

Childhood Lead Poisoning in The City of St. Louis



Annual Report 2009

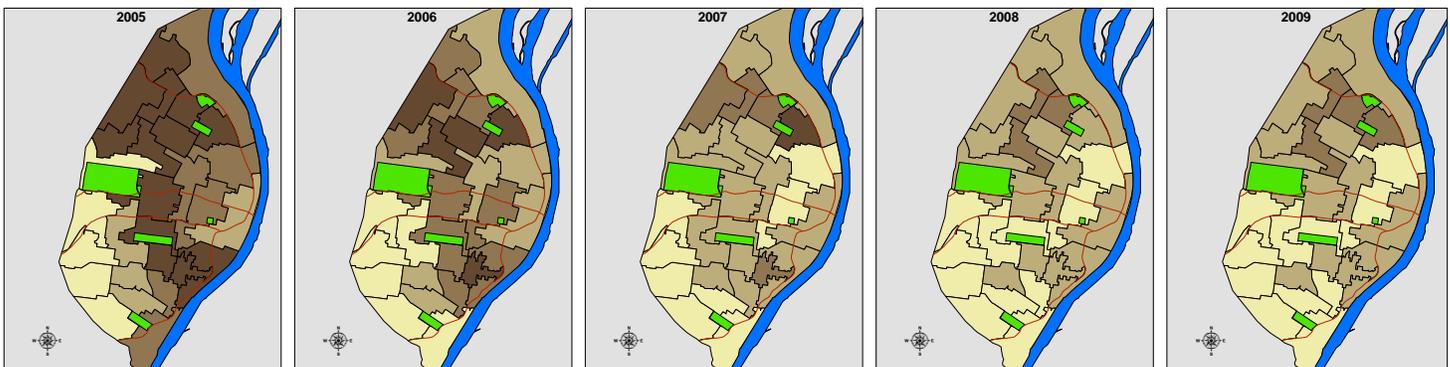
City of St. Louis
Department of Health
Childhood Lead Poisoning Prevention Program

Statistics at a Glance

City of St. Louis Childhood Lead Poisoning Surveillance 2005-2009

Screening	2005		2006		2007		2008		2009	
Population <6 years old	28,053		29,064		29,064		31,430		30,199	
St. Louis City Children Screened	11,227		12,779		12,836		13,634		13,522	
Percent eligible screened	40.0%		44.0%		44.2%		43.4%		44.8%	
Mean age in years	3.0		3.0		2.9		2.9		2.8	
Male:Female Ratio	1.03		1.04		1.05		1.05		1.05	
Race (%)										
African American	8,067	71.9%	9,147	71.6%	9,114	71.0%	9,725	71.3%	9,444	69.8%
White	2,032	18.1%	2,300	18.0%	2,522	19.6%	2,757	20.2%	2,714	20.1%
Other	167	1.5%	690	5.4%	457	3.6%	347	2.6%	309	2.3%
Race Missing	961	8.6%	642	5.0%	743	5.8%	805	5.9%	1,055	7.8%
<i>Total</i>	<i>11,227</i>	<i>100%</i>	<i>12,779</i>	<i>100%</i>	<i>12,836</i>	<i>100%</i>	<i>13,634</i>	<i>100%</i>	<i>13,522</i>	<i>100%</i>
Lead Poisoning	2005		2006		2007		2008		2009	
Prevalent Cases (Pb ≥ 10 µg/dl)	1,025		892		567		502		438	
Screening Prevalence Rate (%)	9.1%		7.0%		4.4%		3.7%		3.2%	
Incident Cases (Pb ≥ 10 µg/dl)	406		512		345		334		267	
Screening Incidence Rate (%)	4.0%		4.3%		2.9%		2.6%		2.1%	
Blood Lead Results										
0-4 µg/dl	7,413	66.0%	8,778	68.7%	9,753	76.0%	11,145	81.7%	11,184	82.7%
-negligible blood lead										
5-9 µg/dl	2,789	24.8%	3,109	24.3%	2,516	19.6%	1,987	14.6%	1,900	14.1%
-evidence of exposure but not lead poisoned										
≥ 10 µg/dl	1,025	9.1%	892	7.0%	567	4.4%	502	3.7%	438	3.2%
-lead poisoned										
Missouri Screening Prevalence Rate	2.8%		2.2%		1.5%		1.2%		1.2%	
U.S. Estimated Prevalence Rate	1.6%		1.2%		1.2%		1.2%		1.2%	

2005-2009 Reduction of the Screening Prevalence Rate by Aldermanic Wards



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The 2009 CLPPP Annual Report can be downloaded from:

<http://stlouis.missouri.org/citygov/health/reportslead.html>



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Executive Summary

Since 1996 the City of St. Louis Department of Health has published annual reports regarding childhood lead poisoning (CLP). In this, the fourteenth edition, we are proud to announce that the screening prevalence rate has again dropped to a new low of 3.2%.

A rate of 3.2% continues to exceed state and national rates and considerable work remains in St. Louis. However, the rate in 2001 was 16.2%, which means that in eight years, the rate of CLP has decreased by over 80 percent in the City of St. Louis.

These results are the product of a collaborative approach by four City agencies: the Department of Health, the Building Division, the Community Development Administration, and the

Problem Properties Court. In addition, numerous community partners have contributed to the effort via the Lead Safe St. Louis Task Force.

As its predecessors, this report will describe many aspects of CLP in St. Louis. Several factors appear to have significant effect on exposure to lead. Age, socioeconomic status, physical geography, and time of year are some of the variables that play a role in the likelihood of children being exposed to environmental lead.

We hope this report is informative and contributes valuable information to the discussion surrounding childhood lead poisoning in the City of St. Louis.

Contents

What is Childhood Lead Poisoning?	5
How it Happens	
Symptoms	
National and State Statistics	
Who Was Tested for Childhood Lead Poisoning in 2009?	6
Testing Guidelines	
Citywide Numbers	
Age and Testing	
Targeted Screening	
Who Was Lead Poisoned in 2009?	10
Citywide Numbers	10
Historic Data	
Case Distribution	
Demographic Factors	12
Demographic Profile	
Age	
Race	
Gender	
When Does Childhood Lead Poisoning Occur?	15
Monthly and Seasonal Data	
Where Does Childhood Lead Poisoning Occur?	16
ZIP Codes	
Wards	
Neighborhoods	
What Did City Programs Do in 2009?	19
Education	
Inspections	
Lead Hazard Controls	
Courts	

Lead Safe St. Louis **22**

2009 Accomplishments and Activities

Limitations and Discussion **23**

Summary **24**

Data Tables **25**

CLP, 1971-2009
CLP by Healthcare Provider
CLP by Zip Code
CLP by Ward
CLP by Neighborhood
CLP by Census Tract

Maps **38**

Screening Prevalence Rates by ZIP Code
Screening Incidence Rates by ZIP Code

Screening Prevalence Rates by Ward
Screening Incidence Rates by Ward

Screening Prevalence Rates by Neighborhood
Screening Incidence Rates by Neighborhood

What is Childhood Lead Poisoning?

How it Happens, Symptoms, and State and National Statistics

The Centers for Disease Control and Prevention (CDC) have set the threshold for lead poisoning at 10 micrograms of lead per deciliter of blood ($\mu\text{g}/\text{dl}$). Childhood lead poisoning (CLP) occurs when a child has a blood lead test that meets or exceeds this threshold. Approximately 250,000 children aged 1-5 years have elevated blood lead levels in the United States.

The major source of lead exposure among U.S. children is lead-based paint and lead-contaminated dust found in deteriorating buildings. Historically, the main source of lead exposure was automobile exhaust. However, since lead was removed from gasoline in the 1970's, epidemiologic evidence has determined that most lead exposure occurs in the home environment from lead paint dust and chips.

Lead often enters the body when children put their hands or other objects covered with lead dust into their mouths or, less commonly, eat paint chips or soil that contains lead. Lead poisoning may also result from breathing in lead dust created during renovation or home repair.

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.

More than 90% of the housing stock in St. Louis was built before 1978. This does not mean that all those homes have lead paint hazards in them. However, in a considerable portion of dwellings, the paint is chipping and turning into dust, which creates a dangerous situation.

Lead poisoning can affect nearly every system in the body. It can cause learning disabilities, behavioral problems, and at very high levels, seizures, coma, and even death. It is also very difficult to detect without a blood test. Rarely are symptoms evident, even at relatively high levels.

The screening prevalence rate (SPR) is the most common way to measure how widespread CLP is. In the United States, the SPR is estimated at 1.2%. This means that approximately 1.2% of children who had a blood test for lead had a level at or above 10 $\mu\text{g}/\text{dl}$.

In Missouri, the SPR is also about 1.2% of children screened. In 2009, the City of St. Louis had an SPR of 3.2%. While still considerably higher than state and national rates, six years ago the City of St. Louis' rate was almost 14%.

Who Was Tested for Childhood Lead Poisoning in 2009?

Testing Guidelines

There are approximately 30,000 children under the age of six residing in the City of St. Louis. In order to effectively monitor CLP in St. Louis, the Department of Health receives both monthly and annual data on every child screened for CLP in the City.

Because the entire City of St. Louis is classified as a high-risk area, Missouri guidelines state that all children under six years of age must be screened for CLP annually (Table I).

Table I
Missouri Lead Testing Plan

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 and once following completion of the work</u>. (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 be <u>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>.

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City of St. Louis, Department of Health

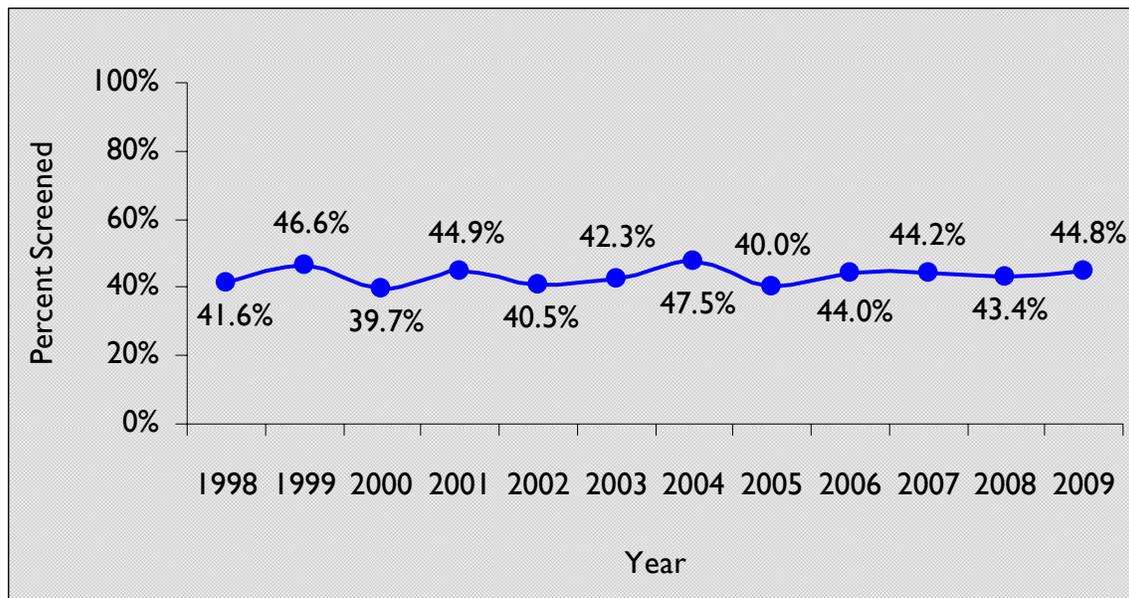
Citywide Numbers

In 2009, there were 13,522 children screened for CLP in the City of St. Louis. Although this number reflects a decrease of 112 screenings from 2008 to 2009 (13,634 children screened in 2008), this actually represents a slight increase in the percentage of children

screened due to a decreased population estimate.

Although the state of Missouri mandates that all children under 6 must be screened, significantly increasing the percent of children screened has proven difficult historically (Figure 1).

Figure 1
Percentage of Children Screened for Lead Poisoning, 1998-2009



The Department of Health (DOH) relies on primary care physicians to screen children for CLP. The DOH screened 1,104 children in 2009, but does not have the capacity to test all 30,000 children in the City.

One of the difficulties in screening 100% of City children is a perception by physicians that some children do not need to be screened for various reasons. Some areas of the City, particularly the southwest regions, have

had considerably lower rates of CLP than other areas of the City. While this is a good thing, it is important to screen all children for CLP. Not all homes in the areas with low prevalence rates are free of lead hazards. Physicians assuming that a child from a particular area of the City will not be exposed to lead, ignore the chances that the child could still be lead poisoned.

