Louis began to see a marked decrease in the number of children poisoned by lead in 2001. Between 2001 and 2003, the number of cases each year leveled out. 2004 was marked by another substantial decrease in SPR, followed by another leveling out in 2005 and finally a modest decrease again in 2006 (Figure 2 and Table A-2).

Figure 2
Children Less Than 6 Years of Age Diagnosed with Lead Poisoning,
City of St. Louis 1996-2006

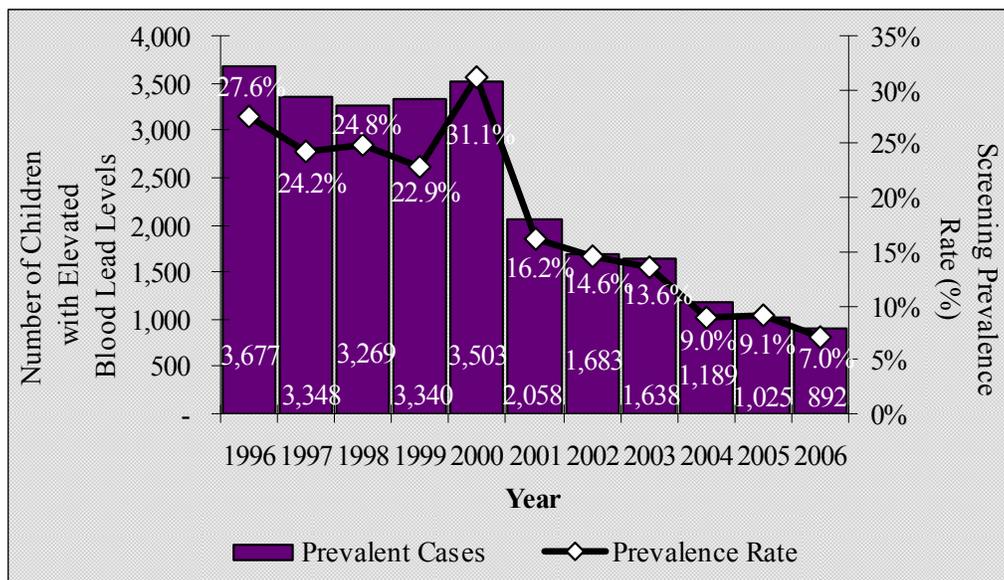
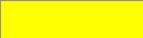


Figure 3
Testing Ratios of Children Screened,
City of St. Louis, 2006

ZIP	Testing	
	Ratio	SPR
63106	1.30	4.1
63112	1.29	9.4
63147	1.22	4.5
63107	1.21	14.4
63113	1.18	9.4
63118	1.12	9.6
63103	1.12	5.2
63115	1.10	9.2
63111	1.08	5.1
63120	1.06	10.3
63108	1.00	9.0
63104	0.92	4.0
63116	0.87	4.7
63110	0.80	7.4
63139	0.60	1.5
63109	0.56	1.7

	disproportionally testing more children
	proportional testing of children
	disproportionally testing fewer children

Because designated high-risk areas of the City are consistently targeted for lead screening, more children are screened who have elevated blood lead levels (Figure 3). Figure 3 represents a ratio, demonstrating where CLP screenings occur proportional to the population of the ZIP code. It can be interpreted as follows: the 63112 ZIP represents 8.0% of all lead screenings in 2006, but only 6.2% of the City's population under 6 years of age. Thus, the ratio of 1.29 means that proportional to its population, more screenings occur in 63112.

This table sheds light on a few important points regarding screening and childhood lead poisoning in St. Louis in general. First, it shows that, by and large, children are screened with greater frequency in ZIP Codes that have higher screening prevalence rates. Second, it can be reasonably inferred that if 100% of children in the City were screened, the screening prevalence rate would be considerably lower as a greater proportion of the children that have not yet been screened for lead poisoning reside in ZIP Codes with significantly lower prevalence rates.

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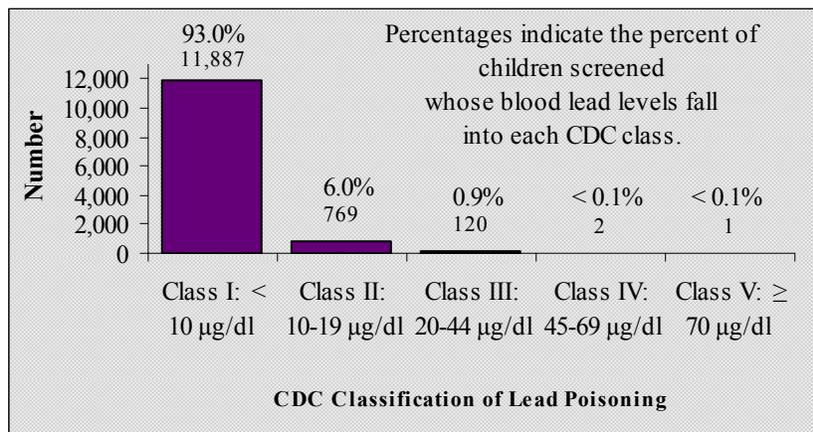
Severity of Lead Poisoning

The majority of the children screened in 2006 (93.0%) (Figure 4), have test results below 10 µg/dl, the level at which a child is considered lead poisoned. The rest of the children screened either fall into the second class with blood lead levels between 10-19 µg/dl or in the third class with blood lead levels between 20-44 µg/dl.

In 2006, 892 or 7.0% of all children tested have elevated blood lead levels (Figure 4). Of the 12,779 children screened in 2006, 6.0% are in Class II (10-19 µg/dl); 0.9% in Class III (20-44

µg/dl), and less than 0.1% in Class IV (45-69 µg/dl) and Class V (≥ 70 µg/dl) (Figure 4). Despite the fact that most lead poisoned children are in the lowest CDC Elevated Class, these figures are alarming since even these low levels of blood lead can have an adverse impact on a child's development. Determining the acceptable level of lead in a child's blood has been a source of debate. Some experts state that no level of lead is acceptable and that the CDC should lower the threshold of 10 µg/dl currently defining lead poisoning.

Figure 4
Case Distribution of all Children Screened, City of St. Louis 2006



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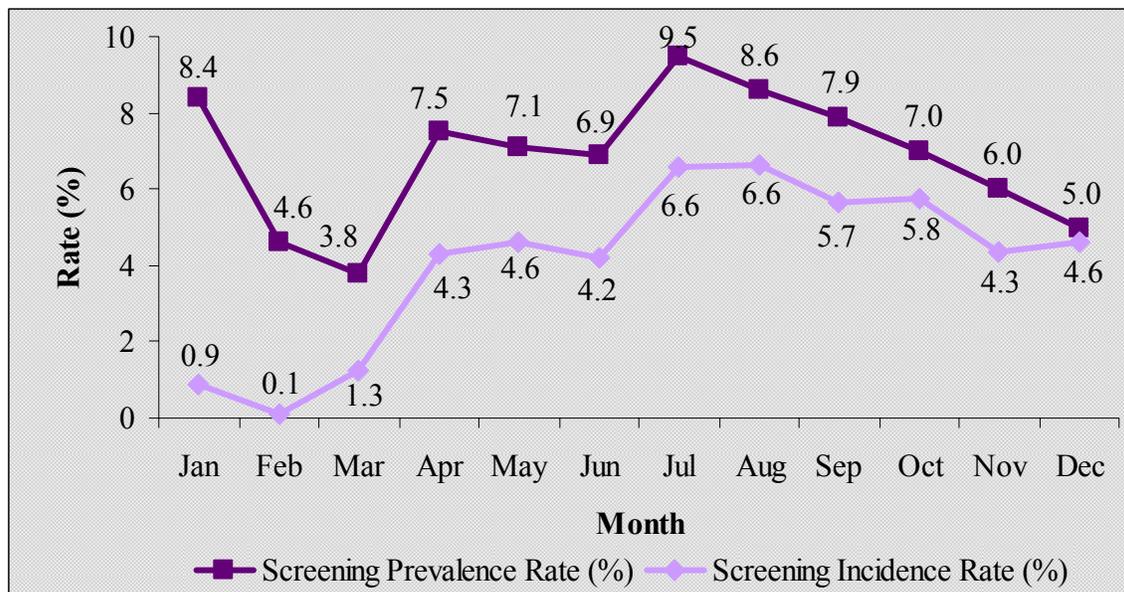
Seasonality and Lead Poisoning

Higher screening prevalence and screening incidence rates are traditionally seen in the summer months and into the fall of the year (Figure 5). In 2006, the peak occurs in July. For the most part, the rates remain fairly consistent throughout the year with increases reported in April and July and decreases as the seasons turn colder (Figure 5). All months saw new

(incident) cases of lead poisoning and, by and large, the incidence rate reflects the same trends as the prevalence rate.

Regardless of increased screening during the peak months, the increase in cases found may be due to greater exposure during these months to contaminated soil while playing outside or from soil being tracked in from the outside.

Figure 5
Seasonal Variation in Screening Prevalence and Screening Incidence Rates, City of St. Louis 2006



Profile of Lead Poisoned Children in the City of St. Louis, 2006

Screening by Age

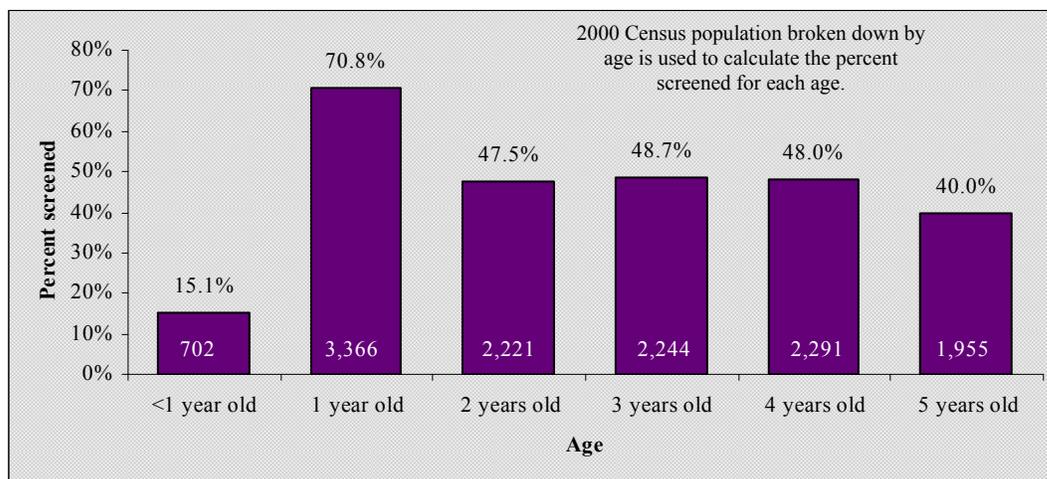
Looking within age groups, the highest screening rate (70.8%) is for children 1 year of age (Figure 6). This is the age at which the first recommended screening should occur. A similar peak in screenings should appear in the 2-5 year old populations indicating that children are being consistently screened on an annual basis. However, screening appears to drop off once a child reaches 1 year of age.

Ideally, screening rates would not decline so dramatically in a child's later years. In an effort to educate the public and physicians, the St. Louis City Health Department conducted a retrospective cohort study in 2006 to determine the percentage of children retested in later years after an initial test of less than 10 µg/dl at age 2. The impetus for the study was derived from the concept that many physicians think that if a child is not poisoned at the age of 2 (the age

with the highest SPR), they would likely not be poisoned in subsequent years. Hence, physicians would not be as likely to retest those children.

The study yielded some interesting findings. The initial cohort (n=1473) consisted of children between the ages of 20-28 months old who were screened for lead in 2002 and were not poisoned. The study followed those children through 2005 and found that 900 (61.1%) of those children were retested at least once in the 3 years following their initial "negative" test; and of those 900 children retested, 8.1% of them (73) had a later screening that yielded a test greater than 10 µg/dl. These findings are important because they show that even though a child is not poisoned at the age of greatest risk, they are still at risk for being lead poisoned in later years.

Figure 6
Children Tested for Lead Poisoning by Age, City of St. Louis 2006



Lead Poisoning Within Age Groups

The highest age-specific SIR in 2006 is 7.1% among the 2 year olds screened for lead poisoning (Figure 7). The identification of incident cases in this 'second testing cohort' of older children may be due to the failure of health care providers to fully implement screening recommendations at younger ages or the increased activity of 2 year olds.

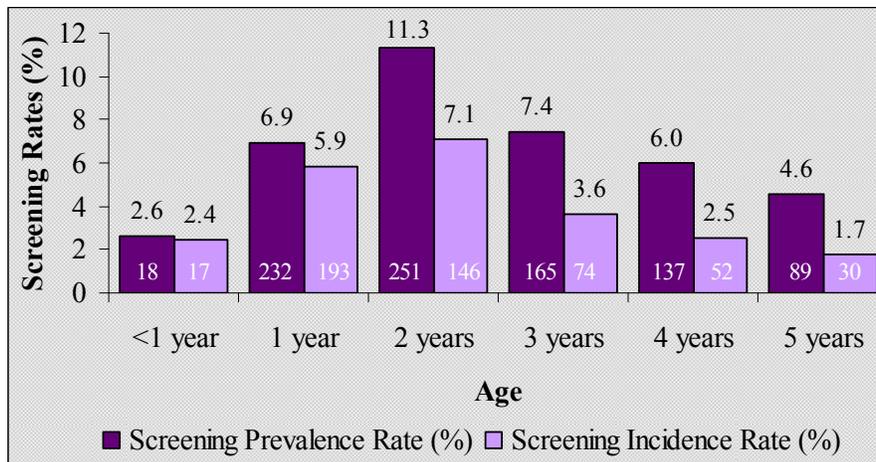
Children 2 years of age also have the highest SPR (11.3%) in 2006 (Figure 7). These children are more active in exploring their environments and also have poor hand-washing skills. The SPR rate stays relatively high through the rest of the age groups greater than or equal to 3 years of age. The longer a child remains elevated the greater the risk of long term damage to their development.

