

Preventing Lead Poisoning in New York City

Annual Report 2007



New York City Department
of Health and Mental Hygiene



Preventing Lead Poisoning in New York City

Annual Report 2007

**New York City
Department of Health and Mental Hygiene**

June 2009

Acknowledgments

The 2007 Annual Report on Lead Poisoning in New York was prepared by the following (in alphabetical order):

Editorial Review: Nancy Clark, Danielle Greene, Dewayne Jolly, Janice Kim, Jessica Leighton, Deborah Nagin

Writers: Diana P. DeMartini, Nathan Graber, Paromita Hore, Slavenka Sedlar

Figures, Tables: Barbara Candalla, Gretchen Culp, Andrew Faciano

Publications Unit: Lise Millay Stevens, Deputy Director (Editor)

The accomplishments described in this report are the result of the combined efforts of the sanitarians, nurses, doctors, public health advisors, epidemiologists, researchers, educators, clerical and administrative staff of the Bureau of the Environmental Disease Prevention. Without them, this report would not be possible.

For copies of this report and/or more information about the Lead Poisoning Prevention Program (LPPP) of the New York City Department of Health and Mental Hygiene, **call 311 and ask for the Lead Poisoning Prevention hotline.**

This report can be downloaded as a PDF from www.nyc.gov/lead.

Suggested citation:

New York City Department of Health and Mental Hygiene. *Preventing Lead Poisoning in New York City, Annual Report 2007*. New York, NY; June 2009.

Contents

Acronyms Used in This Report3
Definitions Used in This Report3
Executive Summary4
Chapter 1. Childhood Lead Poisoning: Sustained Progress and Continuing Challenges7
Chapter 2. Profile of Children with Lead Poisoning13
Chapter 3. Accomplishments of the Childhood Lead Poisoning Prevention Program21
Chapter 4. Adult Lead Poisoning27
References33
Appendices34
Appendix I. Risk Factors for Childhood Lead Exposure34
Appendix II. Preventing Lead Poisoning in the Workplace35
Appendix III. Data Tables36
Materials Order Form45

Figures and Tables

Figure 1. Steady Decline in Number of Lead-Poisoned Children	7
Figure 2. Fewer Severe Cases of Childhood Lead Poisoning	8
Figure 3. More Than Half of 1-Year-Old and 2-Year-Old Children in NYC Were Tested for Lead Poisoning	9
Figure 4. Percent of Children Tested for Lead Poisoning Varied by Borough	9
Figure 5. Percent of Children Tested for Lead Poisoning Was Higher in Some Neighborhoods	10
Figure 6. Fewer Children Required Environmental Intervention in 2007	13
Figure 7. Rates of Children with Elevated Blood Lead Levels Were Higher in Some Neighborhoods	15
Figure 8. Environmental Intervention Blood Lead Level (EIBLL) Case Rates Were Higher in Some Neighborhoods	16
Figure 9. Environmental Intervention Blood Lead Level (EIBLL) Case Rates Varied By Neighborhood	17
Figure 10. Brooklyn Children Continue to be Overrepresented in the Environmental Intervention Blood Lead Level (EIBLL) Group	18
Figure 11. Hispanic and Asian Children Were Overrepresented in the Environmental Intervention Blood Lead Level Group	19
Figure 12. Potential Sources of Lead Exposure Among New York City Men and Women with Lead Poisoning, 2007	29
Figure 13. Number of Pregnant Women Newly Identified with Elevated Blood Lead Levels, New York City, 2001-2007	31
Table 1. Lead Poisoning Surveillance Data for New York City Children, Ages 6 Months to Younger than 6 Years, By Borough and United Hospital Fund Neighborhood, New York City, 2007	36
Table 2. Profile of Children Newly Identified with Blood Lead Levels at or above the Environmental Intervention Blood Lead Level (EIBLL), Ages 0 to Younger than 18 years and Ages 6 Months to Younger than 6 Years, New York City, 2007	38
Table 3. Lead Poisoning Surveillance Data for New York City Children, ages 0 to Younger than 18 years, by Borough and United Hospital Fund Neighborhood, New York City, 2007	40
Table 4. Blood Lead Levels (BLLs) for Adults by Gender, New York City, 2007	42
Table 5. Profile of Pregnant Women Newly Identified with Elevated Blood Levels, New York City, 2007	42
Table 6. Neighborhood Codes and Their Corresponding Names, New York City	43

Acronyms Used in this Report

BLL	Blood Lead Level
DOHMH	Department of Health and Mental Hygiene
DPHO	District Public Health Office
EBLL	Elevated Blood Lead Level
EIBLL	Environmental Intervention Blood Lead Level
EODE	Environmental and Occupational Disease and Epidemiology Program
HPD	(Department of) Housing Preservation and Development
LPPP	Lead Poisoning Prevention Program, DOHMH
MMCO	Medicaid Managed Care Organization
NHANES	National Health and Nutrition Examination Survey
NYC	New York City
WIC	Women, Infants, Children Education Nutritional Program

Definitions Used in this Report

Blood Lead Level (BLL): The concentration of lead in blood, measured in micrograms per deciliter of blood ($\mu\text{g}/\text{dL}$).

Elevated Blood Lead Level (EBLL): U.S. Centers for Disease Control and Prevention term to describe a BLL greater than or equal to $10 \mu\text{g}/\text{dL}$. The NYC Health Code also defines lead poisoning as a BLL of $10 \mu\text{g}/\text{dL}$.

Environmental Intervention Blood Lead Level (EIBLL): The blood lead level (BLL) at which case coordination and environmental intervention or initiated for lead-poisoned children in NYC is currently greater than or equal to $15 \mu\text{g}/\text{dL}$. The NYC Health Code mandates environmental intervention at this level.

Age Groups: LPPP provides services to children with lead poisoning younger than 18 years of age. EODE provides services to adults with lead poisoning older than 16 years of age. Data presented in this report, except where specified, refer to these age groups.