Additionally, many physicians think that if a child is not lead poisoned by the age

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 City of St. Louis, Department of Health

of 2, there is no need to screen anymore because the age of 2 is the age at which a child is most likely to be lead poisoned. This is also dangerous. A City of St. Louis cohort study found that 8.1% of children not lead poisoned at age 2 were found to be lead poisoned at a later age. Also, of children who had

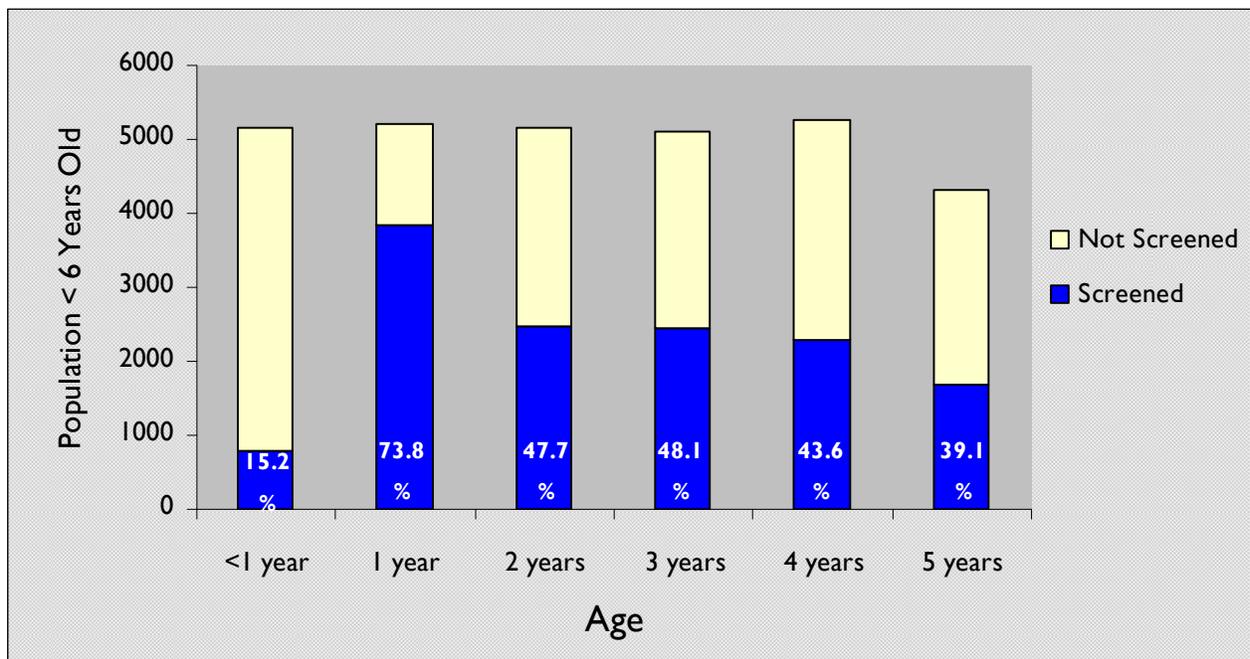
undetectable levels of lead in their blood at ages 1 and 2, 30% of them had a level of at least 5 µg/dl later. This information is disseminated to physicians in order to educate them about the importance of screening all children through age 6.

Screening and Age

As stated above, there is a challenge involved with screening all children under 6 years old. Looking within age groups, the highest screening rate (73.8%) is for children 1 year of age (Figure 2). This is the age at which the first recommended screening should

occur. A similar percentage of screenings should appear in the 2-5 year old populations indicating that children are being consistently screened on an annual basis. However, screening again appears to drop off once a child reaches 2 years of age.

Figure 2
Children Screened for CLP by Age, 2009



Targeted Screening

Figure 3
Testing Ratios of Children Screened, 2009

ZIP	Testing Ratio	SPR (%)
63106	1.35	1.45
63120	1.19	3.82
63147	1.17	3.94
63111	1.16	2.30
63115	1.16	5.99
63107	1.15	5.43
63112	1.14	4.40
63118	1.06	4.90
63113	1.06	4.12
63104	0.94	1.98
63116	0.93	1.94
63108	0.93	4.00
63110	0.78	2.69
63103	0.77	1.61
63101	0.69	0.00
63139	0.66	0.41
63109	0.64	0.63

	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 63120 ZIP code represents 5.1% of all lead screenings in 2009, but only 4.3% of the City's population under 6 years of age. Thus, the ratio of 1.19 means that proportional to its population, more screenings occur in 63120.

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.

Who Was Lead Poisoned in 2009?

Citywide Numbers

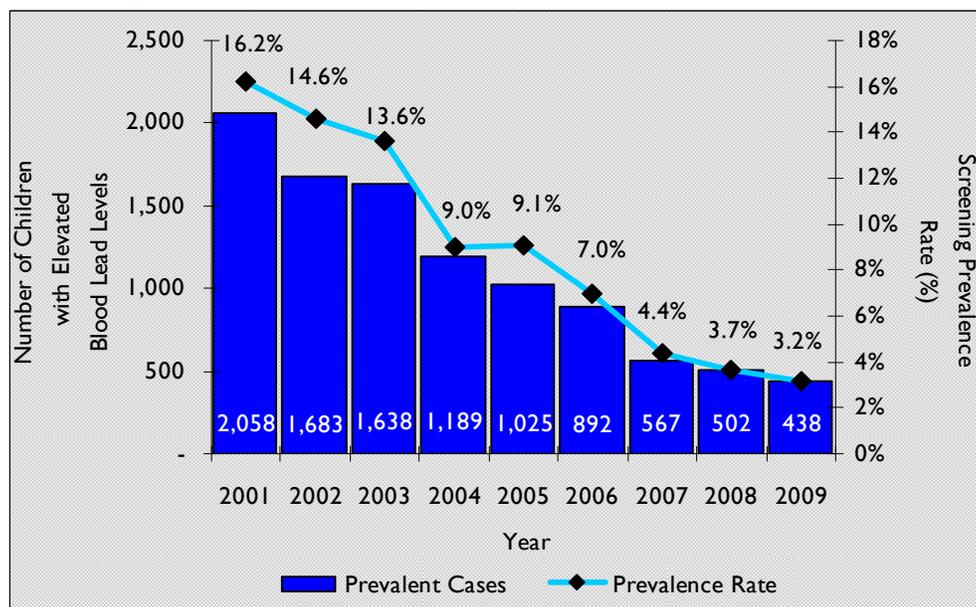
438 children were found to have elevated blood lead levels in 2009. The screening prevalence rate (SPR) of 3.2% is the number of children screened with blood lead levels $\geq 10 \mu\text{g/dl}$ divided by the total number of children screened (438/13,522). It includes those who test elevated for the first time (incident cases) and those who had been diagnosed with CLP in a previous year (prevalent cases). 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 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 decreased modestly. 2004 was marked by a substantial decrease in SPR,

followed by a leveling out in 2005, and a steady decrease again from 2006-2009 (Figure 4).

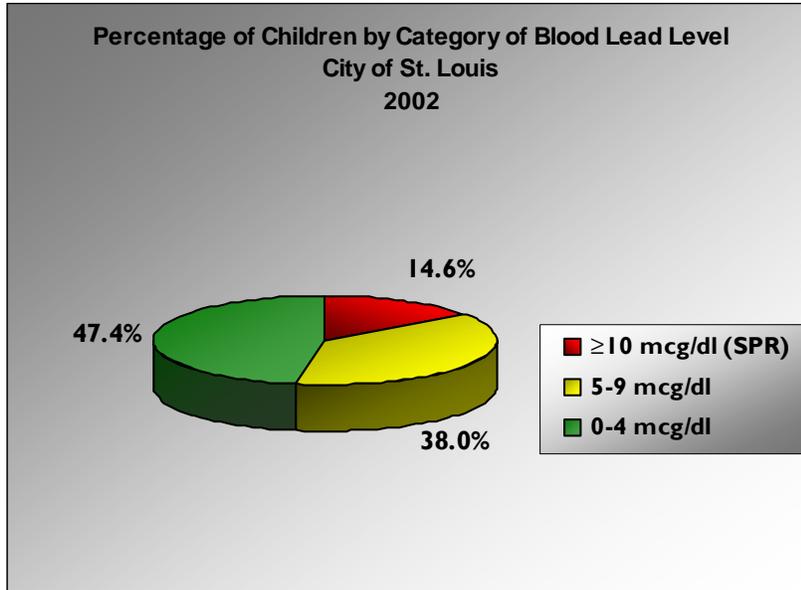
It is likely that, as programs continue to succeed and the rate continues to decline, the rate will begin to decline at a lower percentage from year to year. This is not surprising, however. Often, it is more difficult to reach areas and populations where lead is either entrenched or emerging. The reasons for this may be numerous ranging from language barriers and poverty to fear and distrust of government. This slower rate of decline is evident already from 2007 and 2009. One cannot be certain that the rate will continue to slow its pace of decline or even continue declining at all, but it is the most likely scenario.

Figure 4
Screening Prevalence Rate, 2001-2009



Case Distribution

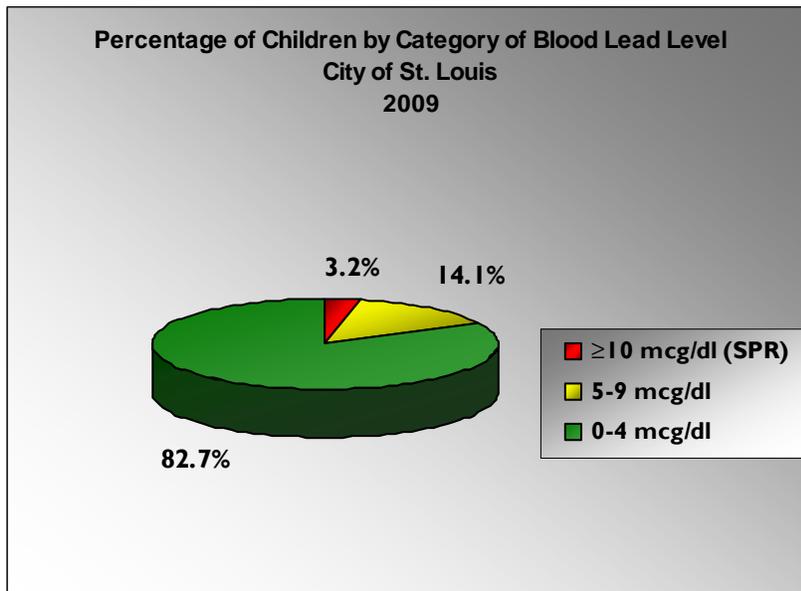
**Figure 5
 Blood Lead Results, 2002**



A child's blood lead level is the best way to determine the severity of their exposure to lead. A simple way to think about lead exposure is to categorize various blood lead levels. The pie charts to the left have three categories of blood lead levels (BLL):

- Minimal or no lead exposure (green)
- Not lead poisoned but evidence of some exposure (yellow)
- Lead poisoned (red)

**Figure 6
 Blood Lead Results, 2009**



The top chart represents blood lead levels in 2002, while the bottom chart is 2009 levels. Of significance is the dramatic increase in the proportion of children in the category of least exposure. In 2002, the 0-4 $\mu\text{g}/\text{dl}$ category accounted for less than half of St. Louis children. In 2009, almost 83 percent of children screened were in the most favorable category.

In early 2007, Lead Safe St. Louis (LSSL) employees began an outreach program aimed at primary prevention of CLP. Whenever a child was not lead poisoned but had a BLL of 5-9 $\mu\text{g}/\text{dl}$, the family was contacted, educated about ways to reduce lead exposure, and encouraged to have a lead inspection.

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 City of St. Louis, Department of Health

Demographic Profile

CLP varies across several demographic variables. Age, race, and socioeconomic status all have correlations with lead poisoning. Below is a table outlining some of

these variables for CLP in 2009. Following, each of these variables and some others will be discussed at further length.

Figure 7
Demographic Profile of CLP, 2009

Demographic	Number Screened	Percent of Total Screened	Number ≥ 10 µg/dl	Screening Prevalence Rate (%)	Number of New Cases	Screening Incidence Rate (%)	0-4 µg/dl		5-9 µg/dl		≥ 10 µg/dl	
							N	%	N	%	N	%
Age												
Less than 1 year old	781	5.8%	5	0.6	5	0.6	734	94.0%	42	5.4%	5	0.6%
1 year old	3,840	28.4%	116	3.0	100	2.6	3,164	82.4%	560	14.6%	116	3.0%
2 years old	2,462	18.2%	116	4.7	72	3.1	1,925	78.2%	421	17.1%	116	4.7%
3 years old	2,453	18.1%	97	4.0	44	1.9	2,005	81.7%	351	14.3%	97	4.0%
4 years old	2,300	17.0%	65	2.8	25	1.2	1,923	83.6%	312	13.6%	65	2.8%
5 years old	1,686	12.5%	39	2.3	21	1.4	1,433	85.0%	214	12.7%	39	2.3%
Gender												
Female	6,602	48.8%	224	3.4	139	2.2	5,497	83.3%	881	13.3%	224	3.4%
Male	6,920	51.2%	214	3.1	128	2.0	5,687	82.2%	1,019	14.7%	214	3.1%
Race												
African American	9,444	69.8%	366	3.9	218	2.5	7,601	80.5%	1,477	15.6%	366	3.9%
White	2,714	20.1%	42	1.5	28	1.1	2,391	88.1%	281	10.4%	42	1.5%
Other	309	2.3%	8	2.6	6	2.0	271	87.7%	30	9.7%	8	2.6%
Unknown	1,055	7.8%	22	2.1	15	1.5	921	87.3%	112	10.6%	22	2.1%

Age and CLP

Age is one factor that can affect a child's chances for becoming poisoned by lead. Children 2 years of age had the highest SPR in 2009 (Figure 8). These children are more active in exploring their environments and also have poor hand-washing skills. Children at 1 year of age are less mobile than children at 2 years of age. Two year olds may also have higher screening prevalence rates than one year olds because lead stays in a child's blood stream and is difficult to get rid of once a child becomes poisoned.