The SPR for children 1 year of age decreased in 2006 with a reported rate of 9.0% in 2005 and a rate of 6.9% in 2006 (Figure 7), indicating that fewer

children at this age are being lead poisoned. There are still fewer children being poisoned at this age than at 2 and 3. Children at 1 year of age are less mobile than children at 2 and 3 years of age. Two and 3 year olds may also have higher screening prevalence rates than 1 year olds because lead stays in a child's blood stream and is difficult to get rid of once a child becomes poisoned. Therefore, it is important to also look at the screening incidence rate, which only includes the new cases of lead poisoning. The SIR for 2 year olds (7.1%) is still higher than that for 1 year olds (5.9%), but it does begin to decrease for 3 year olds (3.6%) and continue to recede in 4 and 5 year olds (Figure 7).

The screening prevalence and incidence rates for children less than 1 year of age are almost identical (Figure 7). Children at this age are young enough that they have rarely been tested before.

Figure 7
Prevalent and Incident Cases of Lead Poisoning by Age,
City of St. Louis 2006



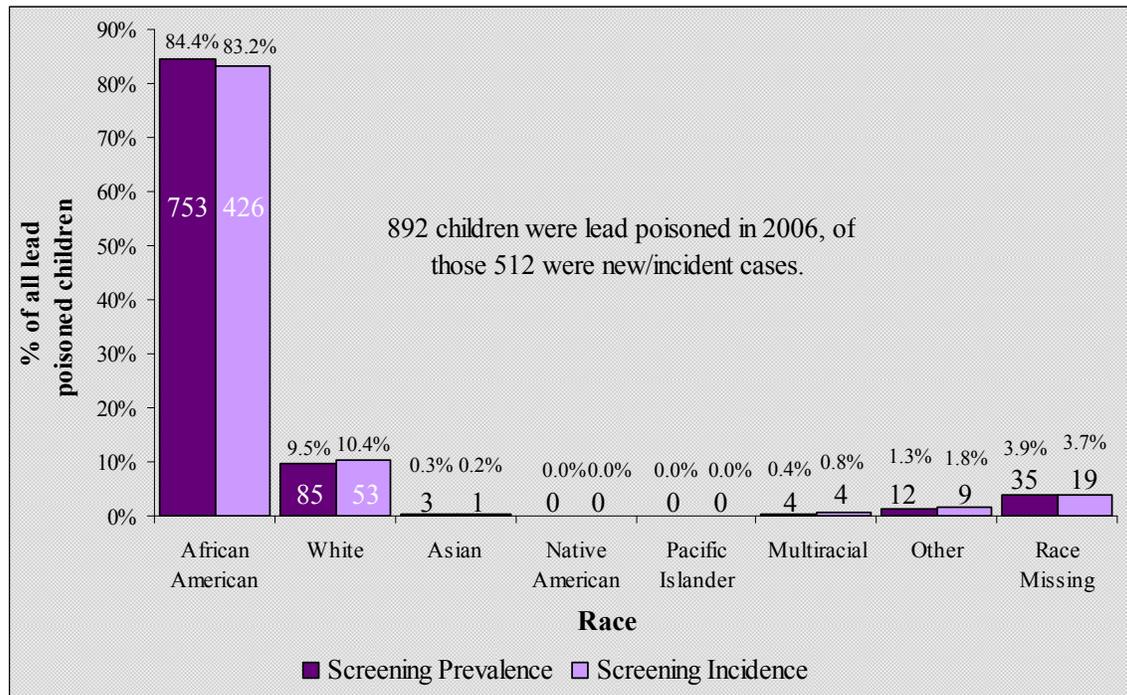
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Race and Lead Poisoning

In and of itself, race is not an indicator of CLP. However, other risk factors such as poverty, poor housing stock and poor access to medical care as well as poor quality medical care are higher among minorities and these factors

contribute to CLP. In 2006, almost 72% of the children screened and reported to the Health Department were African American. African American children account for 84.4% (753/892) of all lead poisoned children in 2006 (Figure 8).

Figure 8
Cases of Lead Poisoning by Race, City of St. Louis 2006



Gender and Lead Poisoning

Nearly even numbers of males and females were tested for CLP in 2006. Females make up 49% of children tested in 2006 while males make up 51%.

Males were slightly more likely to be lead poisoned (SPR=7.2%) than females (SPR=6.7%) in 2006 (Table A-3).

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Lead Level History of Children Screened in 2006

Of those children in 2006 who tested < 10 µg/dl, 4.7% or 556 (Table 3) had an elevated blood lead level in the past. Of those children who had a blood lead level ≥ 10 µg/dl in 2006, 42.6% or 380 (Table 3) previously had an elevated blood lead level. 20.5% of children with elevated blood lead levels (183/892)

never had an elevated blood lead level before 2006 and 36.9% (329/892) were tested for the first time in 2006 (Table 3). These numbers indicate both a problem of chronic lead poisoning in St. Louis City children and a substantial risk for children living in the City to become poisoned.

**Table 3
CDC Class by Lead Level History, City of St. Louis 2006**

CDC Classes Not Elevated	Screened for first time		Children Screened in Previous Years				Total screened
			Never elevated		Previously elevated		
	N	%	N	%	N	%	
Class I < 10 µg/dl	5,870	49.4	5,461	45.9	556	4.7	11,887
CDC Classes Elevated	Screened for first time		Children Screened in Previous Years				Total screened
			Never elevated		Previously elevated		
	N	%	N	%	N	%	
Class II 10-19 µg/dl	285	37.1	158	20.5	326	42.4	769
Class III 20-44 µg/dl	41	34.2	25	20.8	54	45.0	120
Class IV 45-69 µg/dl	2	100.0	0	0.0	0	0.0	2
Class V ≥ 70 µg/dl	1	100.0	0	0.0	0	0.0	1
Classes II through V	329	36.9	183	20.5	380	42.6	892

Geography and Lead Poisoning

The use of geography in lead surveillance assists the Health Department in developing targeted programs in high prevalence areas. It also allows for the analysis of the CLP problem on a smaller, more local scale.

Maps can help local leaders understand the problem as it affects their community and motivate them to develop, promote and participate in prevention activities.

ZIP Code

The ZIP codes were sorted and ranked by the SPR to determine which ZIP codes have the highest prevalence of lead poisoning in 2006. The number of prevalent cases and population under 6 were also taken into account when sorting the ZIP codes. The 5 ZIP codes with the highest SPRs in 2006 are: 63107 (14.4%), 63120 (10.2%), 63118 (9.6%) and 63113 and 63112 tied at 9.4% (Table A-4). Several of these ZIP

codes were also reported as having the highest prevalence in 2005 and most of these ZIP Codes continue to have among the highest occurrences of new cases (incidence) in 2006. For a visual representation of the screening prevalence rates by ZIP code in 2006 refer to Maps B-1 and B-2 on pages 37 and 38.

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Ward

Screening rates by ward range from 18.1% to 85.2% in 2006 (Table A-5). The 5 wards with the highest SPRs in 2006 are: Ward 3 (14.5%), Ward 4 (11.6%), Ward 20 (10.7%), Ward 22 (10.5%) and Ward 18 (10.0%) (Table A-5). With the exception of Ward 22,

these wards also had the highest SPRs in 2005 and have among the highest screening incidence rates in 2006. For a visual representation of the screening prevalence rates by ward in 2006 refer to Maps B-3 and B-4 on pages 39 and 40.

Neighborhood

Neighborhoods were ranked by screening prevalence rate to determine which neighborhoods had the highest prevalence of lead poisoning. Ranking also took into account the number of prevalent cases and the population under 6. Grouping children by neighborhood creates small sub-groups; therefore, some neighborhoods appear to have high SPRs when they only have a few cases of lead poisoning and small population size. These neighborhoods were not included in the ranking of neighborhood by SPR. The five neighborhoods with the highest SPRs in 2006 are: Hyde Park (15.8%), Fairground Neighborhood (15.4%),

Hamilton Heights (14.1%), Academy (14.1%) and Walnut Park East (13.4%) (Figure 9 and Table A-6). These neighborhoods also have some of the highest SIRs in 2006. The top 20 neighborhoods with the highest screening prevalence rates in 2006 are graphically represented in Figure 9.

Neighborhood boundaries identify smaller areas for prevention and control than ZIP code. For a visual representation of the screening prevalence rates by neighborhood in 2006 refer to Maps B-5 and B-6 on pages 42 and 43.

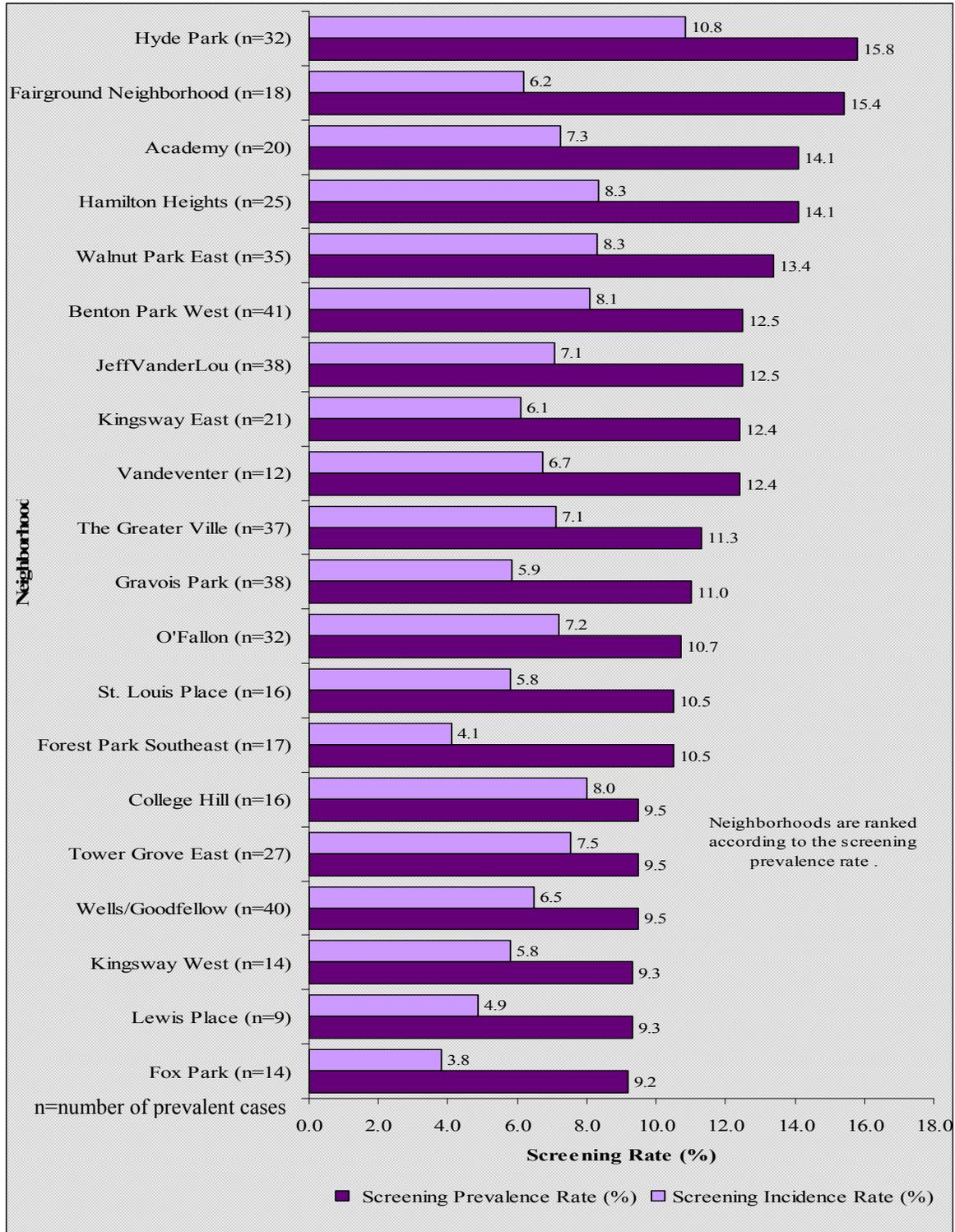
Census Tract

The 5 census tracts with the highest SPRs in 2006 are: 110400 (21.6%), 111400 (17.4%), 112200 (16.9%) 120200 (16.7%), and 125600 (16.3%) (Table A-

7). Data on housing broken down by census tract are available from the 2000 Census and the City Assessor's Office.

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Figure 9
Elevated Blood Lead Level Screening Prevalence and Incidence Rates for the 20
Neighborhoods with the highest SPRs, City of St. Louis 2006



St. Louis City's Childhood Lead Poisoning Prevention Program and Lead Inspection and Hazard Control, 2006

Lead Poisoning Prevention and Control Activities

The primary role of the Health Department is to ensure that primary care providers are providing routine lead screenings according to the Missouri Lead Testing Plan and ensure that children with elevated blood lead levels receive appropriate follow-up. However, the Health Department also offers screenings. In 2006, the Health Department offered blood lead screenings in the Childhood Lead Poisoning Prevention Clinic and organized off-site screenings in the community. Off-site screenings include: health fairs, daycare centers, schools and neighborhood outreach. The Health Department screened 1,602 children or 12.5% of all children tested in 2006 (Table A-1), which is more than the number screened in 2005 when the Health Department screened 1,388 (12.4%) children. The Health Department identified 70 lead poisoned children (Table A-1), 7.8% of all children found with CLP in 2006. Out of the 3 Health Department screening sites, the lead clinic identified the most cases (n=41, SPR=14.5%) (Table A-1).