Executive Summary

This report emanates from the New York City Department of Health and Mental Hygiene (NYC DOHMH) and describes childhood and adult lead poisoning in New York City (NYC) in 2007. It also highlights NYC's progress in reducing lead poisoning and the continuing challenges to achieving this goal. The report also summarizes the prevention activities and accomplishments of the Lead Poisoning Prevention Program (LPPP) and the Environmental and Occupational Disease Epidemiology (EODE) Program.

The report is divided into 4 sections and includes other tools:

- Chapter 1. Childhood Lead Poisoning: Sustained Progress and Continuing Challenges
- Chapter 2. Childhood Lead Poisoning in New York City
- Chapter 3. Accomplishments of the Lead Poisoning Prevention Program
- Chapter 4. Adult Lead Poisoning in New York City

Three appendices include information on risk factors and prevention of lead poisoning, as well as data tables for New York City.

This report serves to fulfill DOHMH's ongoing commitment to provide community members, policy makers and health professionals with information on the health status of NYC residents.

Significant Progress and Continuing Challenges

Childhood lead poisoning is a serious but preventable public health problem. In young children, exposure to lead can result in long-lasting neurological damage that may cause learning and behavioral problems, and lowered intelligence. Pregnant women and their fetuses may also be adversely affected. Preventing exposure to lead is the only effective way to protect children from the long-term consequences of lead poisoning.

NYC has had tremendous success in reducing both the number of children with lead poisoning and the severity of lead poisonings.

The year 2007 marked:

- An 89% decrease since 1995* in the number of children newly identified with blood lead levels (BLLs) greater than or equal to 10 µg/dL — 2,270 in 2007 compared with 21, 575 in 1995
- A 76% decline since 1995 in the number of children newly identified with severe lead poisoning (BLLs greater than or equal to 45 µg/dL) — 20 in 2007 compared with 82 in 1995

Strong Lead Poisoning Prevention Policies

NYC has comprehensive policies and programs to support lead poisoning prevention. Local laws and regulations are designed to prevent exposure to lead-based paint in housing and group day care facilities. In addition, the NYC Health Code authorizes DOHMH to take action on lead contamination in children's and other consumer products. New York State laws require blood lead testing of young children and pregnant women if they are at risk for lead poisoning. Both New York State and the NYC Health Code require reporting of all blood lead test results.

The city has a comprehensive plan to eliminate childhood lead poisoning by 2010, the national goal. This plan targets communities and populations where lead poisoning persists, and is based on collaboration with government and non-government partners in health and housing. In addition, preventing childhood lead poisoning is 1 of the priority areas of *Take Care New York* (www.nyc.gov/html/doh/html/tcny/index.shtml), the DOHMH's citywide health policy.

*Since 1994, laboratories have been required to report the results of all blood lead tests, not just EBLLs, to the New York State Department of Health. Because 1995 was the first complete year of mandatory reporting, that year is used as the basis for comparisons over time.

Early Identification through Blood Lead Testing

Early identification of lead-poisoned children through blood lead testing allows critical action to be taken to protect them from additional exposure. In New York State, blood lead testing is required for all children at both 1 and 2 years of age, and older children up to age 6 who are at risk. The state also requires health care providers to annually assess lead poisoning risks for young children 6 months to younger than 6 years of age, and test those who are at risk.

In 2007:

- 79% of 1-year-olds and 66% of 2-year-olds were tested.
- An estimated 90% of children born in 2004 were tested for lead at least once before their third birthday; only 44% had been tested at both 1 and 2 years of age.

Lead-Poisoned Children in New York City

Although lead poisoning can affect children of all ages, races and incomes, certain populations are at greater risk for lead poisoning than others, including:

- Children younger than 3 years of age
- Low-income children living in older, deteriorated housing
- Children of color
- Children born outside the United States[†]

In 2007, 620 children younger than 18 years of age were newly identified with an environmental intervention blood lead level (EIBLL) of greater than or equal to 15 µg/dL or higher. In children with this level, LPPP provides environmental intervention and case coordination services.[‡]

Of these children:

- 82% lived in homes built before 1950.
- About half lived in just 9 of 42 NYC neighborhoods.[§]
- 40% lived in Brooklyn.
- 60% were younger than 3 years of age.
- 88% were younger than 6 years of age.
- 87% were Black, Asian or Hispanic.
- 17% were foreign-born.
- 76% spent time in homes or other dwellings, such as the home of a babysitter, in which lead-based paint hazards were found during inspection.

[†] From 2002 through 2007, lead poisoning has been found in at least 2 children emigrating from the following countries, in descending order of frequency: Haiti, Mexico, Bangladesh, Pakistan, Dominican Republic, India, China, Liberia, Guinea, Guyana, Georgia, Jamaica, Ecuador, Nigeria, Guatemala, Sierra Leone, Albania, Yemen, Mali, Senegal, Canada, Egypt, Israel, Ivory Coast, Togo, Trinidad and Tobago, United Kingdom, Yugoslavia, Ghana, Morocco, Nepal, Suriname, Thailand, Uzbekistan, Afghanistan, Cuba, El Salvador, Gambia, Honduras, Mauritania, and Peru.

[‡] Environmental intervention blood lead level (EIBLL) is the BLL at which LPPP provides case coordination and environmental intervention to lead-poisoned children. Since August 2004, the EIBLL has been defined as a BLL \geq 15 µg/dL. From July 1999 to August 2004, the EIBLL was defined as a BLL \geq 20 µg/dL or 2 BLLs of 15–19 µg/dL taken at least 3 months apart. The EIBLL has been reduced 6 times since it was set at 60 µg/dL in 1970. In general, the reductions were made in response to emerging evidence of adverse health effects at successively lower BLLs.