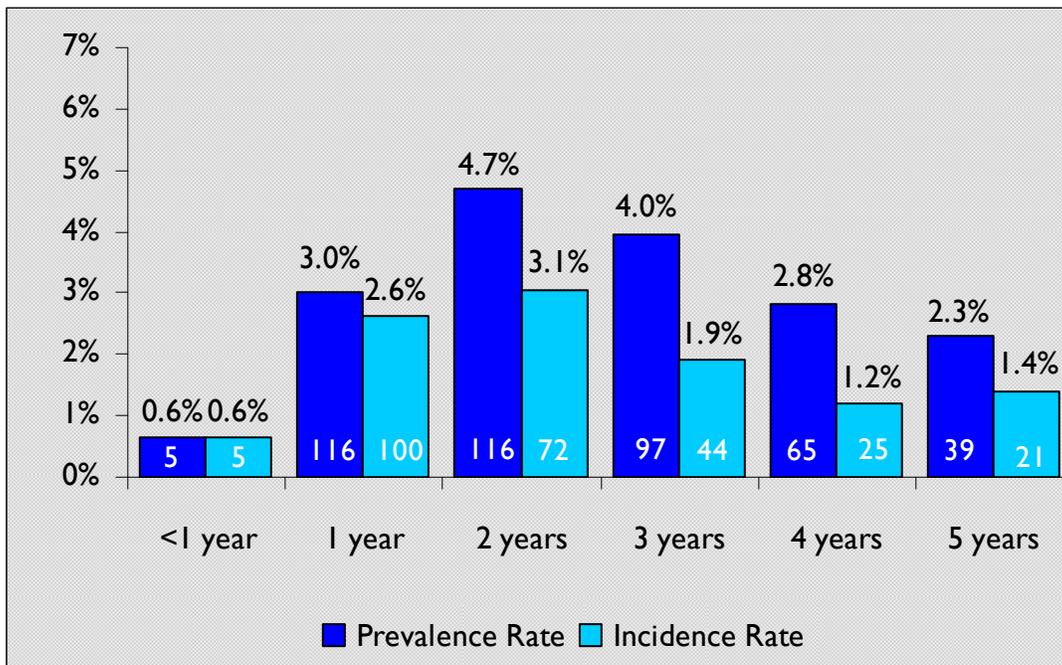
Therefore, it is important to also look at the screening incidence rate (SIR),

which only includes new cases of lead poisoning. The SIR for 2 year olds (3.1%) is much closer to that of 1 year olds (2.6%), and then it decreases for 3 year olds and is lower in 4 and 5 year olds as well.

The SIR for children of all age groups decreased in 2009 from 2008 with a citywide decrease from 2.6% to 2.1%.

The screening prevalence and incidence rates for children less than 1 year of age are identical in 2009. Children at this age are young enough that they have rarely been tested for CLP before. Thus, most cases are new cases.

Figure 8
Prevalent and Incident Cases of Lead Poisoning by Age, 2009

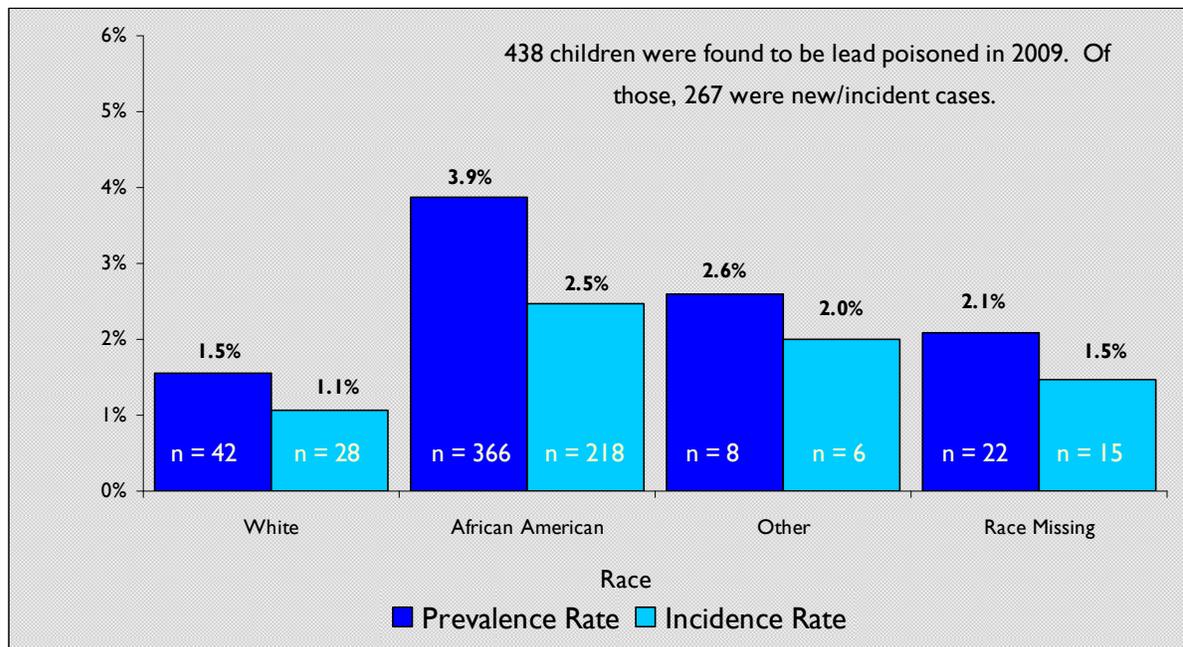


Race and CLP

In and of itself, race is not an indicator of CLP. However, other risk factors such as poverty, poor housing stock, insufficient access to medical care, and inadequate quality medical care are higher among minorities and these factors contribute to CLP. In 2009,

almost 70% of the children screened for CLP were African American. However, African American children accounted for over almost 84% (366/438) of all lead poisoned children in 2008 (Figure 9).

Figure 9
Prevalent and Incident Cases of Lead Poisoning by Race, 2009



Gender and CLP

An examination of gender and CLP does not show any major significant differences between males and females. Nearly even numbers of males and females were tested for CLP in 2009. Females make up about 49% of children tested in

2009 while males make up about 51%. Females were slightly more likely to be lead poisoned (SPR=3.4%) than males (SPR=3.1%) in 2009. However, males were more likely to be in the 5-9 µg/dl category (refer back to Figure 7).

When Does Childhood Lead Poisoning Occur?

Seasonality and CLP

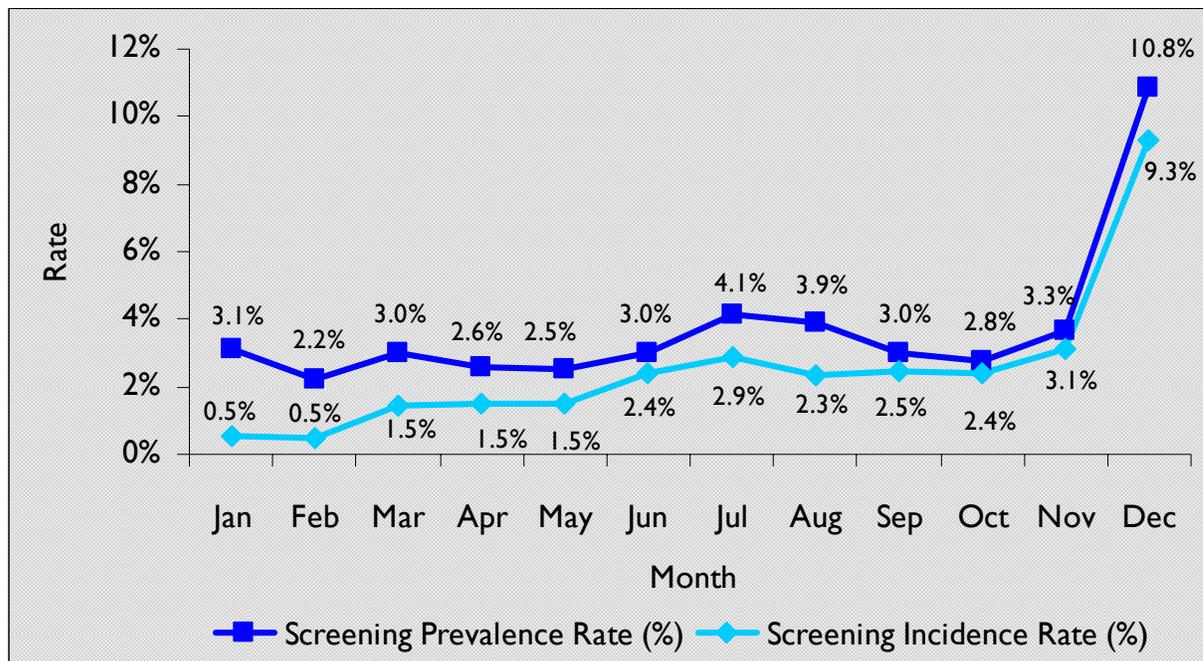
CLP can occur at anytime throughout the year. However, it is typical to see higher rates of CLP in the warmer months of the year. Several factors may contribute to higher rates during warmer months. Children play outside more in the summer and may be exposed to lead dust in the soil. Also, contaminated dirt tracked into the house by others may lead to higher rates.

Additionally, many families (especially those without air conditioning) open the windows in warmer months. This could lead to higher CLP rates in two ways. First, the friction of opening and closing windows painted with lead paint can create additional lead paint chips and

dust. Second opening windows allows wind to blow through a house, which could exacerbate exposure to airborne lead dust.

Another important consideration when evaluating the seasonality of CLP is the imperfect nature of reporting mechanisms. For example, the graph below shows an enormous spike in CLP for December. It is unclear as to why so many tests in December yielded elevated blood lead levels. This has not been the case in previous years and could possibly be the result of reporting error on behalf of testing laboratories. (Figure 10).

Figure 10
Prevalent and Incident Cases of Lead Poisoning by Month, 2009



Where Does Childhood Lead Poisoning Occur?

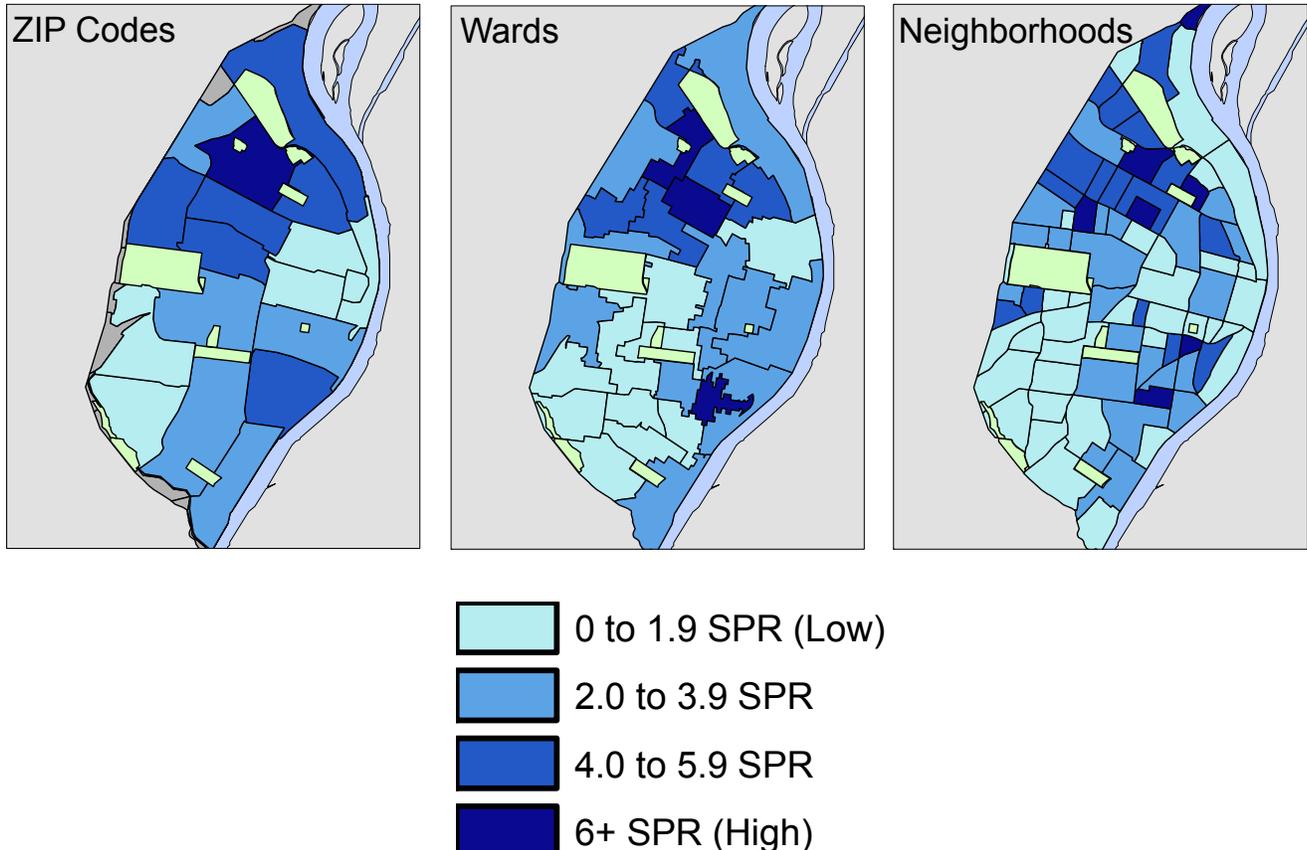
Geography and CLP

The use of geography in lead poisoning 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.

Areas of lower socioeconomic status and older, more deteriorated housing stock generally have higher rates of CLP

than more affluent areas. The maps below provide three thumbnail views of CLP in St. Louis with increasing levels of acuity (Figure 11). The first map is of the 18 ZIP codes contained within the City. The second is of the 28 aldermanic wards. The final map displays the City's 79 various neighborhoods. The darker colored areas represent the places where CLP is most prevalent (see legend below). Light green areas are assorted City parks. Larger and more detailed maps for both prevalence and incidence rates are provided later in the appendix.

Figure 11
Geography of Lead Poisoning Prevalence, 2009



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City of St. Louis, Department of Health

ZIP Codes and CLP

There are 18 ZIP Codes completely contained in the City of St. Louis. In 2009, one ZIP code was in the category of greatest concern (prevalence rate of 6 or more). The Zip Codes with the five highest rates were 63115 (6.0),

63107 (5.4), 63118 (4.9), 63112 (4.4), and 63113 (4.1). Four of these five ZIP Codes are located in the northern region of the City, while 63118 is in the southeast quadrant.