The lead clinic is where blood lead tests are performed to verify cases of childhood lead poisoning and to monitor a child's progress throughout the many months it may take for their blood lead level to drop and remain below 10 µg/dl. This clinic is also the repository of testing and case management files for all children reported with an elevated blood lead test. In 2006, the Clinic provided lead

testing for 283 children (Table A-1). These are children who were referred in for additional testing by an outreach worker, case manager or their primary care provider.

Beyond the provision of testing at off-site events, outreach workers provide one-on-one education to parents and care providers. They also educate on the ways to prevent childhood lead poisoning and on the resources available to families with a lead poisoned child. The CLPPP has many educational brochures available in other languages to address the influx of immigrants and refugees into the City of St. Louis.

The Health Department also staffs a full-time social worker who visits families in their homes and provides additional information and assistance. One of the programs carried out by the social worker is the High-Efficiency Particulate Air (HEPA) Vacuum Loan Program. A HEPA vacuum is different than a regular household vacuum in that it contains a special filter that is able to trap very fine dust particles, such as lead dust, that are too small to see. Through the HEPA Vacuum Loan Program, families receive an initial home visit when they receive the vacuum and a follow-up home visit when the vacuum is picked up. In 2006, 117 homes were serviced through the HEPA Vacuum Loan Program. The social worker also provides outreach services to families, including: accessing housing resources, relocation, obtaining

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nutritional foods, utilities assistance and facilitation with landlords.

Lead education is the primary responsibility of the lead educator, but all portions of the CLPPP play a role in

educating the public and child care providers about the hazards of lead poisoning and how to prevent it. In 2006, CLPPP gave presentations to 4,348 persons at 212 educational events (Table 4).

Table 4
Health Education Activities Conducted by the Childhood Lead Poisoning Prevention Program, City of St. Louis 2006

Function	Audience Type	Age Group	Number of Participants	Number of Events
Educational	Daycares, Schools	5-12 year of age	2,493	119
Educational	Parents/School Staff	Adults	208	14
Informational/Educational	Community Fairs	Adults	1,401	55
Educational	Community Organizations	Adults	196	23
Conference /Group Meeting	Health Professionals	Adults	50	1

The Outreach team also plays a critical role in locating a child once an elevated test result is received. Laboratory reports do not always include locating information and addresses, and even when addresses are provided they may be incorrect. Outreach workers attempt to find children so they can receive follow-up testing or other case management activities.

In 2006, the Clinic also served as the source of referrals to the Lead Inspection and Hazard Control Section. Clinic staff prepared referrals for environmental investigation on those children with any single blood lead test ≥ 15 $\mu\text{g}/\text{dl}$ and on some that had a blood lead test ≥ 10 $\mu\text{g}/\text{dl}$. In 2006, the clinic made 466 such referrals (Table 5).

Lead Inspection and Hazard Control

The Lead Inspection and Hazard Control Section formerly housed by the City of St. Louis Department of Health became part of the Building Division in 2004. The unit coordinates with the CLPPP and offers environmental investigations and remediation support. The unit consists of certified lead hazard inspectors, certified lead abatement workers and data entry clerks. Lead inspections are performed on a request and/or referral basis from a variety of sources. In 2006, almost 48% of reports were clinic referrals (Table 5), which occur when an inspection is requested to follow-up on a lead poisoned child. This is secondary prevention, taken after the poisoning has occurred but to prevent further exposure or the

occurrence of new cases. Occasionally, clinic referrals are made on pregnant women but these are less common. Referrals from the other sources (Citizens Service Bureau, Day Care Centers, the Building Division, Conservation District, Section 8 Housing, Lead Safe St. Louis Hotline and Aldermen) are not the result of a child being lead poisoned but are for primary prevention so as to identify and correct a lead hazard prior to a child being exposed. These referrals amount to more than half (52%) of all referrals in 2006, which shows that the Lead Inspection and Hazard Control Section is increasing its efforts to practice primary prevention (Table 5).

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Table 5
Inspection Referrals Made to the Lead Inspection and Hazard Control
Section of the Building Division, City of St. Louis 2005-2006

Referral Source	2005		2006		2005-2006 Percent Change
	Number	Percent	Number	Percent	
Lead Clinic	380	42.6	466	47.9	22.6
Citizens' Service Bureau	365	41.0	321	33.0	-12.1
Day Care Centers	15	1.7	11	1.1	-26.7
Conservation District	51	5.7	30	3.1	-41.2
Section 8 Housing	30	3.4	26	2.7	-13.3
Environmental	-	-	6	0.6	-
Lead Safe St. Louis Hotline	39	4.4	99	10.2	153.8
Special--Aldermanic Requests	11	1.2	13	1.3	18.2
Total	891	100.0	972	100.0	9.1

After a referral is made, a lead inspector goes out to the property and performs an inspection. In 2006, 68.3% (437/640) of the units initially inspected proved to have lead hazards (Table 6). The property owners were cited with violations under Chapter 11.22.120 of the City of St. Louis Revised Code and given a set time for remediation to take place. The volume of re-inspections (4,005) (Table 6) includes monitoring the progress of properties towards

remediation and follow-up clearance testing after remediation is completed.

An inspection was not permitted by the occupant for 79 housing units (Table 6) and is a serious impediment to the reduction or removal of lead from a child's environment. In 2006, a total of 405 properties were remediated (Table 6) in order to reduce the risk of lead poisoning to other children.

Table 6
Lead Inspection Activities and Remediations, City of St. Louis 2005-2006

Activity	2005	2006	Percent Change
Dwelling Units Inspected	723	640	-11.5%
Hazardous Units	467	437	-6.4%
Re-inspections	4,352	4,005	-8.0%
Attempts to Inspect	2,271	2,773	22.1%
Inspections not Permitted	60	79	31.7%
Owner/Agent Remediations	218	165	-24.3%
Private Contractor Remediations	80	105	31.3%
Building Division Remediations	125	135	8.0%

An important component of the Building Division's Lead Inspection and Hazard Control Section is the lead remediation

team that actually performs lead remediation work in the homes of

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private citizens to protect a lead poisoned child from further exposure. Families who receive this assistance must meet HUD or the City of St. Louis income standards and have a child under the age of 6 in the home at least part time. In 2006, the Lead Hazard Control team remediated 135 homes, which is a slight increase from the 125 homes remediated in 2005. A total of 405 properties were remediated by various programs (Table 6).

When lead hazards are not corrected within the specified time period, the

property is referred to court for legal action. In 2006, 286 cases relating to lead hazards were referred to court and arraigned (Table 7). The disposition of the cases indicates that 4 cases were dismissed and 7 cases were dismissed due to payment costs (Table 7). Bench warrants for failure to show were issued on 32 of the cases although these warrants are not served on defendants (Table 7). The total amount of fines collected from charged cases in 2006 was \$3,807.00 (Table 7).

Table 7
Court Activities for Lead Remediation, City of St. Louis 2006

Arraigned Cases	286
Disposition of Cases	
Bench warrant	32
Continued	164
Continued for trial	28
Dismissed	4
Nolle processed	4
Stayed for payment	28
Cases dismissed on payment costs	7
Additional Information	
Units remediated via court process	16
Total fines paid	\$3,807.00

Lead Safe St. Louis 2006 Accomplishments and Activities

Provided by Jeanine Arrighi, Director of Lead Safe Saint Louis

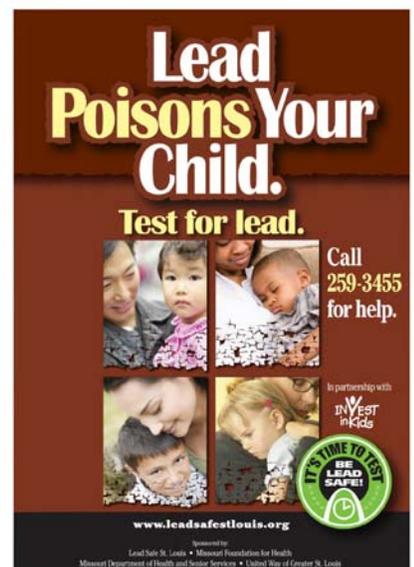
When Lead Safe St. Louis (LSSL) and Mayor Slay's "Comprehensive Action Plan to Eradicate Childhood Lead Poisoning in St. Louis by 2010" were introduced in November 2003, the plan set an interim goal: "Our first milestone will be to reduce childhood lead poisoning by 50% within four years." That achievement came close to fulfillment ahead of schedule in 2006, with screening prevalence rates of childhood lead poisoning decreased 49% (from 13.64% to 6.98%) and the number of children poisoned decreased by 45% (from 1,638 to 892). This accomplishment would not have occurred without collaborations through the Mayor's LSSL Task Force of community partnerships and through the LSSL Team of City agencies charged with primary prevention of childhood lead poisoning. With four years remaining, there is still much work to be done.

This collaborative momentum was reinforced in 2006 when two new HUD grants valued at \$7 million were awarded to the City of St. Louis. These new grants will provide for lead hazard controls in 913 additional dwellings in the City. Community and faith-based organizations, including the Jewish Community Relations Council, the International Institute of St. Louis, Catholic Charities Friends to Moms Program, St. Louis Investment Property Association, Regional Housing and Community Development Alliance, St. Louis Metropolitan Equal Housing Opportunity Council, Child Day Care Association, and Youth Education and

Health in Soulard/YouthBuild will assist with the recruitment for these units.

The Lead Safe Housing Registry made its debut in April 2006 through the nationally-recognized website, www.socialserve.com. Landlords are able to advertise available affordable housing on the website, which is co-sponsored in St. Louis through the Affordable Housing Commission, the Housing Authority of St. Louis, and Catholic Charities Housing Resource Center. A landlord may indicate whether the advertised housing is lead free, lead safe, lead risk-reduced, housing conservation compliant, or lead status unknown. Users may link to the City's Lead Safe Housing Registry to confirm documentation on the lead status of the property.

Funding provided by a grant from the Missouri Foundation for Health provided LSSL with its first of three annual Media Campaign events. Over the months from June through August, images developed under the LSSL Media Campaign Team and its contracted graphic designer, Schweppe Studios, Inc., were used on advertising including: billboard, bus shelters, busses, newspaper, television, and radio, as well as various program specific brochures, posters, and incentive



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items (bibs, water bottles, punch balls, pencils and pencil cases, stickers, balloons, and magnets). Despite the distraction from storm-related power outages and heat emergencies during the summer of 2006, hotline calls and referral rates spiked on months where special media were used, and the rate of requests for lead inspections has grown. The media blitz is to be repeated in 2007 and 2008.

In July of 2006 the LSSL office moved from its offices in the Community Development Administration to offices at the Department of Health. Coordination of services between the Health Department Childhood Lead Poisoning Prevention Program and LSSL were enhanced by the opportunity to interface regularly. In December, the LSSL staff was transferred from the Building Division's table of organization to the Health Department's. Inter-agency meetings bi-weekly for the Lead Safe St. Louis Team has been valuable in continuing efforts to expand and develop services as evidenced in the 2006 HUD grants.

Funded by HUD and Missouri Foundation for Health grants, four new Citizen Advocates (Client Service Coordinators) positions were filled in 2006. One Citizen Advocate serves in the Building Division, and the other three new hires joined a fourth in the Health Department. The Citizen Advocate Team meets on a regular basis with case management nurses and program managers to further coordination of services for families to attain lead-safe living environments. In 2006 a permanent relocation program, begun in late 2005 and coordinated with Catholic Charities Housing Resource Center, resulted in 17 families being

moved away from housing that presented a host of hazards to dwellings that are safe.

Lead Safe Kids and Homes events expanded in 2006 from the traditional week at the end of October for Lead Poisoning Prevention Week to the entire month. Among the events throughout October were: providing outreach materials to 65 local congregations through the Baptist Ministers' Union; showcasing a home-based day care for Mayor's Day, "The Academy for Academic Achievement Child Care Home", which was made lead safe through a joint program between the City and the Child Day Care Association of St. Louis; presenting a legislative "call to action" with the Board of Aldermen for the LSSL Annual Report to the Community; delivering 650 packets of lead safe information to 461 area pediatric and family care physician practices; hosting a reception for the Centers for Disease Control and Prevention (CDC) Lead Advisory Committee, which chose St. Louis for its bi-annual meeting; providing grand rounds and early bird rounds at St. Louis and Cardinal Glennon Children's Hospitals, featuring Mary Jean Brown, ScD, RN, Chief of the CDC Lead Branch; offering two sessions of Lead Safe Work Practice training, which resulted in 38 new certified lead safe workers; and broadcasting throughout the month "Steps to a Lead Safe Home," produced by City TV10, which shows citizens how to move to lead safety through City programs.

Building on the success of primary prevention efforts continues to be the focus for the City and its community partners to eradicate childhood lead poisoning in St. Louis.

Limitations and Discussion

Surveillance data are subject to limitations and the interpretations of the findings reported must be viewed with these limitations in mind. Children are not randomly tested for lead exposure. Screening for lead poisoning in the City of St. Louis is weighted towards those at greatest risk, and the rates in this report are likely higher than true population rates. True childhood lead poisoning prevalence and incidence rates require that all children at risk have an equal chance of selection into the population studied. Only 45% of St. Louis City children who are at risk of lead poisoning are included in the surveillance database. The missing 55% could represent children tested but not reported to the Health Department. However, it is more likely that the majority of children not appearing in the surveillance database were not screened for lead in 2006. The surveillance sample includes all children under the age of 6 screened for lead poisoning in the City of St. Louis.