[§]In this report, neighborhoods are defined as those established by the United Hospital Fund, which has aggregated contiguous NYC ZIP codes into 42 neighborhoods. See Table 6 for list of neighborhoods.

Lead-Poisoned Adults in New York City

Adults at greatest risk for lead poisoning in NYC include men exposed to lead in the workplace and foreign-born, pregnant women. Occupations most at risk for lead poisoning include construction workers, bridge painters and repair workers, cable splicers, scrap metal workers and target range workers. Non-occupational risks include: environmental exposures in other countries and contaminated foods, herbal remedies, pottery and cosmetics.

EODE provides intervention services for men with BLLs greater than or equal to 25 µg/dL, and for pregnant and non-pregnant women with BLLs greater than or equal to 15 µg/dL. In 2007 there were:

- 125 men with BLLs greater than or equal to 25 µg/dL
- 96 women with BLLs greater than or equal to 15 µg/dL, including 77 pregnant women

Programs and Services

Childhood Lead Poisoning Prevention Program

LPPP's mission is to prevent and control childhood lead poisoning. To achieve this goal, the program has developed comprehensive and innovative strategies to target communities at greatest risk for lead poisoning; it also works closely with agency and community stakeholders to reduce lead hazards and increase blood lead testing. In 2007, LPPP increased the number of high-risk neighborhoods receiving primary prevention inspections to reduce lead-based paint hazards in the homes of newborns and young children, before lead poisoning occurs. The program also intensified education and outreach to health care providers and the community to raise awareness about lead poisoning prevention.

Environmental and Occupational Disease Epidemiology Program

EODE promotes lead poisoning prevention in the workplace and in the community, and investigates and tracks cases of lead poisoning in NYC residents aged 18 years and older. The program works closely with LPPP to identify and prevent adult exposures to non-paint lead sources, and to identify and provide services to lead-poisoned pregnant women.

Strategies for Continued Progress

LPPP and EODE plans for furthering the prevention of lead poisoning include:

- Expand efforts to prevent childhood and adult lead poisoning before it occurs.
- Eliminate or reduce lead-based paint hazards and other sources of lead in homes, workplaces and communities.
- Promote blood lead testing for children, pregnant women, and workers through outreach to healthcare providers, managed care companies, families, employers and unions.
- Educate health care providers, families, workers, employers and community organizations about preventing lead poisoning.
- Build partnerships with stakeholders to support lead poisoning prevention activities in communities.
- Promote healthy homes issues including safe pest control, moisture and mold elimination, smoke and carbon monoxide alarms, and window guards.

Chapter 1

Childhood Lead Poisoning: Sustained Progress and Continuing Challenges

Childhood lead poisoning is a serious but preventable public health problem. In young children, exposure to lead can result in long-lasting neurological damage that may be associated with learning and behavioral problems, as well as lowered intelligence.^{1,2}

Marked progress has been made in reducing the number of children with EBLs. To further this progress and reach the national goal of eliminating childhood lead poisoning by 2010, New York City has intensified its lead poisoning prevention efforts by collaborating with new partners and targeting interventions in neighborhoods at greatest risk.

Significant Progress over the Past Decade

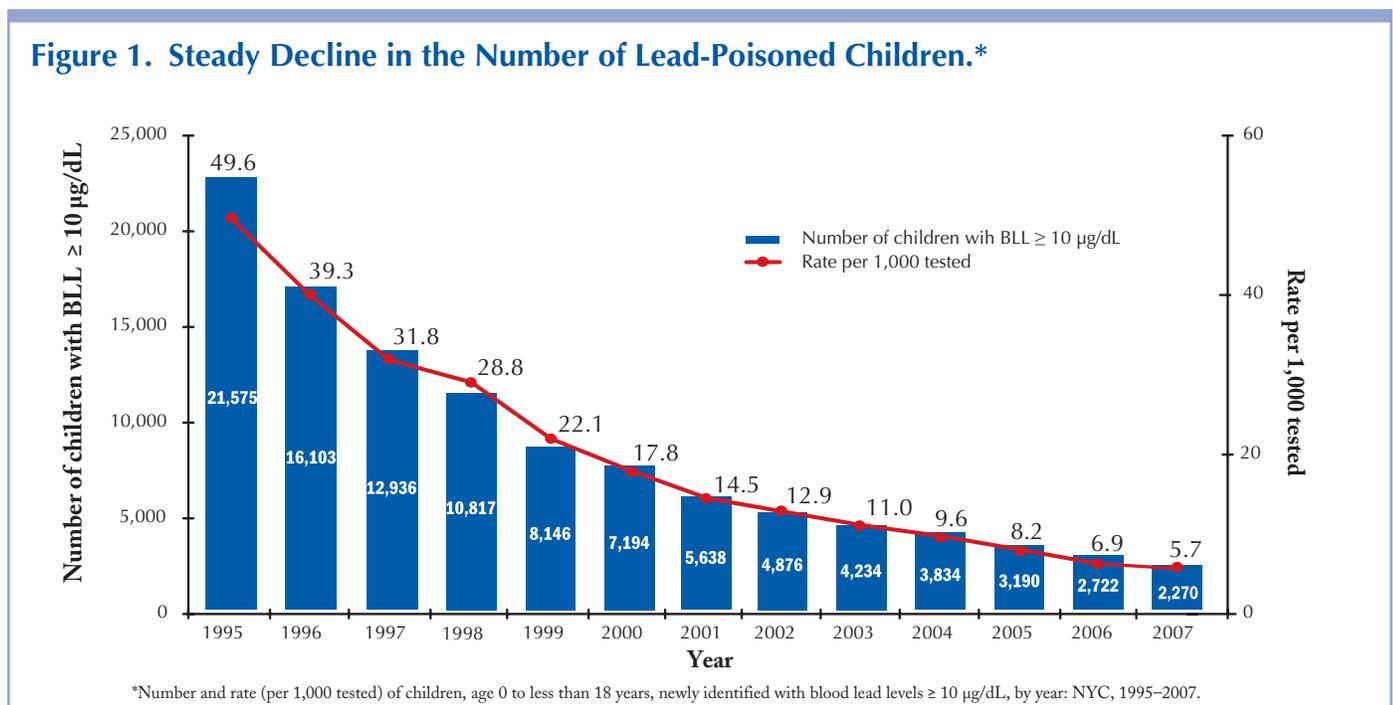
The Lead Poisoning Prevention Program (LPPP) of the NYC DOHMH was established in 1970. The program's mission is to prevent childhood lead poisoning, promote blood lead testing, and provide intervention services for lead-poisoned children and their families.