Wards and CLP

There are 28 aldermanic wards in St. Louis. The prevalence rate in these wards ranged from zero in three different wards to 6.8 in Ward 4. Ward 4 is joined by Wards 1 and 20 in the category of most concern. The wards with the five highest prevalence rates in 2009 were Ward 4 (6.8), Ward 20 (6.3), Ward 1 (6.0), Ward 3 (5.3), and Ward

26 (5.1). As with ZIP Codes, four of the five most affected Wards are in northern areas of the City.

The five wards with the lowest prevalence rates in 2009 were Ward 12 (0.0), Ward 16 (0.0), Ward 23 (0.0), Ward 10 (1.0), and Ward 13 (1.4).

Neighborhoods and CLP

There are 79 official neighborhoods in the City of St. Louis. Due to population factors, the number of children screened in City neighborhoods ranges from 1,010 to zero. Accordingly, rates where small numbers of children are screened need to be interpreted with caution, as small numbers make for volatile rates. However, among neighborhoods with adequate numbers of children screened, prevalence rates ranged from zero in several neighborhoods to almost 13.0 in one neighborhood.

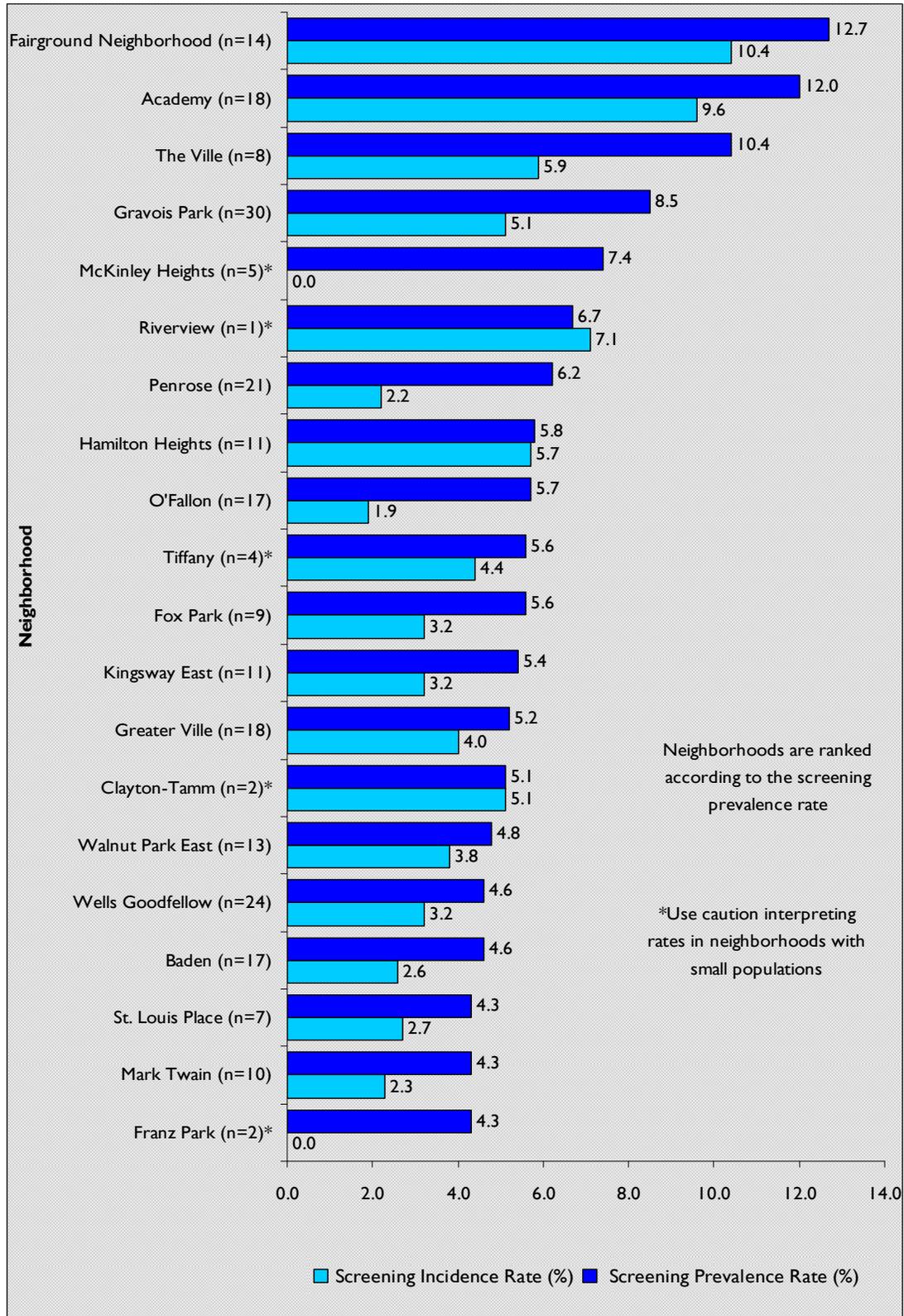
size) were Fairground (12.7), Academy (12.0), The Ville (10.4), Gravois Park (8.5), and McKinley Heights (7.4).

The fourteen neighborhoods with zero cases of CLP and a significant number of children screened are The Hill, Boulevard Heights, Princeton Heights, St. Louis Hills, Lindenwood Park, Clifton Heights, Southwest Garden, Compton Heights, Lafayette Square, Vandeventer, Ellendale, Lasalle, McRee Town, and Visitation Park. For a graphic displaying the 20 neighborhoods with the highest CLP rates, see [Figure 12](#).

The five neighborhoods with the highest rates of CLP (with adequate sample

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 City of St. Louis, Department of Health

Figure 12
Prevalent and Incident Cases of Lead Poisoning for the Top 20
Neighborhoods in St. Louis, 2009



What Did City Programs Do in 2009?

Programmatic Activity

The childhood lead poisoning program in the City of St. Louis is a partnership of several City agencies. The Building Division, Community Development Administration, Department of Health, and the Problem Properties Court work together, performing various functions.

The majority of these functions revolve around issues of education, outreach, building inspections, hazard controls, enforcement, and securing funding for continuing or expanding existing programs.

Building Inspections and Lead Hazard Controls

The Lead Inspection and Hazard Control Section of the Building Division offers environmental investigations and remediation support. The unit consists of certified lead hazard inspectors, certified lead abatement workers and

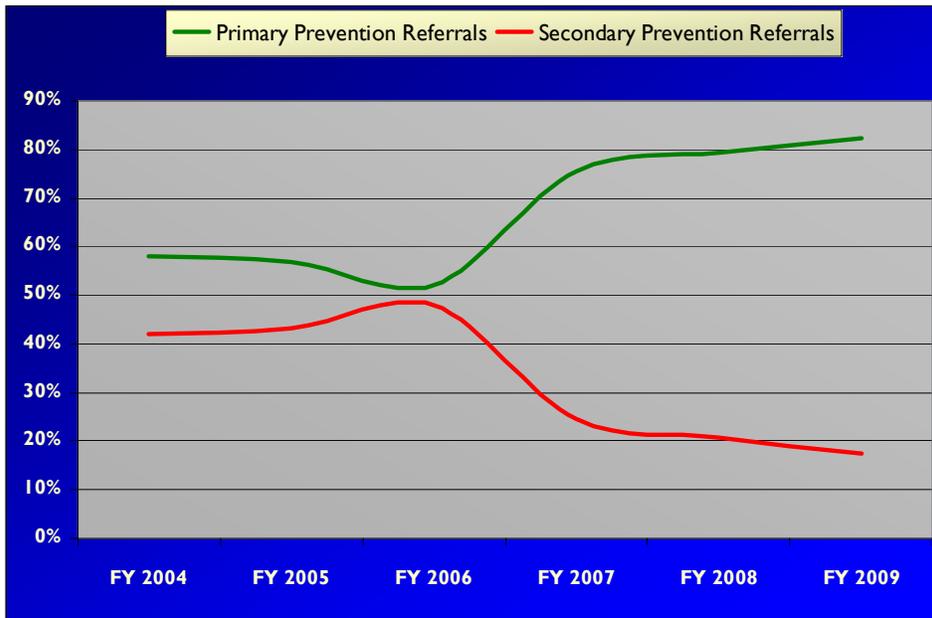
data entry clerks. Lead inspections are performed on a request or on a referral basis from a variety of sources. The initiation for an inspection can occur in one of three ways.

1. Any child under 6 years old found to have a **blood level of 10 µg/dl or greater** automatically initiates an inspection of the child's home;
2. **Legally required** inspections, such as the Housing Conservation District ordinance, which requires a visual inspection upon a residential sale or new rental tenant;
3. **Voluntary Requests from citizens** via the LSSL hotline or other numerous points of contact throughout the community.

When a lead inspection referral is initiated by an elevated blood lead level (EBL), efforts to inspect and remediate the home are considered *secondary prevention*, as a child has already been lead poisoned. Actions are designed to mitigate the effects and prevent future exposure. In 2004, nearly half of all

inspections were initiated by an EBL. Because the City has shifted its focus from one of reactive to proactive, *primary prevention* referrals now account for a large majority of inspection referrals. In fiscal year 2009, over 82 percent of referrals were *not* initiated by a lead poisoned child (Figure 13).

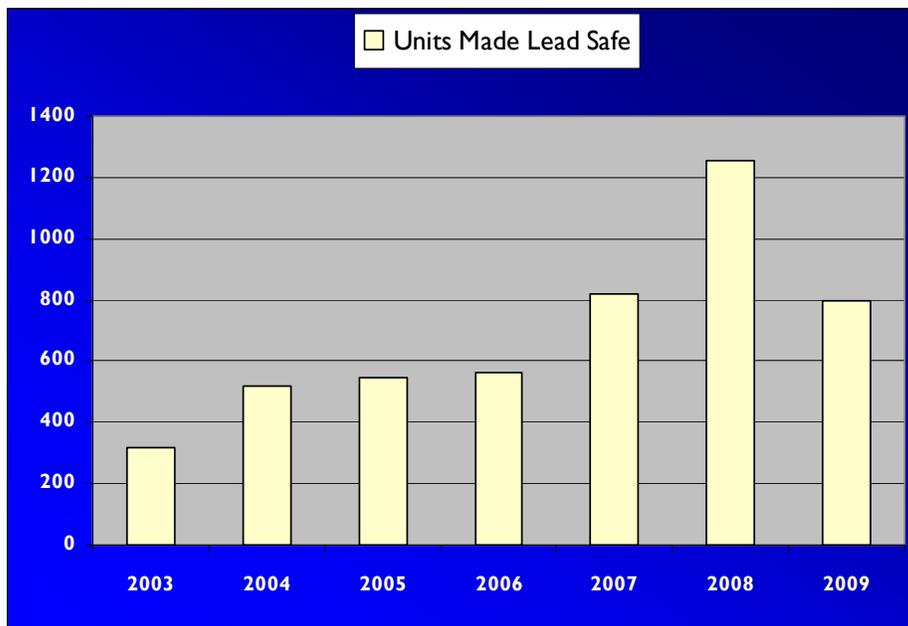
Figure 13
Lead Inspections by Referral Type, Fiscal Year 2004-2009



2009 witnessed a decline in units made lead-safe. Remediation is the process by which lead hazards are fixed in a house. In 2009, 799 homes were made lead-safe via remediation. The number of housing units made lead-safe had been

increasing steadily over the past six years. However, between 2008 and 2009, the number declined by 36 percent, largely the result of the poor economic conditions' effect on available funding (Figure 14).

Figure 14
Housing Units Made Lead Safe via Hazard Controls, 2003-2009



Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

Courts

When lead hazards are not corrected within the specified time period, the property is referred to the Problem Properties Court for legal action. In 2009, 357 cases were arraigned for lead

hazard violations. This resulted in 53 properties being remediated via the judicial process and \$5,982.00 collected in fines (Figure 15).

Figure 15
Problem Properties Court Activity, 2007-2009

Arraigned Cases			Units Remediated via Courts			Fines Collected		
2007	2008	2009	2007	2008	2009	2007	2008	2009
451	302	357	19	34	53	\$7,860.50	\$3,047.00	\$5,982.00

Lead Safe St. Louis

2009 Accomplishments and Activities

Provided by Jeanine Arrighi, Program Director of Lead Safe Saint Louis



- ⌘ **The Screening prevalence rate dropped to a record low of 3.2% of children with blood lead levels at or above 10 micrograms per deciliter ($\mu\text{g}/\text{dl}$), reflecting a 76% reduction over 2003's rate (and more than 12% reduction over 2008's rate).**
- ⌘ **Only 77 children had blood lead levels at or above 20 $\mu\text{g}/\text{dl}$ in 2009 compared to 217 in 2003.**
- ⌘ **Almost 83% of children tested in 2009 had blood lead levels below 5 $\mu\text{g}/\text{dl}$ compared to 52% in 2003.**
- ⌘ **Met HUD goals in all categories – attained Green Status entire year.**
- ⌘ **Building Division completed an outstanding number of remediation projects – 799.**
- ⌘ Continued proactive vs. reactive approach to inspection and remediation as units are processed on a primary prevention basis versus secondary prevention: More than 82% of requests for lead inspections were primary prevention, and less than 18% of requests resulted from a child with a blood lead level at or above 10 $\mu\text{g}/\text{dl}$ (EBL) prior to request for service and EBL cases received priority response.
- ⌘ Continued partnership with BJC OB/GYN Clinic – Heavy Metal Project – where primary prevention referrals are made for Medicaid pregnant women's homes to be remediated prior to birth of child.
- ⌘ The Citizen Advocate programs including HEPA vacuum loans and relocation were transferred to the Building Division.
- ⌘ The LSSL Hotline was transferred to the Citizen's Service Bureau and continues to process requests for lead information and inspections.
- ⌘ LSSL Mayor's Task Force held its final two meetings in 2009 recognizing the efforts of the each of partners and the six committees of the Mayor's Task Force. The final meeting during the annual national lead poisoning prevention week in October showcased the extensive community collaboration over the six years of the Lead Safe St. Louis Program with a pictorial retrospective of the many events and projects over those years.
- ⌘ The Lead Safe St. Louis initiative continues within the Children's Environmental Health Program of the Department of Health, which relocated to new headquarters at 1520 Market Street in June of 2009.