Traditionally in the City of St. Louis, children of lower socio-economic status were more likely to be screened for lead exposure than their affluent cohorts. This is largely due to the screening practices of experienced community health centers and because poor areas tend to be targeted for lead screening and education more than affluent areas due to higher screening prevalence and incidence rates in poor

areas. An increased screening rate of 45% in 2006, while encouraging, indicates that private providers are still failing to screen children for lead poisoning in the City of St. Louis. In addition to the aforementioned cohort study and getting more private providers to perform blood lead screenings, validation studies need to be conducted to determine whether Medicaid providers are screening all of the children that are eligible for their care. Even though the prevalence of lead poisoning in the City of St. Louis appears to be on a continual decline, still not enough is known about whether the high risk population is being reached. Also, providers may not choose to test children between the ages of 3-5 years because they do not consider them to be high risk. Dissemination of the cohort study's findings that 8.1% of children retested in later years following a "negative" screening at age 2 were lead poisoned could mitigate the reluctance of some providers to test in later years. Providers also neglect to screen younger children. 55.5% of children younger than 3 years of age, at the greatest risk, were not tested in 2006.

The decreasing prevalence rate is encouraging; however, the screening prevalence rate reported still portrays a level of extreme risk for segments of St. Louis City children.

Summary

The childhood lead poisoning rate decreased to an all time low of 7% in the City of St. Louis between 2005 and 2006, but the City still accounts for 47% of all lead poisoned children in Missouri. In spite of the seriousness of the problem, fewer than half of the City's children under the age of six even receive the required annual blood lead test. What is still discouraging is the large number of children who continue to carry a lead burden in their bodies from year to year.

Until all City children receive the recommended annual screening from their primary health care provider, surveillance data will not reflect a true picture of childhood lead poisoning in the City of St. Louis. That picture would undoubtedly be one of a healthier environment for our children, as more children screened would result in a wider net cast to find children exposed to lead and mitigate its effects.

The preferred remedy for the lead poisoning problem is to prevent children from ever being poisoned in

the first place through primary prevention. Methods include providing lead-safe homes and play areas, educating people about lead hazards and how to protect children from them, and improving childhood nutrition to retard the absorption of lead by their bodies.

When we cannot prevent initial lead poisoning, we must turn to the second best method for controlling the problem, secondary prevention. This is the early detection and treatment of poisoned children and the removal or reduction of lead hazards from their environment. Early detection and treatment can help health care providers reduce a child's lead body burden and can help the community and parents identify lead hazards and work to remove them. However, early detection is possible only if children receive lead tests. Since the majority of our children still do not receive lead tests, we must assume that many health care providers and families are still uninformed about the risks and long-term effects of lead poisoning.

Appendices

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**Table A-1
Health Care Providers of Blood Lead Screenings, City of St. Louis 2005-2006**

Provider	Number Screened		Percent of Total		Percent Change	Number ≥ 10 µg/dl		SPR (%)		New Cases		SIR (%)	
	2005	2006	2005	2006		2005	2006	2005	2006	2005	2006	2005	2006
St. Louis City Health Department													
Van	33	10	0.3	0.1	-69.7	2	1	6.1	10.0	2	1	6.5	10.0
Fixed Screening Lead Clinic	1,103	1,309	9.8	10.2	18.7	46	28	4.2	2.1	18	13	1.7	1.0
<i>STLCHD Sub total</i>	<i>1,388</i>	<i>1,602</i>	<i>12.4</i>	<i>12.5</i>	<i>15.4</i>	<i>121</i>	<i>70</i>	<i>8.7</i>	<i>4.4</i>	<i>37</i>	<i>31</i>	<i>3.0</i>	<i>2.1</i>
Connect Care													
Homer G. Phillips	108	83	1.0	0.6	-23.1	23	13	21.3	15.7	10	3	11.4	4.9
Florence Hill	222	281	2.0	2.2	26.6	34	29	15.3	10.3	11	15	6.1	6.1
Lillian Courtney	250	473	2.2	3.7	89.2	24	50	9.6	10.6	7	30	3.2	6.9
Max Starkloft	313	474	2.8	3.7	51.4	45	21	14.4	4.4	16	7	6.1	1.7
Unknown	0	2	0.0	0.0	N/A	0	0	N/A	0.0	0	0	N/A	0.0
<i>Connect Care Sub total</i>	<i>893</i>	<i>1,313</i>	<i>8.0</i>	<i>10.3</i>	<i>47.0</i>	<i>126</i>	<i>113</i>	<i>14.1</i>	<i>8.6</i>	<i>44</i>	<i>55</i>	<i>5.8</i>	<i>4.8</i>
Community Health Centers													
<i>Grace Hill*</i>													
Murphy O'Fallon	0	196	0.0	1.5	N/A	0	19	N/A	9.7	0	12	N/A	6.6
South Jefferson	45	0	0.4	0.0	-100.0	7	0	15.6	NA	4	0	9.8	0.0
Neighborhood	528	281	4.7	2.2	-46.8	64	27	12.1	9.6	28	21	6.0	8.0
Soulard	137	378	1.2	3.0	175.9	15	34	10.9	9.0	3	19	2.5	5.3
Water Tower	411	447	3.7	3.5	8.8	73	60	17.8	13.4	27	26	7.9	7.0
Unknown	0	84	0.0	0.7	N/A	0	1	N/A	1.2	0	0	N/A	0.0
<i>Grace Hill Sub total</i>	<i>1,121</i>	<i>1,386</i>	<i>10.0</i>	<i>10.8</i>	<i>23.6</i>	<i>159</i>	<i>141</i>	<i>14.2</i>	<i>10.2</i>	<i>62</i>	<i>78</i>	<i>6.4</i>	<i>6.2</i>
Family Care Health Centers	773	916	6.9	7.2	18.5	60	63	7.8	6.9	19	38	2.7	4.5
Myrtle Hilliard	672	620	6.0	4.9	-7.7	105	80	15.6	12.9	48	39	8.4	7.2
Peoples	1,065	1,231	9.5	9.6	15.6	103	97	9.7	7.9	52	56	8.4	4.9
<i>CHCs Sub total</i>	<i>3,631</i>	<i>4,153</i>	<i>32.3</i>	<i>32.5</i>	<i>14.4</i>	<i>427</i>	<i>381</i>	<i>11.8</i>	<i>9.2</i>	<i>181</i>	<i>211</i>	<i>5.6</i>	<i>5.6</i>
Hospitals													
Cardinal Glennon	854	1,122	7.6	8.8	31.4	60	56	7.0	5.0	29	36	3.6	3.4
St. Louis Children's Hospital*	363	186	3.2	1.5	-48.8	50	30	13.8	16.1	18	16	5.7	9.8
Forest Park Hospital	0	155	0.0	1.2	N/A	0	12	N/A	7.7	0	16	0.0	13.0
St. Louis University Hospital	17	20	0.2	0.2	17.6	1	2	5.9	10.0	0	1	0.0	5.6
Other Hospitals	153	66	1.4	0.5	-56.9	9	2	5.9	3.0	5	6	3.4	10.3
<i>Hospitals Sub total</i>	<i>1,387</i>	<i>1,549</i>	<i>12.4</i>	<i>12.1</i>	<i>11.7</i>	<i>120</i>	<i>102</i>	<i>8.7</i>	<i>6.6</i>	<i>52</i>	<i>75</i>	<i>4.1</i>	<i>5.3</i>
Other Categories													
Clinics/Group Practices	3,044	3,223	27.1	25.2	5.9	192	171	6.3	5.3	70	99	2.5	3.2
Private Physicians	825	910	7.3	7.1	10.3	35	51	4.2	5.6	20	37	2.5	4.3
All Others	59	29	0.5	0.2	-50.8	4	4	6.8	13.8	2	4	3.6	13.8
<i>Other Categories Sub total</i>	<i>3,928</i>	<i>4,162</i>	<i>35.0</i>	<i>32.6</i>	<i>6.0</i>	<i>231</i>	<i>226</i>	<i>5.9</i>	<i>5.4</i>	<i>92</i>	<i>140</i>	<i>2.6</i>	<i>3.5</i>
Grand Total	11,227	12,779	100.0	100.0	13.8	1,025	892	9.1	7.0	406	512	4.0	4.3

*Prior to 2005, some of the children screened at Grace Hill Clinics were reported as being screened at St. Louis Children's Hospital.

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Table A-2
Childhood Lead Poisoning Rates, City of St. Louis 1971-2006

Criteria for Positive Blood PB/EP			
Year	(micrograms/deciliter)	# Screened	% Positive
1971	40 µg/dl	4,334	28.0%
1972	40 µg/dl	1,819	34.0%
1973	40 µg/dl	7,426	32.3%
1974	40 µg/dl	5,835	27.0%
1975	40 µg/dl	11,041	22.9%
1976	30 µg/dl	13,246	28.0%
1977	30 µg/dl	14,375	24.5%
1978	30 µg/dl	13,687	15.2%
1979	30 µg/dl	12,511	12.5%
1980	30 µg/dl	12,469	11.4%
1981	30 µg/dl	11,449	12.4%
1982	30 µg/dl	11,778	10.9%
1983	30 µg/dl	11,406	7.6%
1984	30 µg/dl	12,982	8.2%
1985	30 µg/dl	12,308	11.0%
1986	25 µg/dl	11,324	16.4%
1987	25 µg/dl	13,314	10.3%
1988	25 µg/dl	14,364	9.1%
1989	25 µg/dl	12,317	7.4%
1990	25 µg/dl	12,202	6.5%
1991	25 µg/dl	12,799	4.4%
1992	10 µg/dl	17,715	48.5%
1993	10 µg/dl	17,850	26.8%
1994	10 µg/dl	18,541	28.1%
1995	10 µg/dl	20,573	23.5%
1996	10 µg/dl	13,305	27.6%
1997	10 µg/dl	13,833	24.2%
1998	10 µg/dl	13,205	24.8%
1999	10 µg/dl	14,580	22.9%
2000	10 µg/dl	11,260	31.1%
2001	10 µg/dl	12,743	16.2%
2002	10 µg/dl	11,497	14.6%
2003	10 µg/dl	12,011	13.6%
2004	10 µg/dl	13,249	9.0%
2005	10 µg/dl	11,227	9.1%
2006	10 µg/dl	12,779	7.0%

Note: Prior to 1996, prevalence rates were not calculated using STELLAR. In 2005, data were converted to the MOHSAIC database.

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**Table A-3
Demographic Profile of Children Screened for Lead Poisoning, City of St. Louis 2006 (N=12,779)**

Demographic	Number Screened	Percent of Total Screened	Number ≥ 10 µg/dl	Screening Prevalence Rate (%)	Number New Cases	Screening Incidence Rate (%)	< 10 µg/dl		10-19 µg/dl		20-44 µg/dl		45-69 µg/dl		≥ 70 µg/dl		
							N	%	N	%	N	%	N	%	N	%	
Age																	
Less than 1 year old	702	5.5	18	2.6	17	2.4	684	97.4	14	2.0	<10	0.6	0	0.0	0	0.0	
1 year old	3,366	26.3	232	6.9	193	5.9	3,134	93.1	198	5.9	34	1.0	0	0.0	0	0.0	
2 years old	2,221	17.4	251	11.3	146	7.1	1,970	88.7	214	9.6	35	1.6	<10	<0.1	<10	<0.1	
3 years old	2,244	17.6	165	7.4	74	3.6	2,079	92.6	141	6.3	24	1.1	0	0.0	0	0.0	
4 years old	2,291	17.9	137	6.0	52	2.5	2,154	94.0	121	5.3	16	0.7	0	0.0	0	0.0	
5 years old	1,955	15.3	89	4.6	30	1.7	1,866	95.4	81	4.1	<10	0.4	<10	<0.1	0	0.0	
Gender																	
Female	6,257	49.0	420	6.7	243	4.2	5,837	93.3	359	5.7	60	1.0	<10	<0.1	0	0.0	
Male	6,522	51.0	472	7.2	269	4.5	6,050	92.8	410	6.3	60	0.9	<10	<0.1	<10	<0.1	
Race																	
African American	9,147	71.6	753	8.2	426	5.1	8,394	91.8	661	7.2	90	1.0	<10	<0.1	<10	<0.1	
White	2,300	18.0	85	3.7	53	2.4	2,215	96.3	64	2.8	20	0.9	<10	<0.1	0	0.0	
Asian	207	1.6	3	1.4	1	0.5	204	98.5	<10	0.5	<10	1.0	0	0.0	0	0.0	
Native American	10	0.1	0	0.0	0	0.0	10	100.0	0	0.0	0	0.0	0	0.0	0	0.0	
Pacific Islander	<10	<0.1	0	0.0	0	0.0	<10	100.0	0	0.0	0	0.0	0	0.0	0	0.0	
Multiracial	52	0.4	4	7.7	4	7.8	48	92.3	<10	7.7	0	0.0	0	0.0	0	0.0	
Other	420	3.3	12	2.9	9	2.2	408	97.2	11	2.6	<10	0.2	0	0.0	0	0.0	
Race Missing	642	5.0	35	5.5	19	3.2	607	94.5	28	4.4	<10	1.1	0	0.0	0	0.0	

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Table A-4
Screening and Childhood Lead Poisoning Rates by ZIP Code, City of St. Louis 2006 (Ranked by highest SPR)