Fewer Lead-Poisoned Children

The LPPP provides services to children younger than 18 years of age who are identified with lead poisoning.

In 2007, there was:

- An 89% decrease in the number of children younger than 18 years of age newly identified with a BLL greater than or equal to 10 $\mu\text{g}/\text{dL}$ (2,270 children versus 21,575 children in 1995)* (**Figure 1**)
- A 90% decrease in the number of children from 6 months to younger than 6 years of age newly identified with a BLL greater than or equal to 10 $\mu\text{g}/\text{dL}$ (1,947 children versus 19,232 children in 1995)



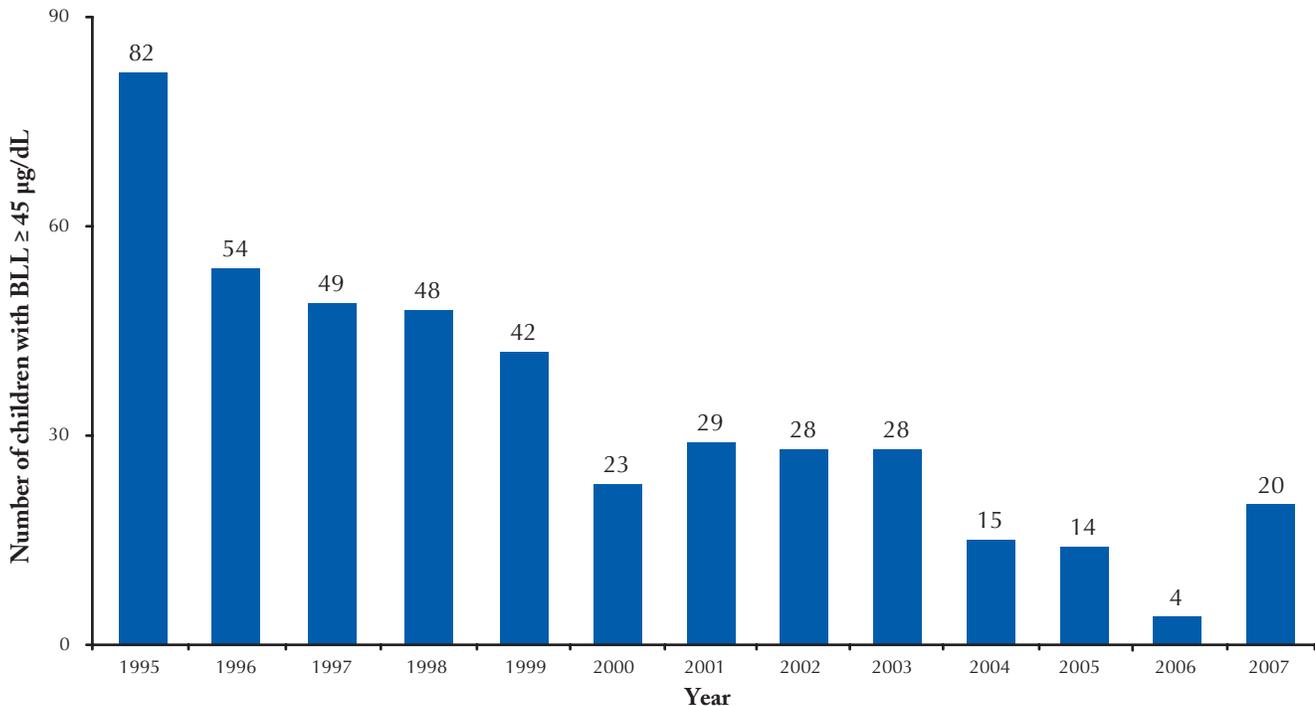
*Since 1994, laboratories have been required to report the results of all blood lead tests, not just EBLs, to the New York State Department of Health. Because 1995 was the first complete year of mandatory reporting, that year is used as the basis for comparisons over time

Children with Severe Lead Poisoning

In 2007, compared with 1995, there was a 76% decline in the number of children younger than 18 years of age newly identified with BLLs greater than or equal to 45 µg/dL (20 children versus 82 children) (**Figure 2**). Although the number of children newly identified with severe lead poisoning in 2007 is higher than in past years, especially compared to 2006 when there was a significant decrease, the number is still relatively low.

LPPP tracks and assesses new cases of severe lead poisoning, and will continue to carefully monitor this indicator. These children require immediate medical intervention and may require hospitalization for chelation, a medical treatment that removes lead from the body.

Figure 2. Fewer Severe Cases of Childhood Lead Poisoning.*



*Number of children, age 0 to less than 18 years, newly identified in the Environmental Intervention Blood Lead Level group with blood lead levels ≥ 45 µg/dL, by year: NYC, 1995–2007.