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 2009.

Traditionally in the City of St. Louis, children of lower socio-economic status are 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 underprivileged areas.

A screening rate of 45% in 2009, while much higher than most areas of the country, indicates that private providers are still failing to screen children for lead poisoning in the City of St. Louis. 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 entire high-risk population is being reached.

Also, providers may choose not to test children in later years because they do not consider them to be at great risk. Dissemination of the aforementioned cohort study's two findings that (1) 8.1% of children retested in later years following a "negative" screening at age 2 were lead poisoned, and (2) 30% of children with undetectably low levels at these ages would later have a blood level of 5 µg/dl or greater, could mitigate the reluctance of some providers to test in later years.

The decreasing prevalence rate is extremely encouraging; however, certain areas of the City still have high rates and there is still much work to be done.

Summary

The rate of childhood lead poisoning in the City of St. Louis decreased again to an all-time low of 3.2% in 2009. This is due to the efforts of several City agencies as well as numerous private partnerships, aimed at the facilitation of outreach, education, policy and collaboration.

While the City has had many successes in combating childhood lead poisoning, universal screening remains a hurdle. Less than half of City children under 6 years of age were screened for lead poisoning in 2009. This figure represents negligence on behalf of healthcare providers and pediatric physicians. Failure to screen all of their patients less than 6 years of age must be remedied. The entire City of St. Louis is designated “high-risk.” As such, guidelines call for universal testing of children through age 6.

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, mitigate its effects, and prevent further exposure.

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 prevent 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.

Data Tables

Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

Table I
Childhood Lead Poisoning Rates, 1971-2009

Year	Lead Poisoning Threshold	# Screened	% Positive	Year	Lead Poisoning Threshold	# Screened	% Positive
1971	40 µg/dl	4,334	28.0%	1992	10 µg/dl	17,715	48.5%
1972	40 µg/dl	1,819	34.0%	1993	10 µg/dl	17,850	26.8%
1973	40 µg/dl	7,426	32.3%	1994	10 µg/dl	18,541	28.1%
1974	40 µg/dl	5,835	27.0%	1995	10 µg/dl	20,573	23.5%
1975	40 µg/dl	11,041	22.9%	1996	10 µg/dl	13,305	27.6%
1976	30 µg/dl	13,246	28.0%	1997	10 µg/dl	13,833	24.2%
1977	30 µg/dl	14,375	24.5%	1998	10 µg/dl	13,205	24.8%
1978	30 µg/dl	13,687	15.2%	1999	10 µg/dl	14,580	22.9%
1979	30 µg/dl	12,511	12.5%	2000	10 µg/dl	11,260	31.1%
1980	30 µg/dl	12,469	11.4%	2001	10 µg/dl	12,743	16.2%
1981	30 µg/dl	11,449	12.4%	2002	10 µg/dl	11,497	14.6%
1982	30 µg/dl	11,778	10.9%	2003	10 µg/dl	12,011	13.6%
1983	30 µg/dl	11,406	7.6%	2004	10 µg/dl	13,249	9.0%
1984	30 µg/dl	12,982	8.2%	2005	10 µg/dl	11,227	9.1%
1985	30 µg/dl	12,308	11.0%	2006	10 µg/dl	12,779	7.0%
1986	25 µg/dl	11,324	16.4%	2007	10 µg/dl	12,836	4.4%
1987	25 µg/dl	13,314	10.3%	2008	10 µg/dl	13,634	3.7%
1988	25 µg/dl	14,364	9.1%	2009	10 µg/dl	13,522	3.2%
1989	25 µg/dl	12,317	7.4%				
1990	25 µg/dl	12,202	6.5%				
1991	25 µg/dl	12,799	4.4%				

Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

Table 2
Healthcare Providers of Blood Lead Screenings, 2007-2009

Provider	Number Screened			Percent of Total Screened			Number \geq 10 μ g/dl			SPR (%)			New Cases			SIR (%)		
	2007	2008	2009	2007	2008	2009	2007	2008	2009	2007	2008	2009	2007	2008	2009	2007	2008	2009
St. Louis City Health Department	1,190	1,591	1,104	9.3%	11.7%	8.2%	35	26	27	2.9	1.6	2.4	25	23	19	2.2	1.5	1.8
ConnectCare/CHC's*	6,075	6,285	6,216	47.3%	46.1%	46.0%	332	332	265	5.5	5.3	4.3	190	210	152	3.5	3.6	2.6
Hospitals	1,525	1,725	1,948	11.9%	12.7%	14.4%	70	48	47	4.6	2.8	2.4	44	32	30	3.1	1.9	1.6
Group Practice/Private Physician	4,038	4,002	4,219	31.5%	29.4%	31.2%	130	94	96	3.2	2.3	2.3	86	68	65	2.2	1.8	1.6
Other Categories	8	31	35	0.1%	0.2%	0.3%	0	2	3	0.0	6.5	8.6	0	1	1	0.0	3.6	3.2
Grand Total	12,836	13,634	13,522	100.0%	100.0%	100.0%	567	502	438	4.4	3.7	3.2	345	334	267	2.9	2.6	2.1

*Community Health Centers

Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

Table 3
Childhood Lead Poisoning by ZIP Code, 2009

ZIP Code	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
63115	2,219	1136	51.2%	68	6.0	28	2.7	12,421	19.5	80.5	55.3	44.7
63107	1,516	774	51.1%	42	5.4	30	4.3	7,929	28.7	71.3	44.8	55.2
63118	3,218	1510	46.9%	74	4.9	47	3.4	15,326	25.6	74.4	37.4	62.6
63112	1,852	932	50.3%	41	4.4	29	3.3	12,574	20.1	79.9	35.5	64.5
63113	1,397	655	46.9%	27	4.1	16	2.6	8,540	26.4	73.6	46.9	53.1
63108	791	325	41.1%	13	4.0	9	2.9	11,675	13.2	86.8	26.7	73.3
63147	985	508	51.6%	20	3.9	11	2.3	5,071	12.6	87.4	66.8	33.2
63120	1,244	654	52.6%	25	3.8	18	3.0	4,848	18.5	81.5	58.5	41.5
63110	1,844	633	34.3%	17	2.7	8	1.3	10,179	17.8	82.2	39.3	60.7
63111	2,030	1044	51.4%	24	2.3	20	2.0	10,508	16.3	83.7	44.7	55.3
63104	2,071	858	41.4%	17	2.0	6	0.7	9,847	18.6	81.4	36.4	63.6
63116	4,380	1801	41.1%	35	1.9	24	1.4	22,844	10.3	89.7	57.9	42.1
63103	183	62	33.9%	1	1.6	1	1.6	3,609	18.6	81.4	1.3	98.7
63106	1,506	899	59.7%	13	1.4	7	0.8	6,250	32.0	68.0	13.3	86.7
63109	2,270	640	28.2%	4	0.6	2	0.3	15,042	4.5	95.5	61.8	38.2
63139	1,674	490	29.3%	2	0.4	2	0.4	12,344	6.3	93.7	61.3	38.7
63101	121	37	30.6%	0	0.0	0	0.0	730	41.2	58.8	7.2	92.8
63102	27	9	33.3%	0	0.0	0	0.0	870	24.8	75.2	2.1	97.9
Fringe ZIPs	871	428	49.1%	13	3.0	8	2.0	5,747	8.0	92.0	66.5	33.5
Unknown	-	127	-	2	1.6	1	0.8	-	-	-	-	-
City Total	30,199	13,522	44.8%	438	3.2	267	2.1	176,354	16.6	83.4	46.9	53.1

*ZIP codes with small populations of children under 6 should be interpreted with caution.

**Fringe Zips are those on the western edge of the City that overlap a small part of the City from the County.

***Population estimates are based on a 2009 estimate from Claritas, Inc.

Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

Table 4
Childhood Lead Poisoning by Ward, 2009

Ward	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
Ward - 04	793	498	62.8%	34	6.8	20	4.4	6,321	25.2	74.8	47.2	52.8
Ward - 20	907	757	83.5%	48	6.3	27	3.9	5,693	28.4	71.6	37.5	62.5
Ward - 01	940	536	57.0%	32	6.0	12	2.5	5,735	19.4	80.6	58.3	41.7
Ward - 03	908	580	63.9%	31	5.3	22	4.2	5,670	28.9	71.1	44.3	55.7
Ward - 26	870	510	58.6%	26	5.1	20	4.1	6,361	21.9	78.1	35.6	64.4
Ward - 21	956	559	58.5%	28	5.0	13	2.5	5,899	16.8	83.2	54.9	45.1
Ward - 18	750	473	63.1%	20	4.2	11	2.5	6,522	21.5	78.5	38.0	62.0
Ward - 27	900	596	66.2%	24	4.0	15	2.7	4,669	12.8	87.2	71.6	28.4
Ward - 02	1,027	455	44.3%	17	3.7	10	2.3	4,863	15.6	84.4	60.1	39.9
Ward - 15	1,168	549	47.0%	19	3.5	13	2.5	6,437	13.8	86.2	45.8	54.2
Ward - 22	795	739	93.0%	25	3.4	16	2.3	5,585	24.5	75.5	46.8	53.2
Ward - 09	1,316	552	41.9%	17	3.1	13	2.5	7,048	22.7	77.3	36.2	63.8
Ward - 28	544	164	30.1%	5	3.0	5	3.1	7,803	9.6	90.4	32.5	67.5
Ward - 07	1,097	427	38.9%	13	3.0	5	1.2	7,926	23.4	77.6	23.6	76.4
Ward - 11	1,123	502	44.7%	14	2.8	10	2.1	6,198	14.7	85.3	53.5	46.5
Ward - 19	693	393	56.7%	10	2.5	8	2.1	5,198	22.5	77.5	16.6	83.4
Ward - 06	1,101	626	56.9%	13	2.1	9	1.5	6,314	19.8	80.2	37.4	62.6
Ward - 24	832	246	29.6%	5	2.0	3	1.2	6,819	7.3	92.7	58.5	41.5
Ward - 14	1,310	477	36.4%	9	1.9	6	1.3	5,874	8.3	91.7	55.6	44.4
Ward - 17	682	325	47.7%	6	1.8	0	0.0	7,491	17.3	82.7	25.0	75.0
Ward - 08	1,279	349	27.3%	6	1.7	4	1.2	6,488	15.4	84.6	37.6	63.4
Ward - 05	1,224	816	66.7%	13	1.6	8	1.0	6,878	32.6	67.4	19.9	80.1
Ward - 25	1,365	761	55.8%	12	1.6	8	1.1	6,348	17.2	82.8	41.6	58.4
Ward - 13	1,389	424	30.5%	6	1.4	6	1.5	5,987	8.4	91.6	65.3	34.7
Ward - 10	1,464	315	21.5%	3	1.0	2	0.6	6,996	8.9	91.1	46.9	53.1
Ward - 12	940	264	28.1%	0	0.0	0	0.0	6,476	4.4	95.6	70.6	29.4
Ward - 16	1,034	219	21.2%	0	0.0	0	0.0	6,490	3.0	97.0	69.0	31.0
Ward - 23	962	283	29.4%	0	0.0	0	0.0	6,265	4.0	96.0	76.5	23.5
Not geocoded	-	127	-	2	1.6	1	0.8	-	-	-	-	-
City Total	28,369	13,522	47.7%	438	3.2	267	2.1	176,354	16.6	83.4	46.9	53.1