ZIP Code	Population <6 Years	Number Screened	Percent Screened	Number ≥ 10 µg/dl	SPR (%)	New Cases	SIR (%)	Total Housing Units	Percent Vacant	Percent Occupied	Total Occupied	Percent Owner Occupied	Percent Renter Occupied	Percent Pre-1950 Housing
63102*	23	6	26.1	1	16.7	0	0.0	870	24.8	75.2	654	2.1	97.9	74.4
63107	1,551	793	51.1	114	14.4	54	8.0	7,929	28.7	71.3	5,655	44.8	55.2	93.2
63120	1,079	557	51.6	57	10.2	35	7.0	4,848	18.5	81.5	3,949	58.5	41.5	87.5
63118	3,214	1629	50.7	157	9.6	89	6.0	15,326	25.6	74.4	11,409	37.4	62.6	92.4
63113	1,307	648	49.6	61	9.4	29	5.0	8,540	26.4	73.6	6,286	46.9	53.1	95.8
63112	1,729	991	57.3	93	9.4	54	5.9	12,574	20.1	79.9	10,045	35.5	64.5	93.6
63115	2,050	989	48.2	91	9.2	57	6.3	12,421	19.5	80.5	9,998	55.3	44.7	91.1
63108	714	322	45.1	29	9.0	14	4.8	11,675	13.2	86.8	10,135	26.7	73.3	87.5
63110	1,886	653	34.6	48	7.4	25	4.2	10,179	17.8	82.2	8,371	39.3	60.7	88.9
63123	188	37	19.7	2	5.4	2	5.6	1,246	2.6	97.4	1,214	92.8	7.2	11.7
63103	102	58	56.9	3	5.2	2	3.7	3,609	18.6	81.4	2,939	1.3	98.7	65.5
63111	1,889	949	50.2	48	5.1	27	3.1	10,508	16.3	83.7	8,797	44.7	55.3	87.3
63116	4,114	1631	39.6	76	4.7	48	3.1	22,844	10.3	89.7	20,497	57.9	42.1	83.1
63147	915	492	53.8	22	4.5	16	3.4	5,071	12.6	87.4	4,432	66.8	33.2	79.7
63106	1,395	834	59.8	34	4.1	24	3.0	6,250	32.0	68.0	4,247	13.3	86.7	85.2
63104	1,811	811	44.8	32	3.9	19	2.5	9,847	18.6	81.4	8,016	36.4	63.6	86.4
63101	78	85	109.0	3	3.5	3	3.6	730	41.2	58.8	429	7.2	92.8	36.1
63136	356	233	65.4	6	2.6	2	0.9	1,694	10.5	89.5	1,516	70.5	29.5	76.9
63109	2,078	532	25.6	9	1.7	6	1.2	15,042	4.5	95.5	14,358	61.8	38.2	81.8
63139	1,517	408	26.9	6	1.5	6	1.5	12,344	6.3	93.7	11,569	61.3	38.7	76.4
63105	26	7	26.9	0	0.0	0	0.0	727	9.2	90.8	660	46.1	53.9	98.4
63117	31	7	22.6	0	0.0	0	0.0	302	5.3	94.7	286	56.6	43.4	93.5
63119	18	8	44.4	0	0.0	0	0.0	201	3.5	96.5	194	1.5	98.5	44.4
63125	0	8	-	0	0.0	0	0.0	1	0.0	100.0	1	0.0	100.0	20.3
63130	32	5	15.6	0	0.0	0	0.0	154	3.2	96.8	149	59.7	40.3	93.4
63133	58	1	1.7	0	0.0	0	0.0	113	46.0	54.0	61	14.8	85.2	82.6
63137	75	55	73.3	0	0.0	0	0.0	491	5.9	94.1	462	56.1	43.9	72.6
63138	2	1	50.0	0	0.0	0	0.0	3	33.3	66.7	2	50.0	50.0	75.0
63143	131	19	14.5	0	0.0	0	0.0	815	8.6	91.4	745	66.6	33.4	81.3
Unknown	-	10	-	0	0.0	0	0.0	-	-	-	-	-	-	-
City Total	28,369	12,779	45.0	892	7.0	512	4.3	176,354	16.6	83.4	147,076	46.9	53.1	85.3

*ZIP codes with small populations of children under 6 appear to have high screening prevalence rates due to fewer children screened.

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Table A-5
Screening and Childhood Lead Poisoning Rates by Ward, City of St. Louis 2006 (Ranked by highest SPR)

Ward	Population <6 Years	Number Screened	Percent Screened	Number ≥ 10 µg/dl	SPR (%)	New Cases	SIR (%)	Total Housing Units	Percent Vacant	Percent Occupied	Total Occupied	Percent Owner Occupied	Percent Renter Occupied	Percent Pre-1950 Housing
Ward - 03	908	586	64.5	85	14.5	42	8.6	5,670	28.9	71.1	4,033	44.3	55.7	93.3
Ward - 04	793	476	60.0	55	11.6	30	7.1	6,321	25.2	74.8	4,727	47.2	52.8	94.8
Ward - 20	907	773	85.2	83	10.7	41	6.0	5,693	28.4	71.6	4,076	37.5	62.5	93.3
Ward - 22	795	618	77.7	65	10.5	43	7.6	5,585	24.5	75.5	4,214	46.8	53.2	90.9
Ward - 18	750	418	55.7	42	10.0	23	6.1	6,522	21.5	78.5	5,120	38.0	62.0	93.9
Ward - 26	870	533	61.3	47	8.8	23	4.6	6,361	21.9	78.1	4,966	35.6	64.4	91.6
Ward - 21	956	479	50.1	42	8.8	28	6.4	5,899	16.8	83.2	4,909	54.9	45.1	89.6
Ward - 01	940	478	50.9	40	8.4	21	4.8	5,735	19.4	80.6	4,621	58.3	41.7	93.5
Ward - 15	1,168	471	40.3	36	7.6	20	4.6	6,437	13.8	86.2	8,846	45.8	54.2	93.4
Ward - 08	1,279	397	31.0	30	7.6	21	5.7	6,488	15.4	84.6	5,492	37.6	63.4	94.9
Ward - 09	1,316	605	46.0	43	7.1	26	4.7	7,048	22.7	77.3	5,449	36.2	63.8	89.6
Ward - 17	682	329	48.2	23	7.0	8	2.7	7,491	17.3	82.7	6,192	25.0	75.0	85.2
Ward - 27	900	550	61.1	38	6.9	17	3.5	4,669	12.8	87.2	4,073	71.6	28.4	82.7
Ward - 06	1,101	585	53.1	40	6.8	24	4.4	6,314	19.8	80.2	5,061	37.4	62.6	82.8
Ward - 25	1,365	761	55.8	50	6.6	25	3.5	6,348	17.2	82.8	5,258	41.6	58.4	91.7
Ward - 02	1,027	500	48.7	28	5.6	22	4.6	4,863	15.6	84.4	4,106	60.1	39.9	78.8
Ward - 19	693	389	56.1	21	5.4	13	3.5	5,198	77.5	22.5	4,030	16.6	83.4	87.6
Ward - 07	1,097	378	34.5	20	5.3	11	3.1	7,926	23.4	77.6	6,154	23.6	76.4	87.9
Ward - 05	1,224	812	66.3	38	4.7	21	2.7	6,878	32.6	67.4	4,635	19.9	80.1	84.7
Ward - 14	1,310	427	32.6	18	4.2	12	2.9	5,874	8.3	91.7	5,388	55.6	44.4	92.4
Ward - 13	1,389	334	24.0	12	3.6	11	3.4	5,987	8.4	91.6	5,484	65.3	34.7	92.9
Ward - 28	544	199	36.6	6	3.0	3	1.5	7,803	9.6	90.4	7,055	32.5	67.5	93.3
Ward - 24	832	205	24.6	5	2.4	5	2.5	6,819	92.7	7.3	6,321	58.5	41.5	79.1
Ward - 11	1,123	468	41.7	11	2.4	8	1.8	6,198	14.7	85.3	5,290	53.5	46.5	79.9
Ward - 12	940	219	23.3	5	2.3	5	2.3	6,476	4.4	95.6	6,193	70.6	29.4	53.7
Ward - 10	1,464	277	18.9	6	2.2	6	2.3	6,996	8.9	91.1	6,374	46.9	53.1	77.4
Ward - 23	962	233	24.2	2	0.9	2	0.9	6,265	4.0	96.0	6,012	76.5	23.5	77.5
Ward - 16	1,034	187	18.1	0	0.0	0	0.0	6,490	3.0	97.0	6,297	69.0	31.0	74.1
Not geocoded	-	92	-	1	1.1	1	1.1	-	-	-	-	-	-	-
City Total	28,369	12,779	45.0	892	7.0	512	4.3	176,354	14.7	85.3	150,376	46.9	53.1	85.3

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Table A-6
Screening and Childhood Lead Poisoning Rates by Neighborhood, City of St. Louis 2006 (Ranked by highest SPR)

Neighborhood Number	Neighborhood	Population <6 Years	Number Screened	Percent Screened	Number ≥ 10 µg/dl	SPR (%)	New Cases	SIR (%)	Total Housing Units	Percent Vacant	Percent Occupied	Total Occupied	Percent Owner Occupied	Percent Renter Occupied
35*	Downtown	11	14	127.3**	4	28.6	3	23.1	1,050	34.9	65.1	684	0.9	99.1
40*	Kings Oak	17	6	35.3	1	16.7	1	20.0	113	11.5	86.5	100	59.0	41.0
65	Hyde Park	426	202	47.4	32	15.8	18	10.8	1,767	29.2	70.8	1,252	35.2	64.8
67	Fairground Neighborhood	215	117	54.4	18	15.4	6	6.2	1,216	28.8	71.2	866	47.7	52.3
78	Hamilton Heights	359	177	49.3	25	14.1	13	8.3	1,852	26.0	74.0	1,371	49.5	50.5
51	Academy	284	142	50.0	20	14.1	9	7.3	1,729	27.6	72.4	1,252	53.8	46.2
72	Walnut Park East	456	261	57.2	35	13.4	18	8.3	2,111	19.0	81.0	1,710	64.1	35.9
59	JeffVanderLou	561	303	54.0	38	12.5	19	7.1	3,463	28.0	72.0	1,492	34.5	65.5
30	Benton Park West	647	327	50.5	41	12.5	23	8.1	2,540	26.7	73.3	1,863	73.4	26.6
58	Vandeventer	182	97	53.3	12	12.4	6	6.7	1,183	28.8	71.2	842	50.1	49.9
55	Kingsway East	364	170	46.7	21	12.4	9	6.1	2,162	19.6	80.4	1,739	52.0	48.0
56	The Greater Ville	688	327	47.5	37	11.3	21	7.1	4,221	23.7	76.3	3,220	48.8	51.2
19	Gravois Park	686	347	50.6	38	11.0	18	5.9	2,818	28.2	71.8	2,024	65.7	34.3
68	O'Fallon	625	299	47.8	32	10.7	19	7.2	3,269	18.5	81.5	2,666	52.3	47.7
39	Forest Park Southeast	341	162	47.5	17	10.5	6	4.1	1,831	23.0	77.0	1,409	34.3	65.7
60	St. Louis Place	257	153	59.5	16	10.5	8	5.8	1,395	33.3	66.7	931	39.9	60.1
50	Wells/Goodfellow	790	422	53.4	40	9.5	25	6.5	4,063	26.7	73.3	2,978	46.3	53.7
25	Tower Grove East	693	285	41.1	27	9.5	20	7.5	3,485	20.6	79.4	2,766	38.5	61.5
66	College Hill	313	169	54.0	16	9.5	12	8.0	1,342	31.5	68.5	919	45.6	54.4
54	Lewis Place	155	97	62.6	9	9.3	4	4.9	1,045	27.6	72.4	757	46.6	53.4
52	Kingsway West	260	151	58.1	14	9.3	8	5.8	1,978	18.7	81.3	1,609	45.9	54.1
24	Fox Park	384	152	39.6	14	9.2	5	3.8	1,549	29.8	71.1	1,101	36.7	63.3
48	West End	635	380	59.8	35	9.2	24	6.6	3,347	21.8	78.2	2,317	29.9	70.1
26*	Compton Heights	98	22	22.4	2	9.1	1	5.3	688	11.8	88.2	607	64.7	35.3
49*	Visitation Park	79	44	55.7	4	9.1	2	4.9	576	15.3	84.3	488	22.1	77.9
36*	Downtown West	36	23	63.9	2	8.7	1	4.5	2,073	20.2	79.8	1,654	1.4	98.6
53	Fountain Park	160	70	43.8	6	8.6	3	4.8	1,010	25.2	74.8	756	32.0	68.0
57	The Ville	211	97	46.0	8	8.2	6	6.7	1,492	26.9	73.1	1,091	35.7	64.3
69	Penrose	545	272	49.9	22	8.1	15	6.0	3,565	15.1	84.9	3,028	61.0	39.0
27	Shaw	811	293	36.1	21	7.2	12	4.5	3,802	17.9	82.1	3,120	38.9	61.1
16	Dutchtown	1808	1045	57.8	74	7.1	41	4.3	8,445	18.8	81.2	6,856	41.3	58.7
42	Clayton/Tamm	127	29	22.8	2	6.9	2	6.9	1,436	7.2	92.8	1,333	52.9	47.1
18	Marine Villa	296	188	63.5	12	6.4	8	4.4	1,576	25.4	74.6	1,175	39.5	60.5