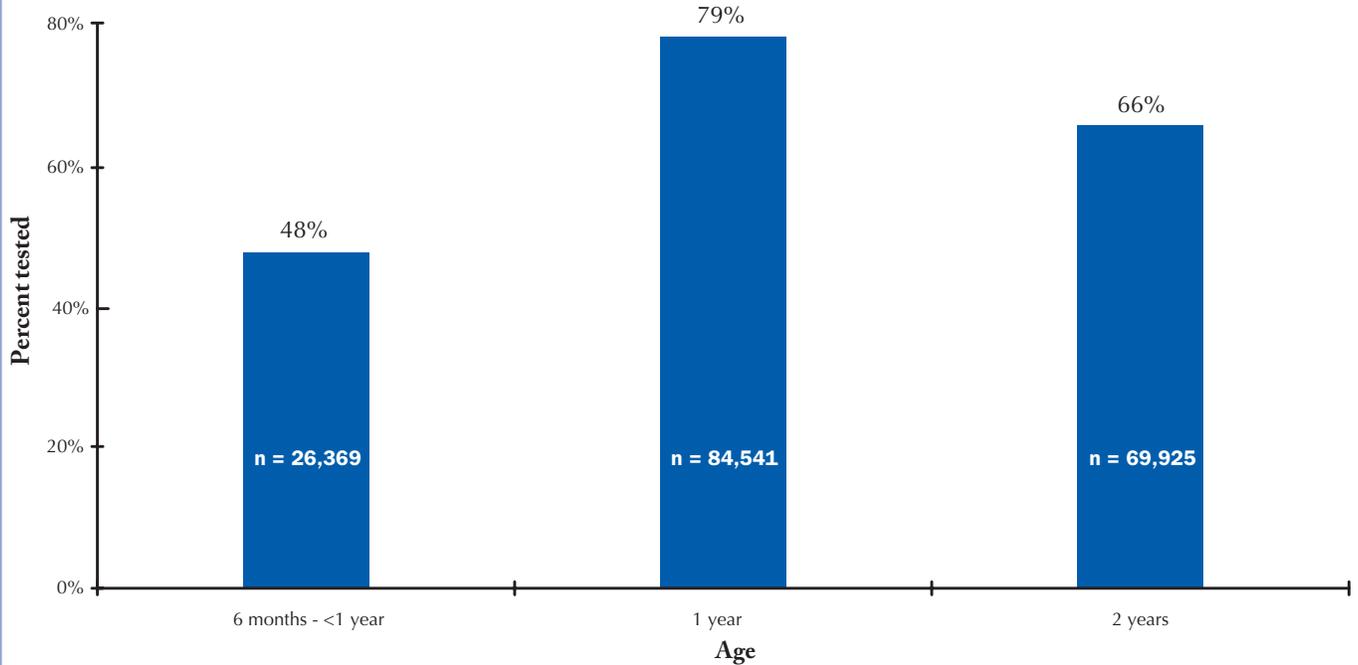
Blood Lead Testing

In New York State, blood lead testing is required for children at both 1 and 2 years of age, and for high-risk children from 6 months to 6 years of age. Besides identifying individual children with elevated BLLs, blood lead tests are used to identify high-risk communities and populations, and to target Health Department lead poisoning prevention activities.

In 2007:

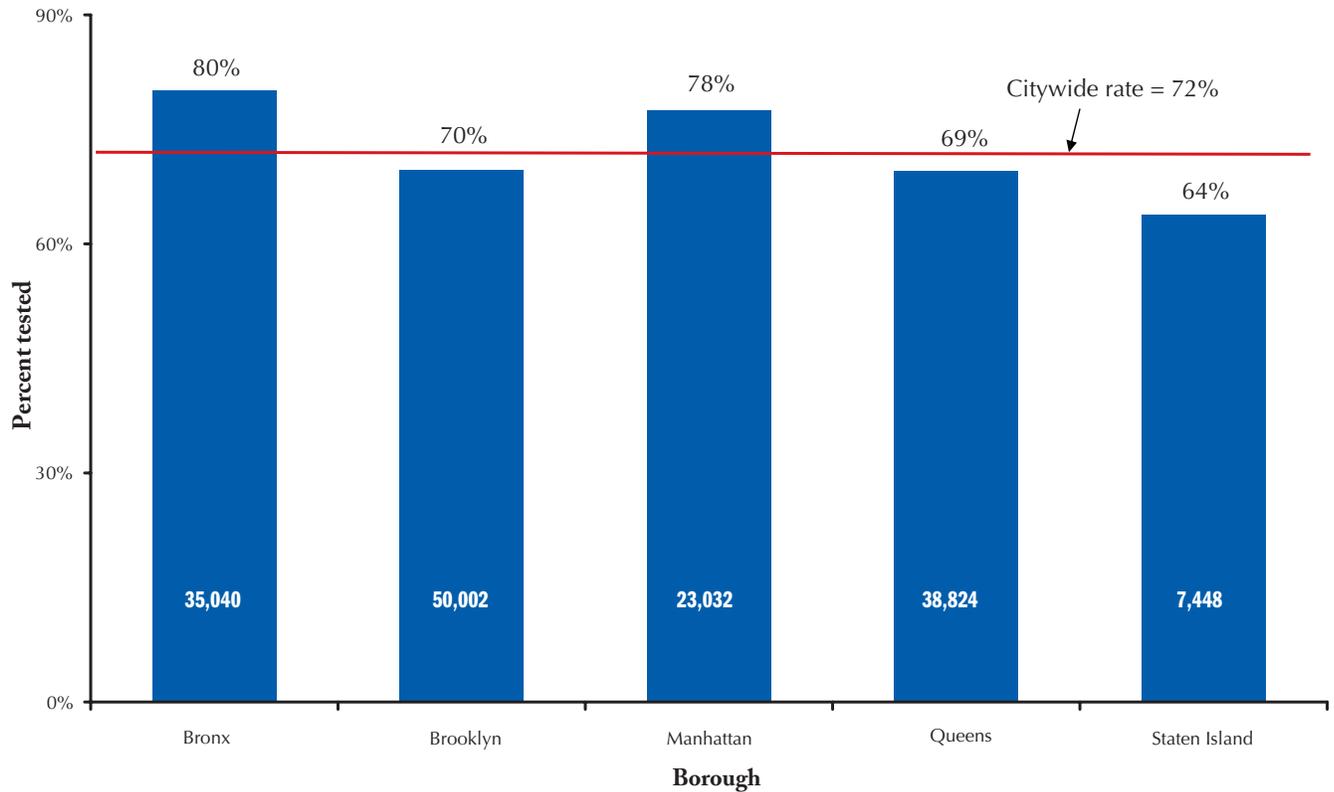
- 79% of 1-year-olds and 66% of 2-year-olds were tested for lead poisoning (**Figure 3**).
- An estimated 90% of children born in 2004 were tested for lead poisoning at least once before their third birthday, but only 44% had been tested at both 1 and 2 years of age.
- Testing rates for 1-year-olds and 2-year-olds showed significant geographic variation
 - Across boroughs, rates ranged from 64% in Staten Island to 80% in the Bronx (**Figure 4**).
 - Among neighborhoods, rates ranged from 48% in South Beach-Tottenville, Staten Island, to 97% in Lower Manhattan (**Figure 5**).