***Population estimates are based on the 2000 Census

Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

Table 5
Childhood Lead Poisoning by Neighborhood, 2009

Neighbor- hood Number	Neighborhood	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
67	Fairground Neighborhood	215	110	51.2%	14	12.7	10	10.4	1,216	28.8	71.2	47.7	52.3
51	Academy	284	150	52.8%	18	12.0	13	9.6	1,729	27.6	72.4	53.8	46.2
57	The Ville	211	77	36.5%	8	10.4	4	5.9	1,492	26.9	73.1	35.7	64.3
19	Gravois Park	686	352	51.3%	30	8.5	16	5.1	2,818	28.2	71.8	65.7	34.3
23	McKinley Heights	236	68	28.8%	5	7.4	0	0.0	1,101	23.5	76.5	26.7	73.3
75	Riverview	18	15	83.3%	1	6.7	1	7.1	96	8.2	91.8	78.9	21.1
69	Penrose	545	339	62.2%	21	6.2	7	2.2	3,565	15.1	84.9	61.0	39.0
78	Hamilton Heights	359	191	53.2%	11	5.8	10	5.7	1,852	26.0	74.0	49.5	50.5
68	O'Fallon	625	297	47.5%	17	5.7	5	1.9	3,269	18.5	81.5	52.3	47.7
24	Fox Park	384	162	42.2%	9	5.6	5	3.2	1,549	29.8	71.1	36.7	63.3
29	Tiffany	135	72	53.3%	4	5.6	3	4.4	571	12.3	87.7	25.2	74.8
55	Kingsway East	364	205	56.3%	11	5.4	6	3.2	2,162	19.6	80.4	52.0	48.0
56	The Greater Ville	688	349	50.7%	18	5.2	13	4.0	4,221	23.7	76.3	48.8	51.2
42	Clayton/Tamm	127	39	30.7%	2	5.1	2	5.1	1,436	7.2	92.8	52.9	47.1
72	Walnut Park East	456	272	59.6%	13	4.8	9	3.8	2,111	19.0	81.0	64.1	35.9
74	Baden	695	366	52.7%	17	4.6	9	2.6	3,697	13.9	86.1	56.6	43.4
50	Wells/Goodfellow	790	520	65.8%	24	4.6	15	3.2	4,063	26.7	73.3	46.3	53.7
60	St. Louis Place	257	161	62.6%	7	4.3	4	2.7	1,395	33.3	66.7	39.9	60.1
71	Mark Twain	420	234	55.7%	10	4.3	5	2.3	2,281	22.2	77.8	35.9	64.1
43	Franz Park	172	47	27.3%	2	4.3	0	0.0	1,318	7.7	92.3	66.6	33.4
76	Walnut Park West	342	216	63.2%	9	4.2	6	2.9	1,592	11.2	88.8	72.2	27.8
21	Soulard	162	49	30.2%	2	4.1	2	4.1	2,216	17.6	82.4	27.7	72.3
52	Kingsway West	260	149	57.3%	6	4.0	3	2.2	1,978	18.7	81.3	45.9	54.1
70	Mark Twain/I-70 Industrial	51	51	100.0%	2	3.9	1	2.0	393	7.9	92.1	86.5	13.5
30	Benton Park West	647	277	42.8%	10	3.6	5	2.0	2,540	26.7	73.3	73.4	26.6
65	Hyde Park	426	200	46.9%	7	3.5	3	1.7	1,767	29.2	70.8	35.2	64.8
39	Forest Park Southeast	341	149	43.7%	5	3.4	0	0.0	1,831	23.0	77.0	34.3	65.7
18	Marine Villa	296	187	63.2%	6	3.2	3	1.7	1,576	25.4	74.6	39.5	60.5

Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

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	Percent Owner Occupied	Percent Renter Occupied
16	Dutchtown	1,808	1,010	55.9%	32	3.2	22	2.3	8,447	18.8	81.2	41.3	58.7
54	Lewis Place	155	96	61.9%	3	3.1	0	0.0	1,045	27.6	72.4	46.6	53.4
48	West End	635	357	56.2%	11	3.1	7	2.0	3,347	21.8	72.8	29.9	70.1
44	Hi-Point	128	33	25.8%	1	3.0	1	3.0	1,331	5.6	94.4	48.8	51.2
27	Shaw	811	275	33.9%	8	2.9	5	1.9	3,802	17.9	82.1	38.9	61.1
1	Carondelet	828	413	49.9%	12	2.9	10	2.5	4,730	15.4	84.6	51.8	48.2
15	Tower Grove South	1,270	546	43.0%	15	2.7	11	2.1	7,308	13.6	86.4	47.7	52.3
59	JeffVanderLou	561	332	59.2%	9	2.7	7	2.2	3,463	28.0	72.0	34.5	65.5
25	Tower Grove East	693	265	38.2%	7	2.6	7	2.8	3,485	20.6	79.4	38.5	61.5
46	Skinker/DeBaliviere	244	76	31.1%	2	2.6	2	2.6	2,348	10.3	89.7	58.5	41.5
36	Downtown West	36	39	108.3%	1	2.6	1	2.6	2,073	20.2	79.8	1.4	98.6
3	Holly Hills	317	118	37.2%	3	2.5	3	2.6	1,887	8.1	91.9	58.4	41.6
38	Central West End	451	171	37.9%	4	2.3	3	1.8	9,572	11.3	88.7	25.7	74.3
63	Old North St. Louis	241	138	57.3%	3	2.2	2	1.5	1,036	41.5	58.5	21.1	78.9
53	Fountain Park	160	93	58.1%	2	2.2	1	1.1	1,010	25.2	74.8	32.0	68.0
22	Benton Park	336	95	28.3%	2	2.1	2	2.2	2,377	26.2	73.8	42.3	57.7
47	DeBaliviere Place	153	48	31.4%	1	2.1	1	2.1	2,409	14.3	85.7	18.0	82.0
77	Covenant Blu/Grand Center	237	110	46.4%	2	1.8	2	1.9	1,721	27.3	72.7	11.4	88.6
66	College Hill	313	169	54.0%	3	1.8	3	1.9	1,342	31.5	68.5	45.6	54.4
73	North Point	261	172	65.9%	3	1.7	2	1.2	1,648	3.4	96.6	83.7	16.3
2	Patch	236	122	51.7%	2	1.6	0	0.0	1,513	18.8	81.2	50.7	49.3
5	Bevo Mill	1,153	492	42.7%	8	1.6	7	1.5	5,984	7.9	92.1	63.7	36.3
33	Peabody, Darst, Webbe	310	259	83.5%	3	1.2	1	0.4	779	28.1	71.9	3.4	96.6
17	Mount Pleasant	399	264	66.2%	3	1.1	3	1.2	2,281	14.9	85.1	30.5	69.5
14	North Hampton	520	200	38.5%	2	1.0	1	0.5	4,524	5.4	94.6	47.5	52.5
62	Columbus Square	285	109	38.2%	1	0.9	1	0.9	1,236	37.2	62.8	7.0	93.0
7	South Hampton	648	223	34.4%	2	0.9	1	0.5	3,675	5.3	94.7	66.3	33.7

Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

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	Percent Owner Occupied	Percent Renter Occupied
31	The Gate District	343	194	56.6%	1	0.5	0	0.0	1,636	17.2	82.8	35.7	64.3
61	Carr Square	349	286	81.9%	1	0.3	0	0.0	1,327	25.7	74.3	99.4	0.6
4	Boulevard Heights	558	186	33.3%	0	0.0	0	0.0	4,093	3.8	92.2	84.5	15.5
41	Cheltenham	21	9	42.9%	0	0.0	0	0.0	262	10.3	89.7	54.5	45.5
11	Clifton Heights	263	75	28.5%	0	0.0	0	0.0	1,642	6.8	93.2	74.9	25.1
26	Compton Heights	98	27	27.6%	0	0.0	0	0.0	688	11.8	88.2	64.7	35.3
35	Downtown	11	21	190.9%	0	0.0	0	0.0	1,050	34.9	65.1	0.9	99.1
10	Ellendale	137	45	32.8%	0	0.0	0	0.0	756	9.0	91.0	68.6	31.4
40	Kings Oak	17	7	41.2%	0	0.0	0	0.0	113	11.5	86.5	59.0	41.0
20	Kosciusko	0	1	INF	0	0.0	0	0.0	-	-	-	-	-
32	Lafayette Square	109	25	22.9%	0	0.0	0	0.0	1,007	11.8	86.2	34.7	65.3
34	Lasalle	158	85	53.8%	0	0.0	0	0.0	650	6.8	93.2	28.0	72.0
9	Lindenwood Park	687	209	30.4%	0	0.0	0	0.0	5,032	4.2	95.8	29.3	70.7
28	McRee Town	289	67	23.2%	0	0.0	0	0.0	824	34.6	65.4	21.7	78.3
37	Midtown	65	21	32.3%	0	0.0	0	0.0	1,532	18.9	81.1	1.2	98.8
64	Near North Riverfront	25	6	24.0%	0	0.0	0	0.0	157	52.2	47.8	36.0	64.0
79	North Riverfront	21	0	0.0%	0	0.0	0	0.0	107	27.1	72.9	52.6	47.4
6	Princeton Heights	608	175	28.8%	0	0.0	0	0.0	4,033	5.4	94.6	68.7	31.3
13	Southwest Garden	334	117	35.0%	0	0.0	0	0.0	3,188	10.4	89.6	42.8	57.2
8	St. Louis Hills	451	111	24.6%	0	0.0	0	0.0	4,077	3.3	96.7	57.1	42.9
12	The Hill	157	31	19.7%	0	0.0	0	0.0	1,486	6.8	93.2	66.2	33.8
58	Vandeventer	182	103	56.6%	0	0.0	0	0.0	1,183	28.8	71.2	50.1	49.9
49	Visitation Park	79	54	68.4%	0	0.0	0	0.0	576	15.3	84.3	22.1	77.9
45	Wydown/Skinker	26	11	42.3%	0	0.0	0	0.0	727	9.2	90.8	46.1	53.9
	Not geocoded	-	127	-	2	1.6	1	0.8	-	-	-	-	-
City Total		28,369	13,522	47.7%	438	3.2	267	2.1	176,354	16.6	83.4	46.9	53.1

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

** Percent screened may exceed 100% due to use of 2000 Census population data

Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

Table 6
Childhood Lead Poisoning by Census Tract, 2009

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
101100	215	46	21.4%	0	0.0	0	0.0	1,211	3.5	96.5	91.3	8.7
101200	214	77	36.0%	0	0.0	0	0.0	1,494	2.6	97.4	83.5	16.5
101300	440	120	27.3%	3	2.5	3	2.6	2,207	6.6	93.4	66.4	33.6
101400	250	107	42.8%	3	2.8	2	2.0	1,411	10.6	89.4	60.4	39.6
101500	309	159	51.5%	3	1.9	1	0.7	1,708	17.2	82.8	45.6	54.4
101800	281	152	54.1%	7	4.6	6	4.1	1,658	20.5	79.5	48.6	51.4
102100	202	54	26.7%	0	0.0	0	0.0	1,748	5.8	94.2	40.4	59.6
102200	471	105	22.3%	0	0.0	0	0.0	3,095	3.7	96.3	80.5	19.5
102300	125	35	28.0%	0	0.0	0	0.0	930	4.0	96.0	86.3	13.7
102400	244	78	32.0%	0	0.0	0	0.0	1,211	7.4	92.6	63.0	37.0
102500	184	47	25.5%	0	0.0	0	0.0	1,047	6.5	93.5	70.3	29.7
103100	207	64	30.9%	0	0.0	0	0.0	1,819	2.7	97.3	52.0	48.0
103400	193	44	22.8%	0	0.0	0	0.0	971	4.7	95.3	73.7	26.3
103600	153	20	13.1%	0	0.0	0	0.0	702	4.6	95.4	72.1	27.9
103700	205	70	34.1%	0	0.0	0	0.0	1,461	8.1	91.9	68.1	31.9
103800	305	84	27.5%	0	0.0	0	0.0	1,883	3.9	96.1	81.1	18.9
103900	96	30	31.3%	0	0.0	0	0.0	496	9.5	90.5	75.7	24.3
104100	201	56	27.9%	2	3.6	0	0.0	1,453	8.3	91.7	63.8	36.2
104200	213	50	23.5%	1	2.0	1	2.0	2,091	5.8	94.2	50.3	49.7
104500	99	38	38.4%	2	5.3	2	5.3	1,051	9.2	90.8	53.9	46.1
105100	176	51	29.0%	1	2.0	1	2.0	2,054	10.0	90.0	39.1	60.9
105200	185	55	29.7%	1	1.8	1	1.8	1,629	11.7	88.3	34.1	65.9
105300	251	111	44.2%	8	7.2	5	4.7	1,362	20.9	79.1	25.0	75.0

Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

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
105400	313	187	59.7%	1	0.5	0	0.0	1,110	27.4	72.6	23.7	76.3
105500	210	105	50.0%	3	2.9	2	1.9	1,518	20.9	79.1	48.0	52.0
106100	281	146	52.0%	6	4.1	5	3.7	1,390	24.5	75.5	49.5	50.5
106200	295	224	75.9%	4	1.8	2	1.0	1,239	30.7	69.3	37.6	62.4
106300	297	159	53.5%	8	5.0	5	3.4	1,411	21.5	78.5	46.9	53.1
106400	235	127	54.0%	9	7.1	5	4.3	1,715	24.8	75.2	48.7	51.3
106500	229	159	69.4%	9	5.7	6	4.2	1,676	20.6	79.4	48.7	51.3
106600	220	123	55.9%	13	10.6	12	10.6	1,208	27.4	72.6	47.8	52.2
106700	372	204	54.8%	11	5.4	6	3.2	2,162	19.6	80.4	52.0	48.0
107100	60	51	85.0%	2	3.9	1	2.0	393	7.9	92.1	86.5	13.5
107200	157	77	49.0%	4	5.2	4	5.7	707	19.2	80.8	57.1	42.9
107300	501	301	60.1%	12	4.0	8	2.8	2,289	9.0	91.0	74.8	25.2
107400	315	195	61.9%	9	4.6	5	2.9	1,404	18.9	81.1	67.6	32.4
107500	363	158	43.5%	10	6.3	5	3.4	1,064	16.3	83.7	68.5	31.5
107600	185	132	71.4%	4	3.0	1	0.8	1,222	27.2	72.8	57.3	42.7
107700	343	178	51.9%	12	6.7	4	2.4	2,067	13.7	86.3	62.2	37.8
108100	316	172	54.4%	6	3.5	4	2.4	1,526	11.4	88.6	73.9	26.1
108200	206	86	41.7%	0	0.0	0	0.0	1,240	8.1	91.9	61.1	38.9
108300	234	113	48.3%	3	2.7	2	1.9	1,083	9.9	90.1	71.5	28.5
108400	113	63	55.8%	6	9.5	3	5.1	557	14.9	85.1	39.2	60.8
108500	74	34	45.9%	3	8.8	1	3.2	365	27.4	72.6	36.2	63.8
109600	401	163	40.6%	8	4.9	4	2.7	1,832	15.0	85.0	51.7	48.3
109700	408	226	55.4%	5	2.2	5	2.4	1,899	32.9	67.1	45.2	54.8
110100	327	167	51.1%	10	6.0	6	3.8	1,779	19.5	80.5	58.6	41.4
110200	324	152	46.9%	6	3.9	1	0.7	1,592	21.1	78.9	52.1	47.9

Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

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
110300	261	130	49.8%	6	4.6	4	3.3	1,744	23.9	76.1	46.6	53.4
110400	258	142	55.0%	9	6.3	7	5.4	1,554	23.9	76.1	49.0	51.0
110500	184	99	53.8%	15	15.2	9	10.6	1,038	29.6	70.4	46.9	53.1
111100	169	82	48.5%	1	1.2	1	1.2	962	29.4	70.6	48.9	51.1
111200	149	74	49.7%	3	4.1	1	1.4	1,098	34.4	65.6	44.0	56.0
111300	193	69	35.8%	6	8.7	3	4.8	1,279	28.1	71.9	36.2	63.8
111400	161	82	50.9%	6	7.3	3	3.9	1,129	29.8	70.2	47.7	52.3
111500	130	55	42.3%	1	1.8	1	2.0	670	27.0	73.0	44.2	55.8
112100	194	56	28.9%	2	3.6	2	3.7	2,753	12.8	87.2	29.4	70.6
112200	165	90	54.5%	9	10.0	6	7.3	990	22.0	78.0	40.2	59.8
112300	234	146	62.4%	3	2.1	1	0.7	1,494	25.0	75.0	39.3	60.7
112400	121	63	52.1%	0	0.0	0	0.0	2,687	9.2	90.8	23.5	76.5
113100	172	79	45.9%	0	0.0	0	0.0	1,784	6.7	93.3	46.6	53.4
113400	79	28	35.4%	0	0.0	0	0.0	509	11.4	88.6	49.0	51.0
113500	164	31	18.9%	0	0.0	0	0.0	1,408	7.0	93.0	67.0	33.0
114100	702	209	29.8%	2	1.0	1	0.5	4,925	5.2	94.8	49.3	50.7
114200	349	110	31.5%	0	0.0	0	0.0	2,698	4.8	95.2	62.7	37.3
114300	589	175	29.7%	2	1.1	1	0.6	2,770	4.5	95.5	74.0	26.0
115100	361	150	41.6%	2	1.3	2	1.4	1,962	6.9	93.1	58.2	41.8
115200	389	167	42.9%	4	2.4	3	1.9	1,699	10.3	89.7	37.0	63.0
115300	670	269	40.1%	3	1.1	0	0.0	2,578	14.5	85.5	62.3	37.7
115400	330	145	43.9%	3	2.1	3	2.2	1,413	10.3	89.7	68.2	31.8
115500	642	332	51.7%	7	2.1	7	2.2	2,987	17.2	82.8	45.3	54.7
115600	501	301	60.1%	4	1.3	4	1.4	2,745	15.0	85.0	32.7	67.3
115700	388	242	62.4%	9	3.7	5	2.2	1,890	19.4	80.6	38.3	61.7

Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

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116100	336	152	45.2%	2	1.3	1	0.7	1,768	11.1	88.9	50.5	49.5
116200	493	148	30.0%	2	1.4	2	1.4	2,458	14.2	85.8	51.3	48.7
116300	518	324	62.5%	15	4.6	10	3.3	3,207	15.3	84.7	37.5	62.5
116400	588	328	55.8%	23	7.0	15	5.1	2,483	23.3	76.7	36.6	63.4
116500	475	186	39.2%	4	2.2	4	2.2	2,266	22.0	78.0	39.2	60.8
117100	103	25	24.3%	0	0.0	0	0.0	1,181	15.3	84.7	20.5	79.5
117200	778	232	29.8%	3	1.3	1	0.4	3,155	19.6	80.4	36.1	63.9
117300	308	173	56.2%	7	4.0	5	3.0	1,487	16.9	83.1	36.0	64.0
117400	456	130	28.5%	4	3.1	4	3.1	2,330	16.4	83.6	43.4	56.6
118100	249	103	41.4%	0	0.0	0	0.0	994	33.0	67.0	34.5	65.5
118400	26	4	15.4%	0	0.0	0	0.0	953	17.3	82.7	0.9	99.1
118500	104	26	25.0%	0	0.0	0	0.0	363	17.4	82.6	56.3	43.7
118600	224	82	36.6%	5	6.1	0	0.0	1,291	20.3	79.7	34.2	65.8
119100	162	46	28.4%	1	2.2	0	0.0	4,483	11.1	88.9	23.3	76.7
119200	89	34	38.2%	1	2.9	1	3.1	960	22.6	77.4	45.5	54.5
119300	134	23	17.2%	1	4.3	1	4.3	1,324	13.6	86.4	4.5	95.5
120100	60	31	51.7%	0	0.0	0	0.0	503	30.6	69.4	37.0	63.0
120200	153	81	52.9%	1	1.2	1	1.4	543	21.5	78.5	38.7	61.3
120300	194	90	46.4%	4	4.4	2	2.5	916	34.3	65.7	40.2	59.8
121100	91	52	57.1%	1	1.9	1	2.0	865	10.8	89.2	1.6	98.4
121200	325	167	51.4%	2	1.2	1	0.6	1,477	33.2	66.8	7.6	92.4
121300	159	101	63.5%	0	0.0	0	0.0	613	30.8	69.2	7.3	92.7
121400	49	11	22.4%	0	0.0	0	0.0	143	37.8	62.2	3.4	96.6
122100	226	85	37.6%	1	1.2	0	0.0	864	11.7	88.3	38.5	61.5
122200	0	2	INF	0	0.0	0	0.0	2	0.0	100.0	50.0	50.0

Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

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
122400	467	297	63.6%	3	1.0	1	0.4	1,088	17.3	82.7	22.1	77.9
123100	420	179	42.6%	8	4.5	4	2.4	1,973	26.1	73.9	39.5	60.5
123200	193	67	34.7%	1	1.5	0	0.0	1,193	20.2	79.8	36.9	63.1
123300	302	94	31.1%	4	4.3	0	0.0	1,716	20.9	79.1	34.9	65.1
123400	162	56	34.6%	1	1.8	1	1.8	2,070	16.6	83.4	27.1	72.9
123500	0	1	INF	0	0.0	0	0.0	-	-	-	-	-
124100	586	287	49.0%	17	5.9	10	3.9	2,645	30.2	69.8	35.1	64.9
124200	486	197	40.5%	10	5.1	5	2.8	1,918	28.0	72.0	33.2	66.8
124300	293	99	33.8%	4	4.0	3	3.2	2,145	27.4	72.6	41.5	58.5
124600	239	138	57.7%	5	3.6	3	2.3	1,023	26.6	73.4	41.7	58.3
125500	50	28	56.0%	1	3.6	1	3.6	1,963	19.1	80.9	1.3	98.7
125600	117	40	34.2%	0	0.0	0	0.0	1,310	29.3	70.7	0.5	99.5
125700	498	294	59.0%	2	0.7	1	0.3	1,795	35.7	64.3	5.1	94.9
126600	324	210	64.8%	6	2.9	4	2.0	1,534	38.9	61.1	28.1	71.9
126700	209	91	43.5%	5	5.5	1	1.3	1,017	30.8	69.2	31.4	68.6
Not geocoded	-	127	-	2	1.6	1	0.8	-	-	-	-	-
City Total	30,199	13,522	44.8%	438	3.2	267	2.1	176,354	16.6	83.4	46.9	53.1

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

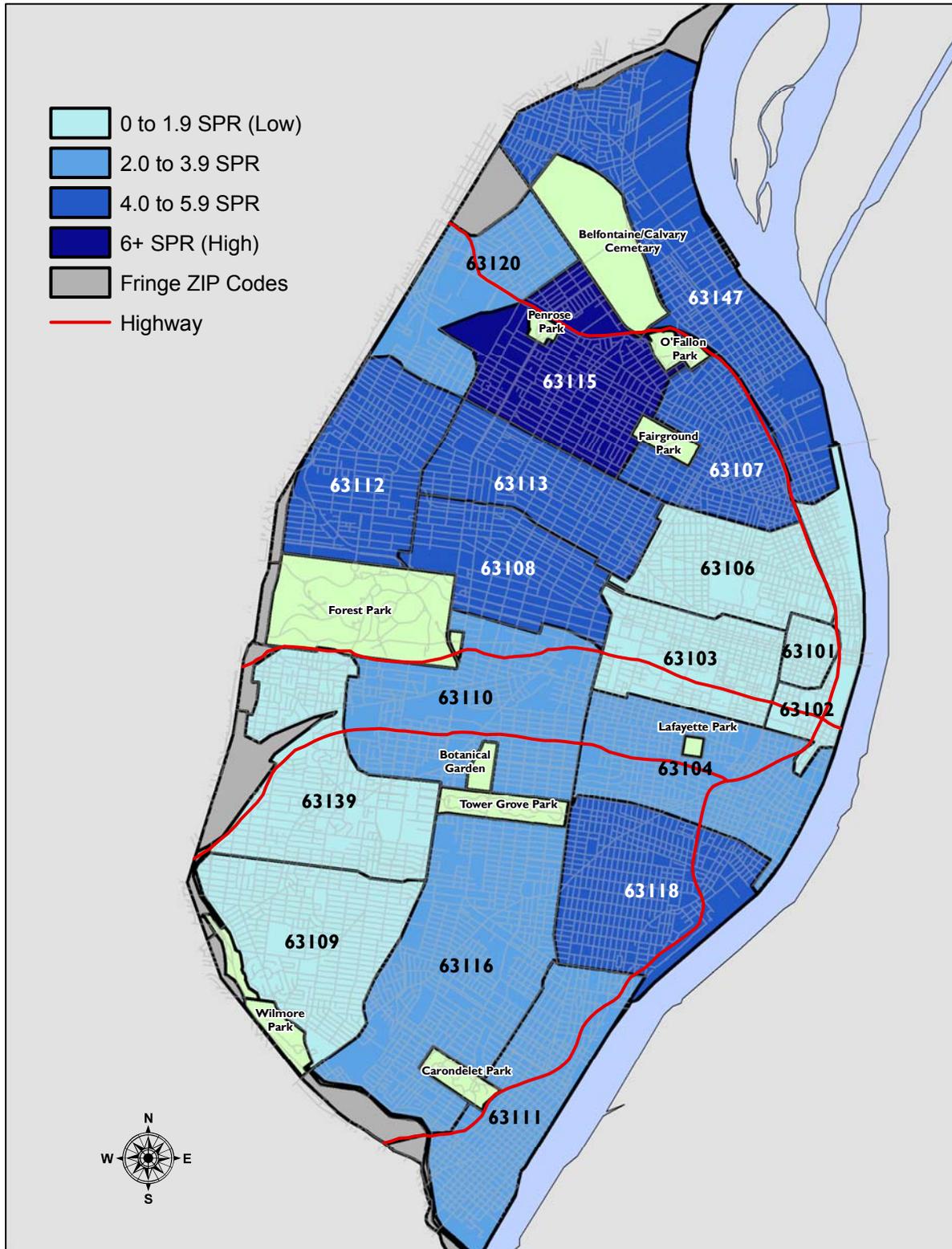
** Percent screened may exceed 100% due to use of shifting population estimates

*** Sorted by ascending Census Tract, not SPR

Maps

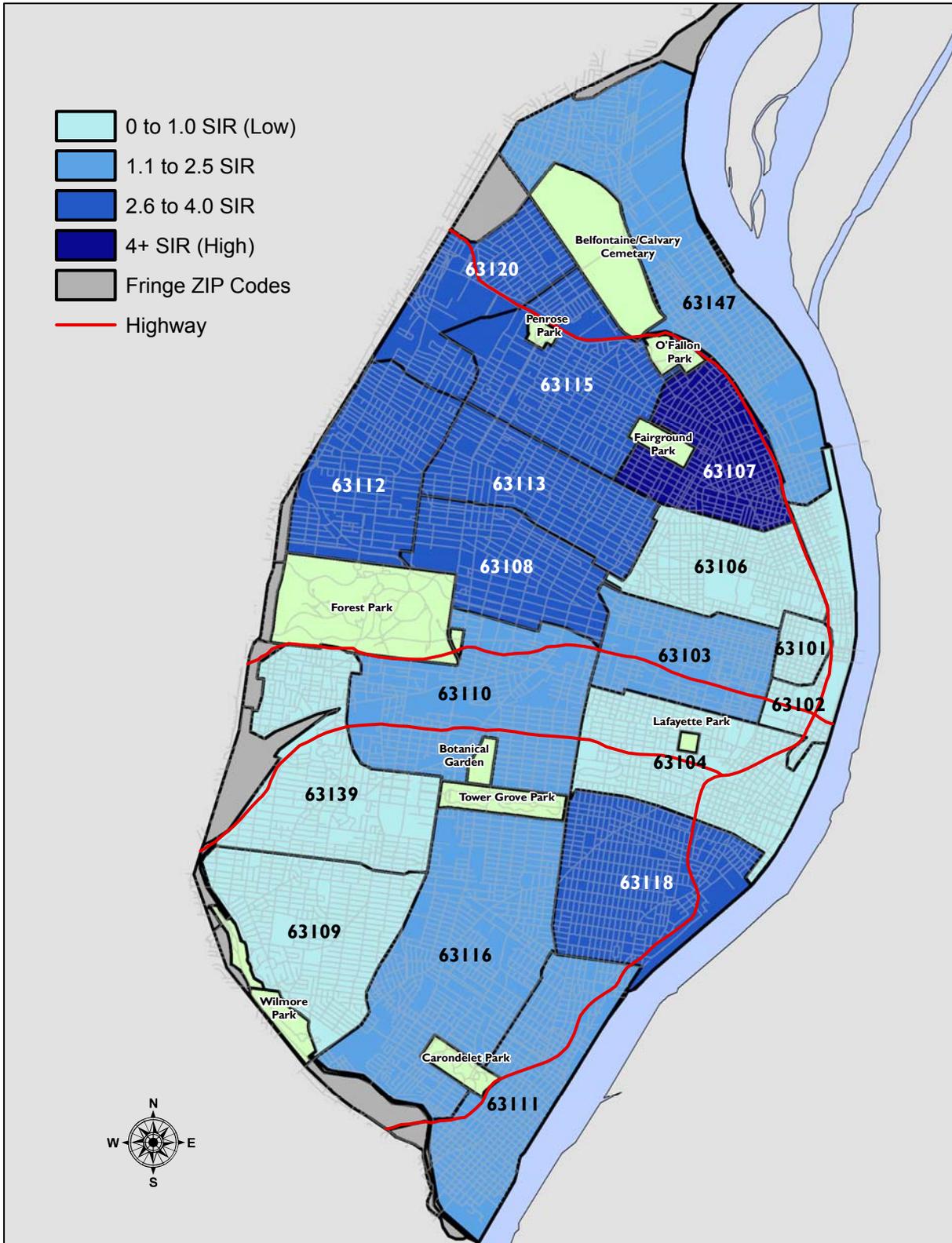
Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