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Neighborhood Number	Neighborhood	Population <6 Years	Number Screened	Percent Screened	Number ≥ 10 µg/dl	SPR (%)	New Cases	SIR (%)	Total Housing Units	Percent Vacant	Percent Occupied	Total Occupied	Percent Owner Occupied	Percent Renter Occupied
22	Benton Park	336	97	28.9	6	6.2	3	3.3	2,377	26.2	73.8	1,755	42.3	57.7
71	Mark Twain	420	190	45.2	11	5.8	4	2.3	2,281	22.2	77.8	1,775	35.9	64.1
70	Mark Twain/I-70 Industrial	51	53	103.9**	3	5.7	2	4.1	393	7.9	92.1	362	86.5	13.5
28	McRee Town	289	55	19.0	3	5.5	0	0.0	824	34.6	65.4	539	21.7	78.3
15	Tower Grove South	1270	508	40.0	27	5.3	14	3.0	7,308	13.6	86.4	6,316	47.7	52.3
34	Lasalle	158	80	50.6	4	5.0	2	2.6	650	6.8	93.2	606	28.0	72.0
38	Central West End	451	162	35.9	8	4.9	4	2.6	9,572	11.3	88.7	8,488	25.7	74.3
17	Mount Pleasant	399	225	56.4	11	4.9	5	2.4	2,281	14.9	85.1	1,941	30.5	69.5
74	Baden	695	363	52.2	17	4.7	12	3.5	3,697	13.9	86.1	3,184	56.6	43.4
1	Carondelet	828	359	43.4	16	4.5	8	2.4	4,730	15.4	84.6	4,004	51.8	48.2
5	Bevo Mill	1153	424	36.8	18	4.2	16	3.8	5,984	7.9	92.1	5,513	63.7	36.3
13	Southwest Garden	334	96	28.7	4	4.2	4	4.3	3,188	10.4	89.6	2,856	42.8	57.2
32	Lafayette Square	109	25	22.9	1	4.0	1	4.2	1,007	11.8	86.2	888	34.7	65.3
29	Tiffany	135	77	57.0	3	3.9	3	4.0	571	12.3	87.7	501	25.2	74.8
23	McKinley Heights	236	78	33.1	3	3.8	3	3.9	1,101	23.5	76.5	842	26.7	73.3
46	Skinker/DeBaliviere	244	90	36.9	3	3.3	2	2.2	2,348	10.3	89.7	2,106	58.5	41.5
73	North Point	261	151	57.9	5	3.3	4	2.8	1,648	3.4	96.6	1,592	83.7	16.3
7	South Hampton	648	164	25.3	5	3.0	3	1.9	3,675	5.3	94.7	3,482	66.3	33.7
31	The Gate District	343	164	47.8	5	3.0	5	3.1	1,636	17.2	82.8	1,354	35.7	64.3
62	Columbus Square	285	134	47.0	4	3.0	3	2.3	1,236	37.2	62.8	776	7.0	93.0
11	Clifton Heights	263	68	25.9	2	2.9	2	3.0	1,642	6.8	93.2	1,531	74.9	25.1
4	Boulevard Heights	558	182	32.6	5	2.7	5	2.8	4,093	3.8	92.2	3,939	84.5	15.5
76	Walnut Park West	342	222	64.9	6	2.7	2	1.0	1,592	11.2	88.8	1,414	72.2	27.8
43	Franz Park	172	38	22.1	1	2.6	1	2.6	1,318	7.7	92.3	1,216	66.6	33.4
33	Peabody, Darst, Webbe	310	236	76.1	6	2.5	3	1.4	779	28.1	71.9	560	3.4	96.6
63	Old North St. Louis	241	122	50.6	3	2.5	1	0.9	1,036	41.5	58.5	606	21.1	78.9
47	DeBaliviere Place	153	84	54.9	2	2.4	1	1.2	2,409	14.3	85.7	2,064	18.0	82.0
3	Holly Hills	317	86	27.1	2	2.3	2	2.4	1,887	8.1	91.9	1,734	58.4	41.6
21	Soulard	162	44	27.2	1	2.3	0	0.0	2,216	17.6	82.4	1,825	27.7	72.3
2	Patch	236	124	52.5	2	1.6	2	1.7	1,513	18.8	81.2	1,228	50.7	49.3

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Neighborhood Number	Neighborhood	Population <6 Years	Number Screened	Percent Screened	Number ≥ 10 µg/dl	SPR (%)	New Cases	SIR (%)	Total Housing Units	Percent Vacant	Percent Occupied	Total Occupied	Percent Owner Occupied	Percent Renter Occupied
14	North Hampton	520	195	37.5	3	1.5	3	1.6	4,524	5.4	94.6	4,279	47.5	52.5
77	Covenant Blu/Grand Center	237	132	55.7	2	1.5	2	1.6	1,721	27.3	72.7	1,252	11.4	88.6
61	Carr Square	349	270	77.4	2	0.7	2	0.8	1,327	25.7	74.3	966	99.4	0.6
6	Princeton Heights	608	136	22.4	1	0.7	0	0.0	4,033	5.4	94.6	3,817	68.7	31.3
9	Lindenwood Park	687	168	24.5	1	0.6	1	0.6	5,032	4.2	95.8	4,819	29.3	70.7
8	St. Louis Hills	451	95	21.1	0	0.0	0	0.0	4,077	3.3	96.7	3,941	57.1	42.9
10	Ellendale	137	24	17.5	0	0.0	0	0.0	756	9.0	91.0	688	68.6	31.4
12	The Hill	157	20	12.7	0	0.0	0	0.0	1,486	6.8	93.2	1,385	66.2	33.8
37	Midtown	65	14	21.5	0	0.0	0	0.0	1,532	18.9	81.1	1,442	1.2	98.8
41	Cheltenham	21	14	66.7	0	0.0	0	0.0	262	10.3	89.7	235	54.5	45.5
44	Hi-Point	128	27	21.1	0	0.0	0	0.0	1,331	5.6	94.4	1,256	48.8	51.2
45	Wydown/Skinker	26	7	26.9	0	0.0	0	0.0	727	9.2	90.8	660	46.1	53.9
64	Near North Riverfront	25	7	28.0	0	0.0	0	0.0	157	52.2	47.8	75	36.0	64.0
75	Riverview	18	29	161.1**	0	0.0	0	0.0	96	8.2	91.8	90	78.9	21.1
79	North Riverfront	21	5	23.8	0	0.0	0	0.0	107	27.1	72.9	78	52.6	47.4
	Not geocoded	-	92	-	1	1.1	1	1.1	-	-	-	-	-	-
City Total		28,369	12,779	45.0	892	7.0	512	4.3	176,352	17.2	82.8	145,956	46.9	53.1

* Neighborhoods with small populations of children under 6 appear to have high screening prevalence rates due to fewer children screened.

**Numbers may exceed 100 percent due to use of 2000 Census population data

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Table A-7
Screening and Childhood Lead Poisoning Rates by Census Tract, City of St. Louis 2006

Census Tract	Population <6 Years	Number Screened	Percent Screened	Number ≥ 10 µg/dl	SPR (%)	New Cases	SIR (%)	Total Housing Units	Percent Vacant	Percent Occupied	Percent Owner Occupied	Percent Renter Occupied	Percent Pre-1950 Housing
101100	186	60	32.3	1	1.7	1	1.7	1,211	3.5	96.5	91.3	8.7	28.5
101200	194	55	28.4	0	0.0	0	0.0	1,494	2.6	97.4	83.5	16.5	39.6
101300	377	87	23.1	1	1.1	1	1.2	2,207	6.6	93.4	66.4	33.6	91.9
101400	236	114	48.3	4	3.5	2	1.9	1,411	10.6	89.4	60.4	39.6	89.0
101500	290	137	47.2	2	1.5	2	1.5	1,708	17.2	82.8	45.6	54.4	79.4
101800	259	129	49.8	5	3.9	4	3.4	1,658	20.5	79.5	48.6	51.4	84.2
102100	179	44	24.6	0	0.0	0	0.0	1,748	5.8	94.2	40.4	59.6	79.9
102200	428	86	20.1	0	0.0	0	0.0	3,095	3.7	96.3	80.5	19.5	71.4
102300	111	45	40.5	2	4.4	2	4.5	930	4.0	96.0	86.3	13.7	33.4
102400	233	72	30.9	3	4.2	2	3.0	1,211	7.4	92.6	63.0	37.0	93.5
102500	175	40	22.9	2	5.0	2	5.1	1,047	6.5	93.5	70.3	29.7	80.5
103100	203	49	24.1	0	0.0	0	0.0	1,819	2.7	97.3	52.0	48.0	77.4
103400	170	36	21.2	0	0.0	0	0.0	971	4.7	95.3	73.7	26.3	86.3
103600	115	31	27.0	1	3.2	1	3.3	702	4.6	95.4	72.1	27.9	57.5
103700	188	52	27.7	3	5.8	3	5.9	1,461	8.1	91.9	68.1	31.9	89.3
103800	277	77	27.8	0	0.0	0	0.0	1,883	3.9	96.1	81.1	18.9	80.0
103900	90	8	8.9	0	0.0	0	0.0	496	9.5	90.5	75.7	24.3	72.8
104100	191	43	22.5	1	2.3	1	2.3	1,453	8.3	91.7	63.8	36.2	77.1
104200	196	38	19.4	0	0.0	0	0.0	2,091	5.8	94.2	50.3	49.7	83.9
104500*	97	38	39.2	3	7.9	3	8.1	1,051	9.2	90.8	53.9	46.1	74.1
105100	155	42	27.1	0	0.0	0	0.0	2,054	10.0	90.0	39.1	60.9	96.1
105200	153	76	49.7	3	3.9	2	2.7	1,629	11.7	88.3	34.1	65.9	81.9
105300	219	133	60.7	11	8.3	7	5.6	1,362	20.9	79.1	25.0	75.0	89.4
105400	282	180	63.8	17	9.4	12	7.0	1,110	27.4	72.6	23.7	76.3	94.0
105500	211	112	53.1	10	8.9	7	6.5	1,518	20.9	79.1	48.0	52.0	93.1
106100	273	139	50.9	21	15.1	12	9.9	1,390	24.5	75.5	49.5	50.5	98.1
106200	300	162	54.0	14	8.6	9	6.0	1,239	30.7	69.3	37.6	62.4	84.9
106300	299	134	44.8	12	9.0	9	7.3	1,411	21.5	78.5	46.9	53.1	90.0
106400	232	119	51.3	12	10.1	8	7.3	1,715	24.8	75.2	48.7	51.3	90.9
106500	219	158	72.1	16	10.1	7	5.0	1,676	20.6	79.4	48.7	51.3	97.7
106600	211	102	48.3	12	11.8	3	3.3	1,208	27.4	72.6	47.8	52.2	97.5
106700	364	170	46.7	21	12.4	9	6.1	2,162	19.6	80.4	52.0	48.0	94.8
107100	51	53	103.9**	3	5.7	2	4.1	393	7.9	92.1	86.5	13.5	82.9
107200	150	79	52.7	10	12.7	4	6.6	707	19.2	80.8	57.1	42.9	80.2
107300	463	278	60.0	6	2.2	2	0.8	2,289	9.0	91.0	74.8	25.2	78.7
107400	306	182	59.5	25	13.7	14	9.0	1,404	18.9	81.1	67.6	32.4	91.1
107500	304	140	46.1	8	5.7	2	1.5	1,064	16.3	83.7	68.5	31.5	95.1
107600	165	90	54.5	6	6.7	4	4.8	1,222	27.2	72.8	57.3	42.7	93.1

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Census Tract	Population <6 Years	Number Screened	Percent Screened	Number ≥ 10 µg/dl	SPR (%)	New Cases	SIR (%)	Total Housing Units	Percent Vacant	Percent Occupied	Percent Owner Occupied	Percent Renter Occupied	Percent Pre-1950 Housing
107700	307	153	49.8	13	8.5	9	6.5	2,067	13.7	86.3	62.2	37.8	90.3
108100	296	175	59.1	10	5.7	7	4.3	1,526	11.4	88.6	73.9	26.1	83.4
108200	181	107	59.1	1	0.9	1	1.0	1,240	8.1	91.9	61.1	38.9	77.9
108300	209	120	57.4	8	6.7	5	4.3	1,083	9.9	90.1	71.5	28.5	83.9
108400	104	62	59.6	2	3.2	2	3.4	557	14.9	85.1	39.2	60.8	68.3
108500	63	23	36.5	1	4.3	1	4.5	365	27.4	72.6	36.2	63.8	71.7
109600	383	145	37.9	18	12.4	10	8.0	1,832	15.0	85.0	51.7	48.3	89.4
109700	420	222	52.9	24	10.8	18	9.1	1,899	32.9	67.1	45.2	54.8	85.0
110100	301	135	44.9	8	5.9	7	5.4	1,779	19.5	80.5	58.6	41.4	88.2
110200	306	160	52.3	16	10.0	11	7.7	1,592	21.1	78.9	52.1	47.9	92.7
110300	262	129	49.2	16	12.4	11	9.2	1,744	23.9	76.1	46.6	53.4	94.2
110400	262	125	47.7	27	21.6	11	10.6	1,554	23.9	76.1	49.0	51.0	97.6
110500	181	108	59.7	14	13.0	4	4.4	1,038	29.6	70.4	46.9	53.1	92.9
111100	155	91	58.7	9	9.9	2	2.4	962	29.4	70.6	48.9	51.1	91.8
111200	147	55	37.4	6	10.9	2	4.5	1,098	34.4	65.6	44.0	56.0	95.7
111300	179	85	47.5	5	5.9	4	5.1	1,279	28.1	71.9	36.2	63.8	94.6
111400	151	86	57.0	15	17.4	8	11.0	1,129	29.8	70.2	47.7	52.3	94.1
111500	129	58	45.0	5	8.6	2	3.8	670	27.0	73.0	44.2	55.8	94.1
112100	194	93	47.9	2	2.2	1	1.1	2,753	12.8	87.2	29.4	70.6	89.9
112200	172	83	48.3	14	16.9	7	9.9	990	22.0	78.0	40.2	59.8	97.4
112300	231	135	58.4	12	8.9	7	5.8	1,494	25.0	75.0	39.3	60.7	98.4
112400	107	27	25.2	1	3.7	1	3.7	2,687	9.2	90.8	23.5	76.5	91.5
113100	169	49	29.0	0	0.0	0	0.0	1,784	6.7	93.3	46.6	53.4	69.6
113400	76	25	32.9	0	0.0	0	0.0	509	11.4	88.6	49.0	51.0	77.3
113500	154	17	11.0	0	0.0	0	0.0	1,408	7.0	93.0	67.0	33.0	80.9
114100	614	192	31.3	3	1.6	3	1.6	4,925	5.2	94.8	49.3	50.7	83.4
114200	329	89	27.1	0	0.0	0	0.0	2,698	4.8	95.2	62.7	37.3	65.4
114300	538	126	23.4	5	4.0	3	2.5	2,770	4.5	95.5	74.0	26.0	93.8
115100	321	134	41.7	3	2.2	2	1.5	1,962	6.9	93.1	58.2	41.8	94.7
115200	345	170	49.3	5	2.9	3	1.8	1,699	10.3	89.7	37.0	63.0	82.3
115300	566	342	60.4	20	5.8	12	3.7	2,578	14.5	85.5	62.3	37.7	86.7
115400	304	103	33.9	7	6.8	7	6.9	1,413	10.3	89.7	68.2	31.8	90.6
115500	629	308	49.0	23	7.5	12	4.2	2,987	17.2	82.8	45.3	54.7	95.5
115600	475	261	54.9	12	4.6	5	2.0	2,745	15.0	85.0	32.7	67.3	84.7
115700	377	248	65.8	16	6.5	9	3.9	1,890	19.4	80.6	38.3	61.7	90.5