Figure 3. More Than Half of 1-Year-Old and 2-Year-Old Children in New York City Were Tested for Lead Poisoning.*



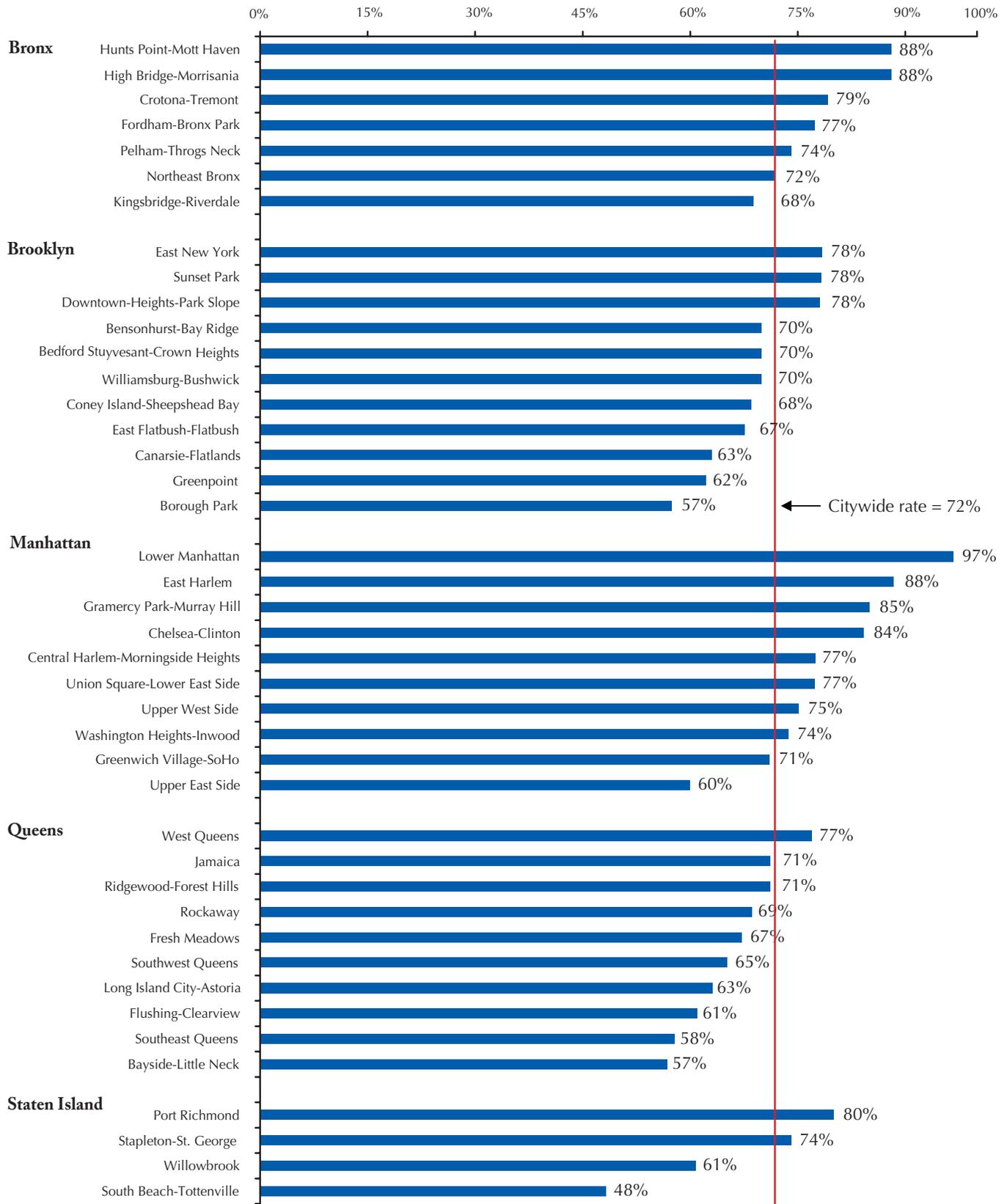
*Number and percent of children, ages 6 months to less than 3 years, tested for lead poisoning, by age: NYC, 2007. Sources: NYC DOHMH LPPP and US Census 2000 (Summary File 1).

Figure 4. Percent of Children Tested for Lead Poisoning Varied by Borough.*



*Percent of children, ages 1 year to less than 3 years, tested for lead poisoning, by borough: NYC, 2007. Sources: NYC DOHMH LPPP and US Census 2000 (Summary File 1).

Figure 5. Percent of Children Tested for Lead Poisoning Was Higher in Some Neighborhoods.*



*Percent of children, ages 1 year to less than 3 years, tested for lead poisoning, by United Hospital Fund Neighborhood: NYC, 2007. Sources: NYC DOHMH LPPP and US Census 2000 (Summary File 1).