Map I
Screening Prevalence Rates by ZIP Code, 2009



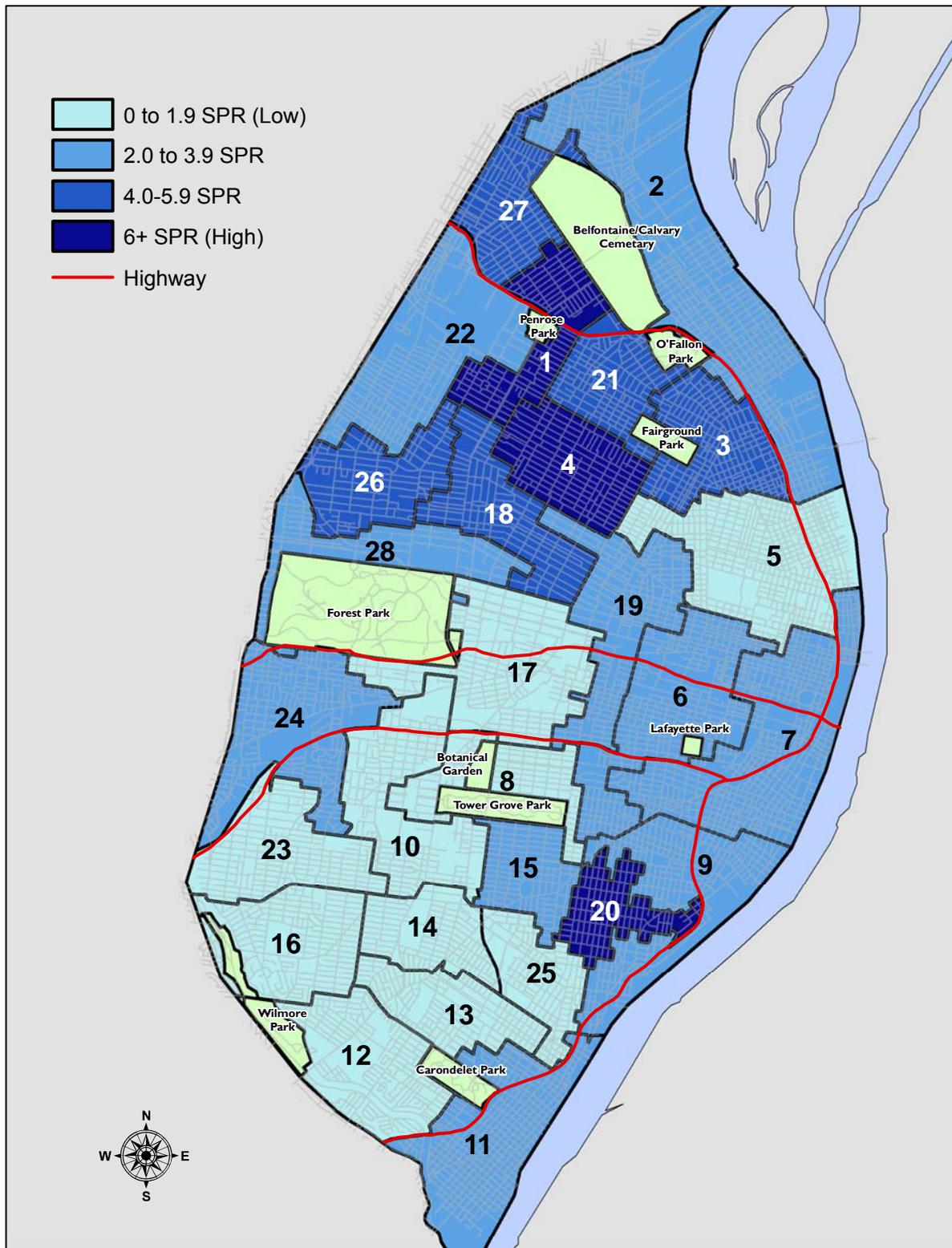
Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

Map 2
Screening Incidence Rates by ZIP Code, 2009



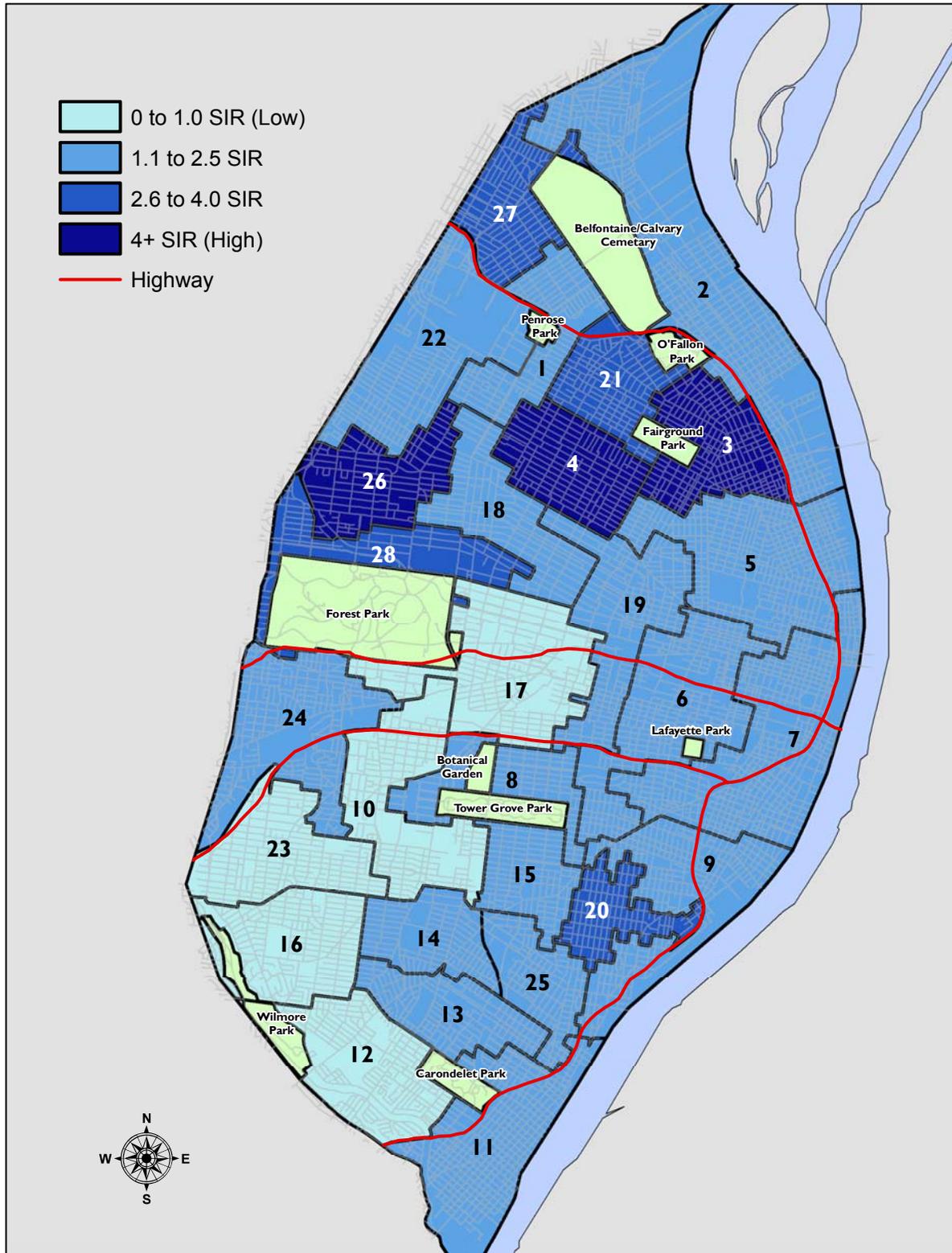
Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

Map 3
Screening Prevalence Rates by Ward, 2009



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Map 4
Screening Incidence Rates by Ward, 2009



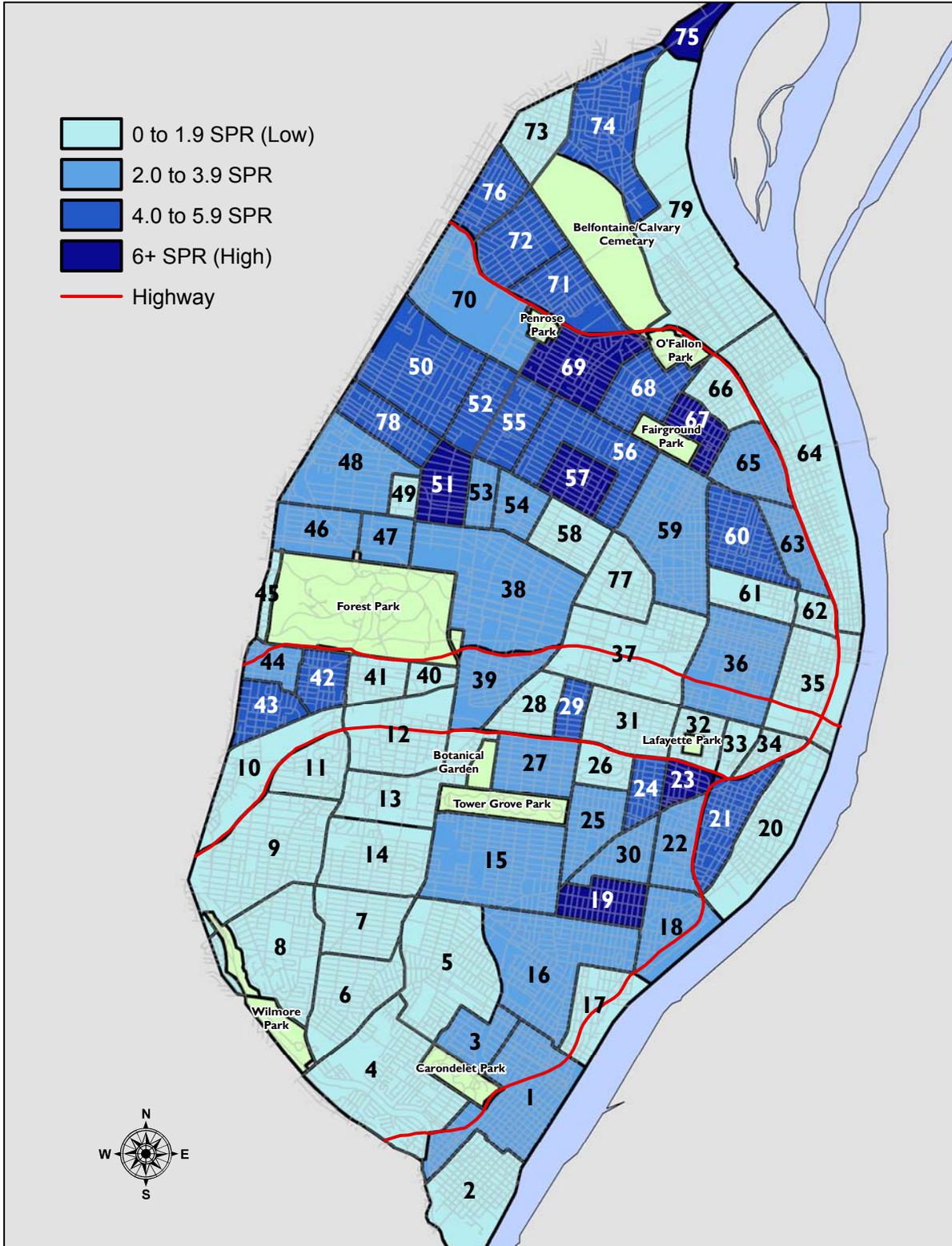
Childhood Lead Poisoning Prevention Program Annual Report 2009
City of St. Louis, Department of Health

City of St. Louis Neighborhoods Names and Numbers

Neighborhood Number	Neighborhood Name	Neighborhood Number	Neighborhood Name
1	Carondelet	41	Cheltenham
2	Patch	42	Clayton-Tamm
3	Holly Hills	43	Franz Park
4	Boulevard Heights	44	Hi-Pointe
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	Greater Ville
17	Mount Pleasant	57	The Ville
18	Marine Villa	58	Vandeventer
19	Gravois Park	59	Jeff Vanderlou
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 Pointe
34	LaSalle Park	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 South East	79	North Riverfront
40	Kings Oak		

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Map 5
Screening Prevalence Rates by Neighborhood, 2009



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Map 6
Screening Incidence Rates by Neighborhood, 2009