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Census Tract	Population <6 Years	Number Screened	Percent Screened	Number ≥ 10 µg/dl	SPR (%)	New Cases	SIR (%)	Total Housing Units	Percent Vacant	Percent Occupied	Percent Owner Occupied	Percent Renter Occupied	Percent Pre-1950 Housing
116100	297	121	40.7	4	3.3	2	1.7	1,768	11.1	88.9	50.5	49.5	83.3
116200	505	153	30.3	9	5.9	5	3.5	2,458	14.2	85.8	51.3	48.7	96.4
116300	521	263	50.5	20	7.6	12	5.0	3,207	15.3	84.7	37.5	62.5	95.8
116400	597	346	58.0	40	11.6	23	7.4	2,483	23.3	76.7	36.6	63.4	95.0
116500	470	185	39.4	15	8.1	9	5.2	2,266	22.0	78.0	39.2	60.8	95.4
117100	112	43	38.4	3	7.0	3	7.1	1,181	15.3	84.7	20.5	79.5	96.4
117200	765	248	32.4	21	8.5	11	5.0	3,155	19.6	80.4	36.1	63.9	98.2
117300	284	153	53.9	2	1.3	2	1.3	1,487	16.9	83.1	36.0	64.0	94.8
117400	437	130	29.7	14	10.8	10	8.3	2,330	16.4	83.6	43.4	56.6	96.0
118100	247	95	38.5	9	9.5	3	3.5	994	33.0	67.0	34.5	65.5	88.2
118400	20	2	10.0	0	0.0	0	0.0	953	17.3	82.7	0.9	99.1	18.4
118500*	97	33	34.0	3	9.1	3	9.1	363	17.4	82.6	56.3	43.7	77.2
118600	217	86	39.6	10	11.6	3	3.9	1,291	20.3	79.7	34.2	65.8	88.9
119100	152	67	44.1	3	4.5	0	0.0	4,483	11.1	88.9	23.3	76.7	74.1
119200*	90	35	38.9	4	11.4	3	8.8	960	22.6	77.4	45.5	54.5	88.7
119300	111	31	27.9	1	3.2	1	3.4	1,324	13.6	86.4	4.5	95.5	63.1
120100*	58	34	58.6	3	8.8	2	6.3	503	30.6	69.4	37.0	63.0	91.9
120200	144	60	41.7	10	16.7	3	6.3	543	21.5	78.5	38.7	61.3	93.2
120300	164	106	64.6	12	11.3	6	6.3	916	34.3	65.7	40.2	59.8	78.0
121100	80	88	110.0**	1	1.1	1	1.2	865	10.8	89.2	1.6	98.4	82.5
121200	311	130	41.8	6	4.6	4	3.3	1,477	33.2	66.8	7.6	92.4	77.6
121300	119	78	65.5	1	1.3	1	1.3	613	30.8	69.2	7.3	92.7	91.7
121400	7	4	57.1	0	0.0	0	0.0	143	37.8	62.2	3.4	96.6	70.7
122100	180	78	43.3	3	3.8	3	3.9	864	11.7	88.3	38.5	61.5	63.1
122200*	0	4	-	0	0.0	0	0.0	2	0.0	100.0	50.0	50.0	50.6

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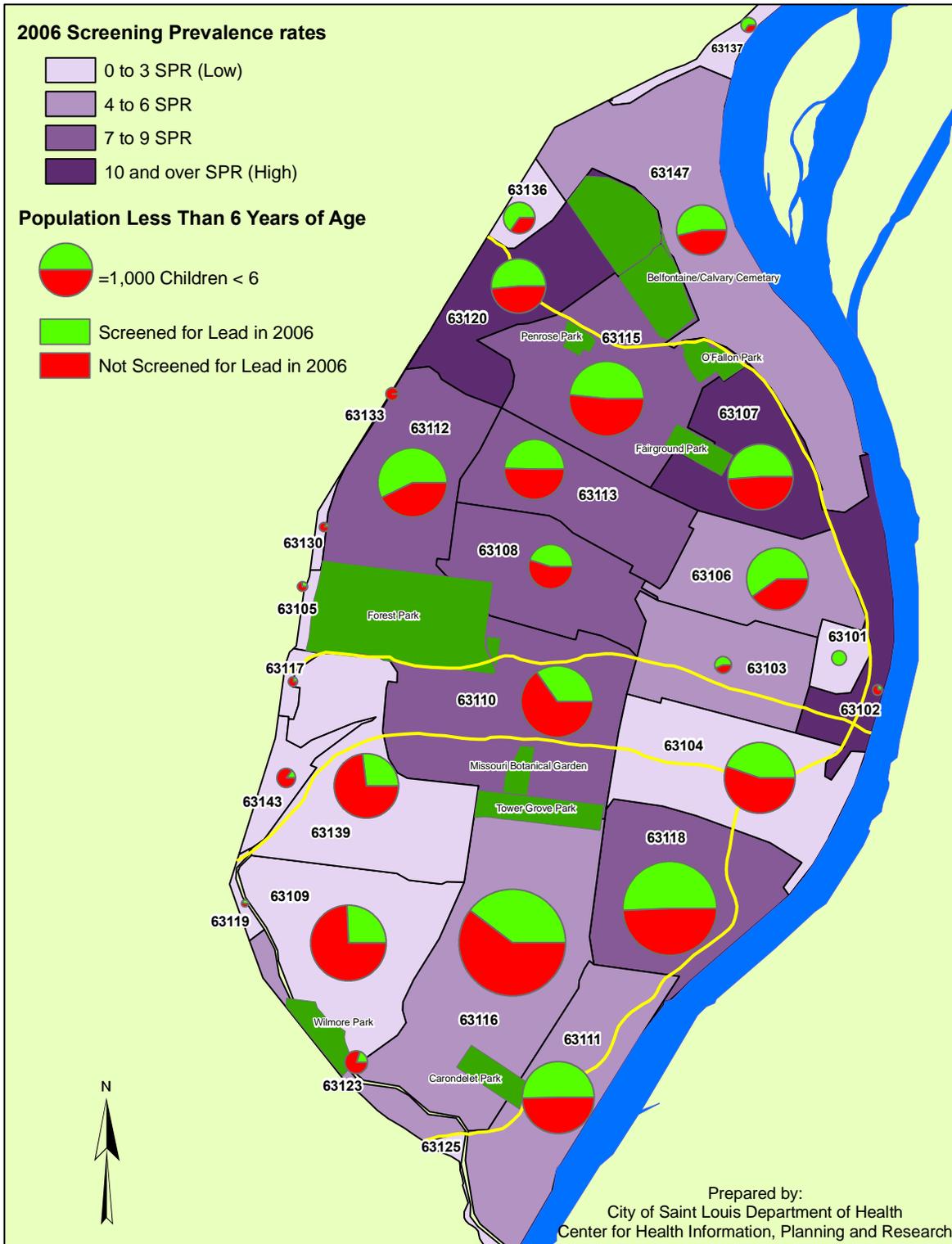
Census Tract	Population <6 Years	Number Screened	Percent Screened	Number ≥ 10 µg/dl	SPR (%)	New Cases	SIR (%)	Total Housing Units	Percent Vacant	Percent Occupied	Percent Owner Occupied	Percent Renter Occupied	Percent Pre-1950 Housing
122400	433	269	62.1	10	3.7	5	2.0	1,088	17.3	82.7	22.1	77.9	85.8
123100	426	170	39.9	12	7.1	5	3.3	1,973	26.1	73.9	39.5	60.5	87.5
123200	170	67	39.4	1	1.5	1	1.5	1,193	20.2	79.8	36.9	63.1	90.9
123300	288	98	34.0	3	3.1	3	3.2	1,716	20.9	79.1	34.9	65.1	96.0
123400	153	47	30.7	1	2.1	0	0.0	2,070	16.6	83.4	27.1	72.9	87.3
124100	600	281	46.8	33	11.7	16	6.6	2,645	30.2	69.8	35.1	64.9	92.0
124200	477	245	51.4	28	11.4	15	7.2	1,918	28.0	72.0	33.2	66.8	92.5
124300	293	111	37.9	6	5.4	3	2.9	2,145	27.4	72.6	41.5	58.5	95.5
124600	216	135	62.5	10	7.4	6	4.6	1,023	26.6	73.4	41.7	58.3	76.5
125500*	36	17	47.2	2	11.8	1	6.3	1,963	19.1	80.9	1.3	98.7	76.7
125600*	52	49	94.2	8	16.3	6	12.8	1,310	29.3	70.7	0.5	99.5	63.1
125700	480	312	65.0	2	0.6	2	0.7	1,795	35.7	64.3	5.1	94.9	32.9
126600	357	181	50.7	10	5.5	6	3.5	1,534	38.9	61.1	28.1	71.9	90.5
126700	214	101	47.2	15	14.9	8	9.9	1,017	30.8	69.2	31.4	68.6	93.1
Not geocoded	-	92	-	1	1.1	1	1.1	-	-	-	-	-	-
City Total	28,369	12,779	45.0	892	7.0	512	4.3	176,354	14.7	85.3	46.9	53.1	85.3

* Census tracts with small populations of children under 6 appear to have high screening prevalence rates due to fewer children screened.

**Numbers may exceed 100 percent due to use of 2000 Census population data

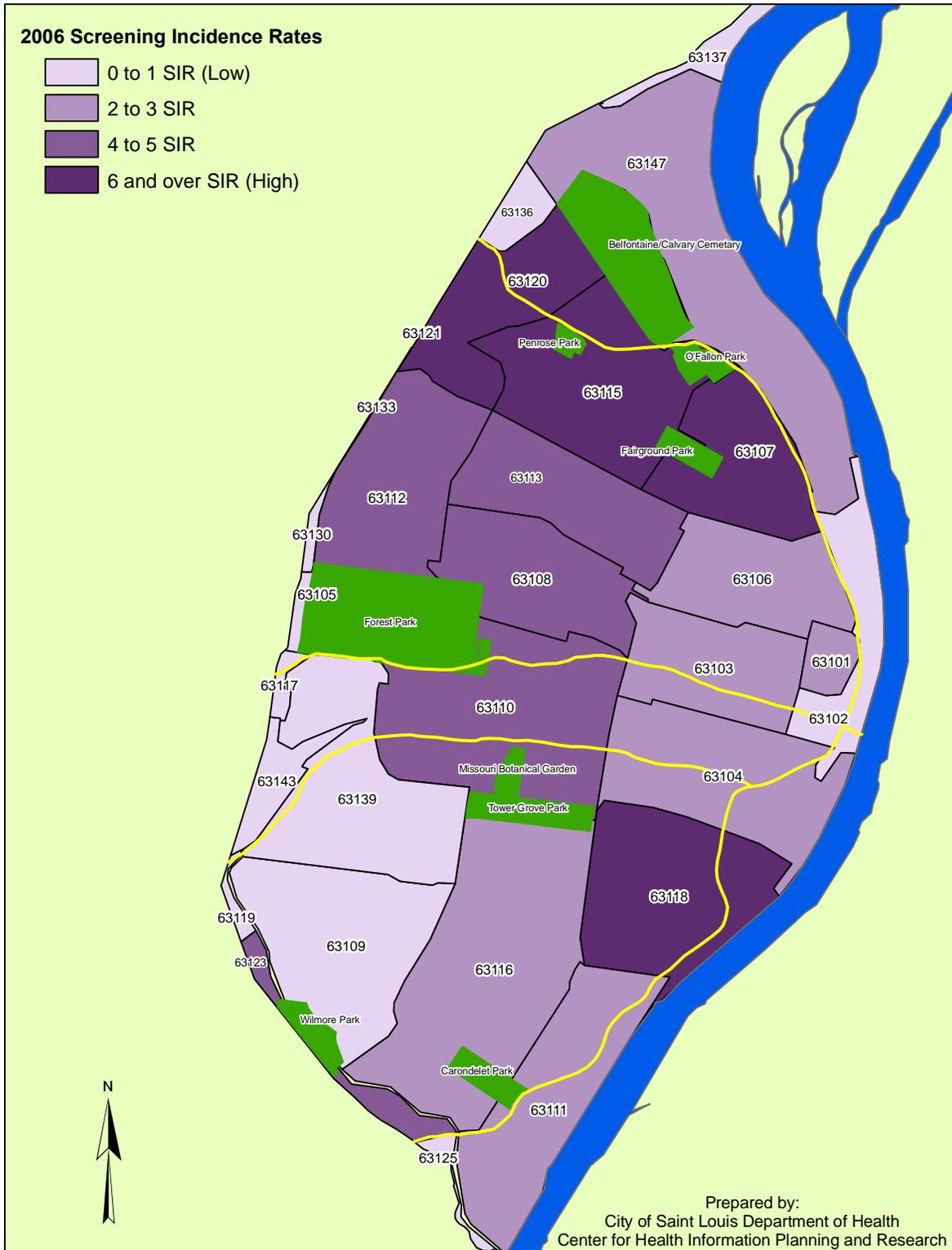
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Map B-1
Screening Prevalence Rates by ZIP Code, St. Louis 2006