National Decline in Childhood Lead Poisoning

The dramatic reduction in the number of lead-poisoned children in NYC is part of a nationwide decline over the last 3 decades. The National Health and Nutrition Examination Survey (NHANES) showed that fewer than 2% of U.S. children from 1 year to younger than 6 years of age had BLLs greater than or equal to 10 µg/dL from 1999 through 2002, in contrast with 88% of children in the same age group in 1976.³

This progress in reducing childhood lead poisoning can largely be attributed to national and local government regulations that:

- Prohibit the use of lead in gasoline, paint and other consumer products.
- Require the remediation of lead-based paint hazards in housing, using safe work practices.
- Promote early identification of children with elevated BLLs through blood lead testing.

Strong Policies Protect Children from Lead Exposure

New York City Policies and Laws

NYC has developed strong policies to support lead poisoning prevention. In 1960, the city banned the use of lead-based paint in homes, 18 years before the federal ban. Laws and regulations have been developed to prevent lead exposure **before** children are poisoned and to protect those with elevated BLLs from further exposure. Because lead-based paint and dust continue to be the primary sources of lead exposure for NYC children, policies emphasize lead hazard control in housing, with a focus on young children.

Local Law 1 of 2004

Local Law 1 (the Childhood Lead Poisoning Prevention Act) was enacted in 2004. The law requires owners of multiple dwellings (buildings with three or more units) to annually identify and fix lead-based paint hazards using safe work practices in every apartment occupied by a child younger than 6 years of age.[¶] The law applies to buildings built before 1960 (or between 1960 and 1978 if the landlord knows that the building contains lead-based paint). The NYC Department of Housing Preservation and Development (HPD) is primarily responsible for enforcing this law.

Local Law 1 also requires group day care operators to visually survey their facilities for peeling paint and other lead-based paint hazards at least once a year. Identified lead paint hazards must be repaired immediately, using safe work practices. Group day care operators must update this survey annually and make repairs when conditions, such as water leaks or other damage, cause paint to deteriorate during the year. The results of the survey must be submitted to DOHMH.

New York City Health Code

The NYC Health Code authorizes the Health Department to investigate lead hazards in the homes of lead-poisoned children, as well as other addresses where a lead-poisoned child spends a significant amount of time. When lead paint hazards are identified, DOHMH orders the building owner to abate the hazard. Other provisions of the Health Code ban the use of lead-based paint inside homes, and on toys, furniture and other items used by children. The Health Code also grants authority to DOHMH to embargo and seize lead-containing consumer products.

[¶]The applicable age for Local Law 1 from 2004-2006 was less than 7 years of age. As of October 2006, the applicable age was changed to less than 6 years of age.

Take Care New York

Take Care New York (TCNY) is the citywide health policy to guide residents to lead healthier and longer lives (nyc.gov/html/doh/html/tcny/index.shtml). Childhood lead poisoning is included in the TCNY agenda, as part of the recommendation “Make Your Home Safe and Healthy.” Inclusion in the TCNY initiative underscores the DOHMH’s commitment to eliminating childhood lead poisoning in the city.

New York City’s Comprehensive Plan to Eliminate Lead Poisoning

The United States Department of Health and Human Services has set a national goal to eliminate childhood lead poisoning by 2010, which is defined as “no children younger than 6 years of age newly identified with BLLs greater than or equal to 10 µg/dL.” To meet this goal, LPPP has created a comprehensive plan that focuses on:

- Preventing exposure to lead-based paint
- Preventing exposure to non-paint sources of lead
- Increasing blood lead testing of young children

The plan was developed with the assistance of the LPPP Technical Advisory Committee, whose members represent government agencies, medical centers, community organizations and academic institutions concerned about lead poisoning prevention. To achieve these goals, the plan targets outreach, education and environmental intervention activities in neighborhoods and populations that are at the greatest risk of lead poisoning. A copy of the plan is available at: www.nyc.gov/html/doh/downloads/pdf/lead/lead-plan.pdf.

Blood Lead Testing and Reporting Requirements

New York State law requires health care providers to:

- Test all children at both 1 and 2 years of age for lead poisoning.
- Annually assess all children 6 months to 6 years of age for risk of lead exposure, and test children found to be at risk.
- Provide anticipatory guidance to educate parents of children younger than 6 years of age on ways to minimize their child’s exposure to lead.⁴

New York State and NYC require laboratories to report all blood lead test results within five days.⁵ The NYC Health Code also requires doctors and laboratories to report BLLs greater than or equal to 10 µg/dL to DOHMH within 24 hours.⁶

Chapter 2

Profile of Children with Lead Poisoning

While lead poisoning can affect children of all ages, races and incomes, young children living in older, deteriorated housing in low-income neighborhoods and children of color are at greater risk.