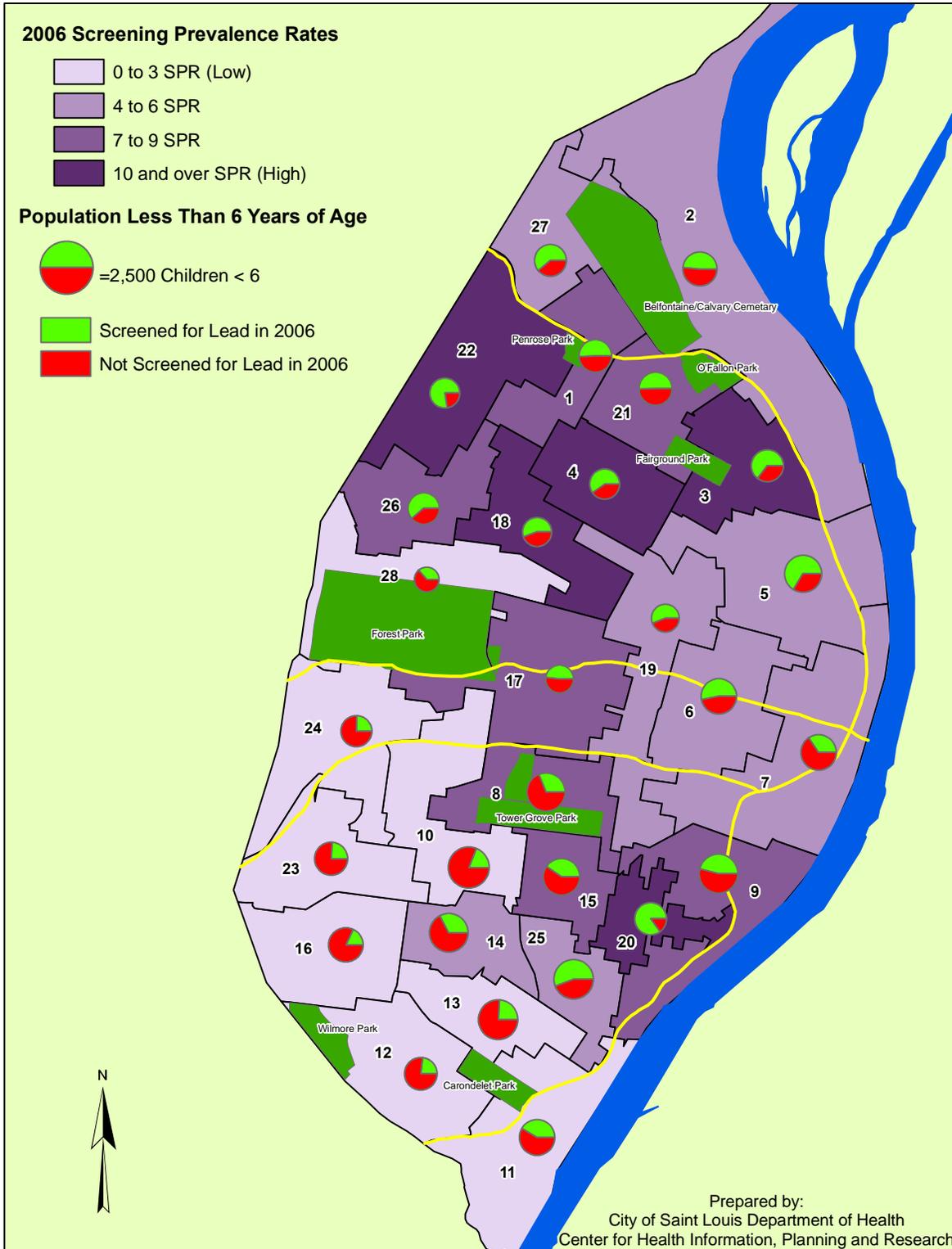
Childhood Lead Poisoning Prevention Program Annual Report 2006
City of St. Louis, Department of Health

Map B-2
Screening Incidence Rates by ZIP Code, St. Louis 2006



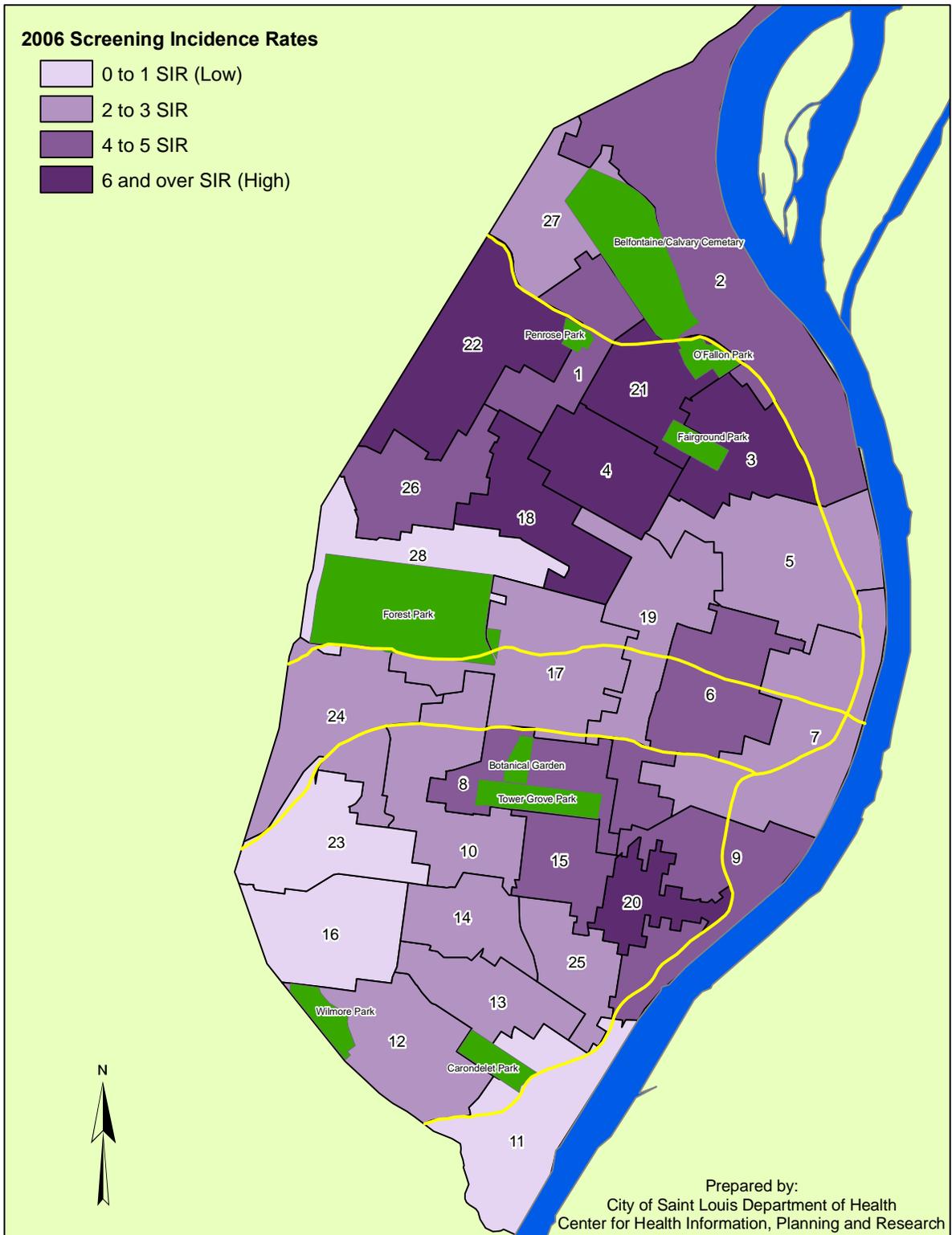
Childhood Lead Poisoning Prevention Program Annual Report 2006
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Map B-3
Screening Prevalence Rates by Ward, St. Louis 2006



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Map B-4
Screening Incidence Rates by Ward, St. Louis 2006



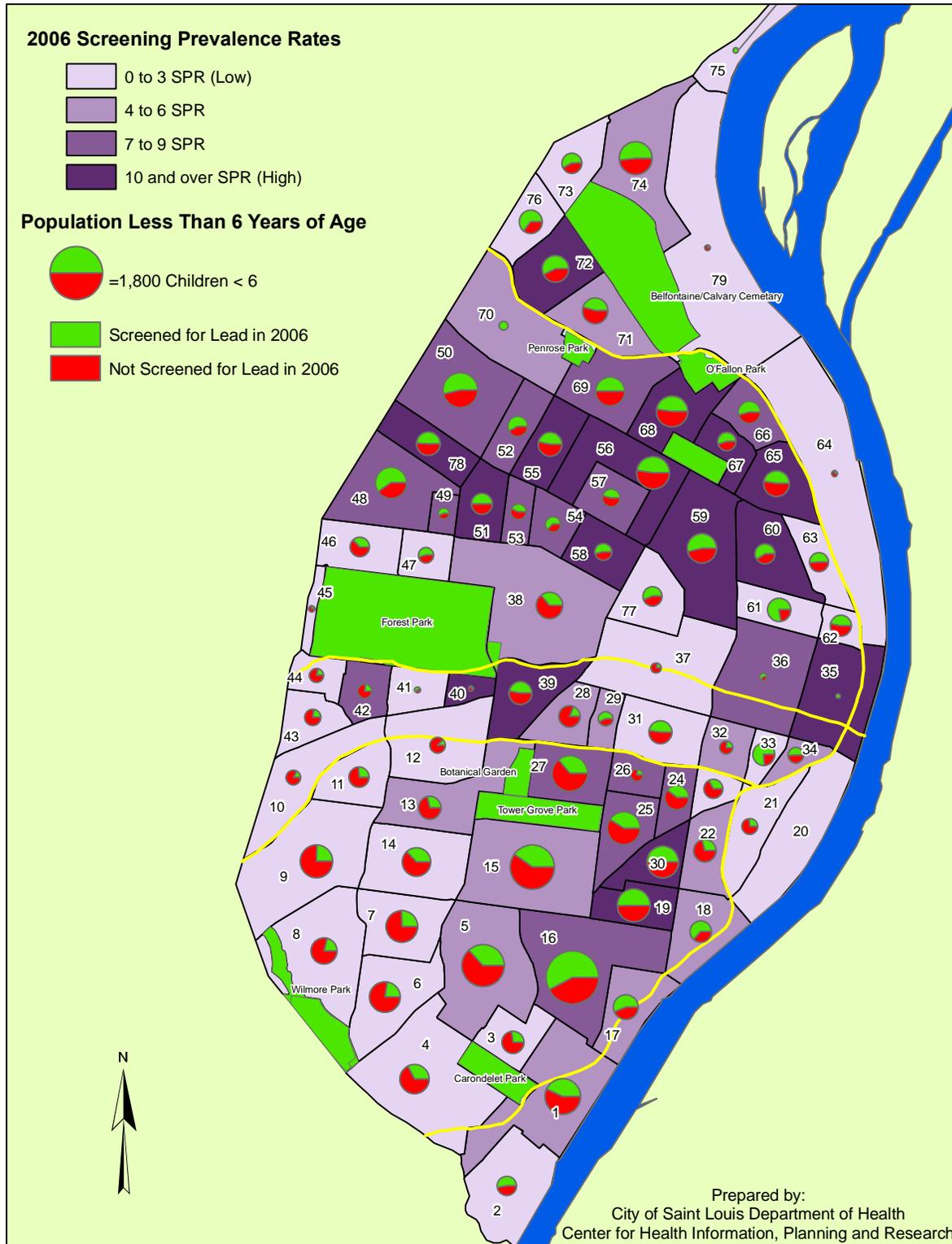
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Neighborhood Map Legend
Neighborhood Number and Neighborhood Name

Neighborhood (NHD) Number	Neighborhood Name	Neighborhood (NHD) Number	Neighborhood Name
1	Carondelet	41	Cheltenham
2	Patch	42	Clayton-Tamm
3	Holly Hills	43	Franz Park
4	Boulevard Heights	44	Hi-Point
5	Bevo Mill	45	Wydown/Skinker
6	Princeton Heights	46	Skinker/DeBaliviere
7	South Hampton	47	DeBaliviere Place
8	St. Louis Hills	48	West End
9	Lindenwood Park	49	Visitation Park
10	Ellendale	50	Wells/Goodfellow
11	Clifton Heights	51	Academy
12	The Hill	52	Kingsway West
13	Southwest Garden	53	Fountain Park
14	North Hampton	54	Lewis Place
15	Tower Grove South	55	Kingsway East
16	Dutchtown	56	The Greater Ville
17	Mount Pleasant	57	The Ville
18	Marine Villa	58	Vandeventer
19	Gravois Park	59	JeffVanderLou
20	Kosciusko	60	St. Louis Place
21	Soulard	61	Carr Square
22	Benton Park	62	Columbus Square
23	McKinley Heights	63	Old North St. Louis
24	Fox Park	64	Near North Riverfront
25	Tower Grove East	65	Hyde Park
26	Compton Heights	66	College Hill
27	Shaw	67	Fairground Neighborhood
28	McRee Town	68	O'Fallon
29	Tiffany	69	Penrose
30	Benton Park West	70	Mark Twain/I-70 Industrial
31	The Gate District	71	Mark Twain
32	Lafayette Square	72	Walnut Park East
33	Peabody, Darst, Webbe	73	North Point
34	Lasalle	74	Baden
35	Downtown	75	Riverview
36	Downtown West	76	Walnut Park West
37	Midtown	77	Covenant Blu/Grand Center
38	Central West End	78	Hamilton Heights
39	Forest Park Southeast	79	North Riverfront
40	Kings Oak		

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Map B-5
Screening Prevalence Rates by Neighborhood, St. Louis 2006



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Map B-6
Screening Incidence Rates by Neighborhood, St. Louis 2006