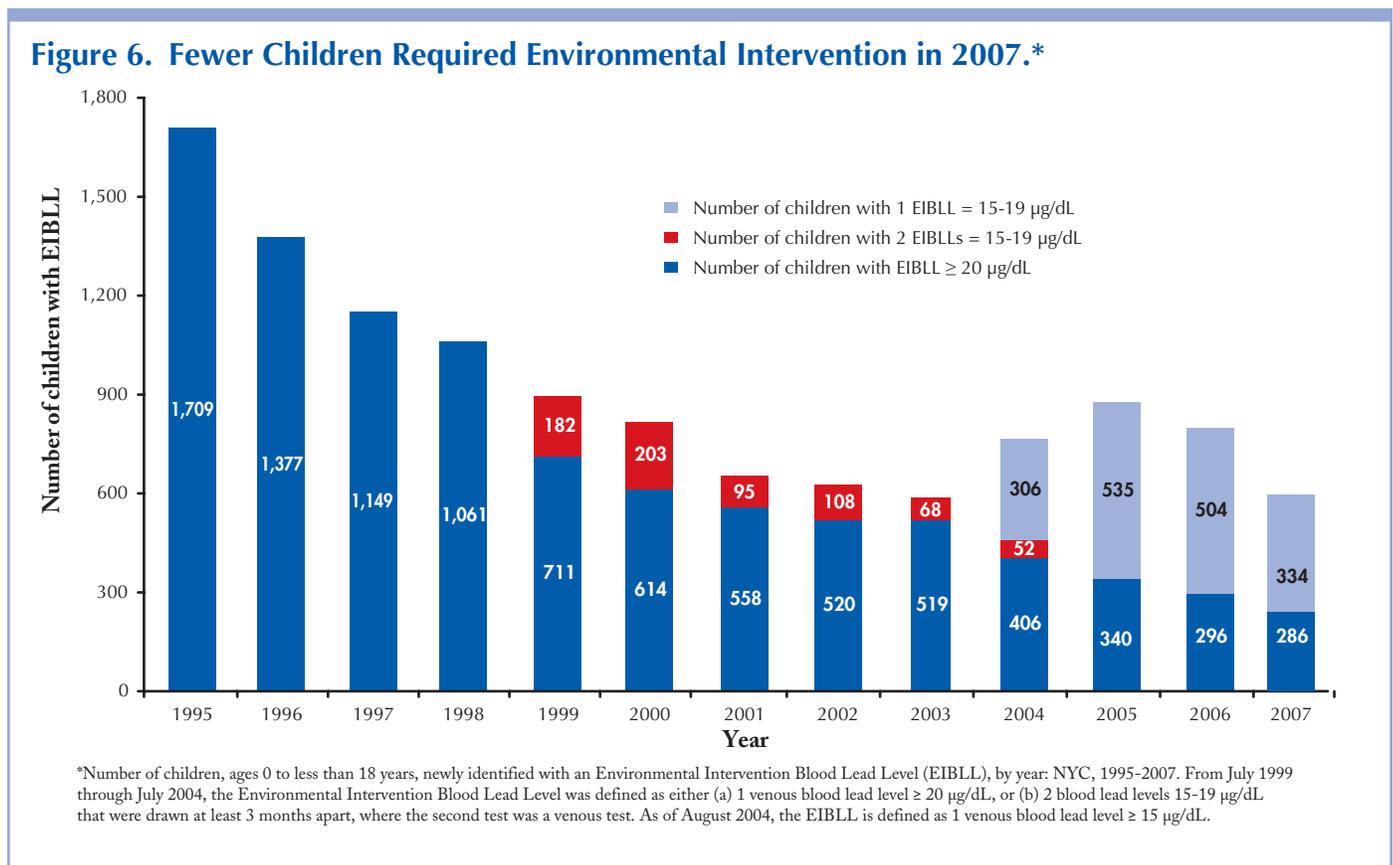
Children at greatest risk for lead poisoning, however, are those 6 months to younger than 6 years of age, and especially those between the ages of 1 and 3 years of age (Table 1). Data in this report, except where specified, refer to children younger than 18 years.

Environmental Intervention Blood Lead Levels

The LPPP provides environmental intervention and case coordination services for children with BLLs greater than or equal to 15 µg/dL. Since 1995, there has been a steady decline in the number of children receiving these services. In 2004, the threshold for providing environmental intervention services was lowered to 15 µg/dL, resulting in an increase in the number of children eligible for environmental intervention services (Figure 6).

In 2007, there was:

- A 23% decrease since 2006 in the number of children younger than 18 years of age identified with an EIBLL (620 children in 2007 versus 800 children in 2006)
- A 19% decrease since 2006 in the number of children 6 months to younger than 6 years of age identified with an EIBLL (538 children in 2007 versus 667 children in 2006)



Community Characteristics

Old Housing

The main source of childhood lead poisoning in NYC, as in most regions of the United States, is lead-based paint in older, deteriorated housing. Nationwide, lead poisoning is associated with housing constructed before 1950, when lead-based paint was widely used and generally contained more lead than in later decades. More than 60% of NYC housing stock was built before 1950, compared with about 22% of all U.S. housing.

In 2007:

- 82% of children newly identified with EIBLLs lived in dwellings built before 1950.
- 76% of children with EIBLLs, LPPP inspectors found peeling or deteriorated lead-based paint or lead dust in the child's primary and secondary home (for example, their babysitter's residence) (**Table 2**).

Poverty

Poverty contributes to the risk of lead poisoning in children as low-income families often reside in older, poorly maintained housing. Nationally, among children 1 to 5 years of age living in older housing, those in low-income families are 4 times more likely to have EIBLLs than children in middle-income families.⁷ Information on family income for lead-poisoned children in NYC is not available; however, lead poisoning in the city continues to be concentrated in neighborhoods that have large low-income populations—in contrast, neighborhoods with the lowest EIBLL case rates are generally middle- to upper-income communities. In NYC, 30% of all children younger than 18 years live in poverty, as compared with 17% of all U.S. children.

In 2007:

- More than half of children newly identified with BLLs greater than or equal to 10 µg/dL lived in just 11 of 42 NYC neighborhoods (**Table 3**). In these neighborhoods, 36% of children live in poverty.[#]
- More than half of the children who were newly identified with EIBLLs lived in just 9 of 42 NYC neighborhoods (**Table 3**). In these neighborhoods, 32% of children live in poverty.^{||}

Neighborhoods

The disproportionate burden of lead poisoning in certain neighborhoods is evident when rates of EBLLs and EIBLLs in each community in the city are compared to the citywide average.

The citywide rate for children newly identified with BLLs greater than or equal to 10 µg/dL in 2007 was 5.7 for every 1,000 children tested. This rate was higher in 16 of 42 neighborhoods: 1 in the Bronx, 7 in Brooklyn, 5 in Manhattan, 2 in Queens and 1 on Staten Island (**Figure 7** and **Table 3**).

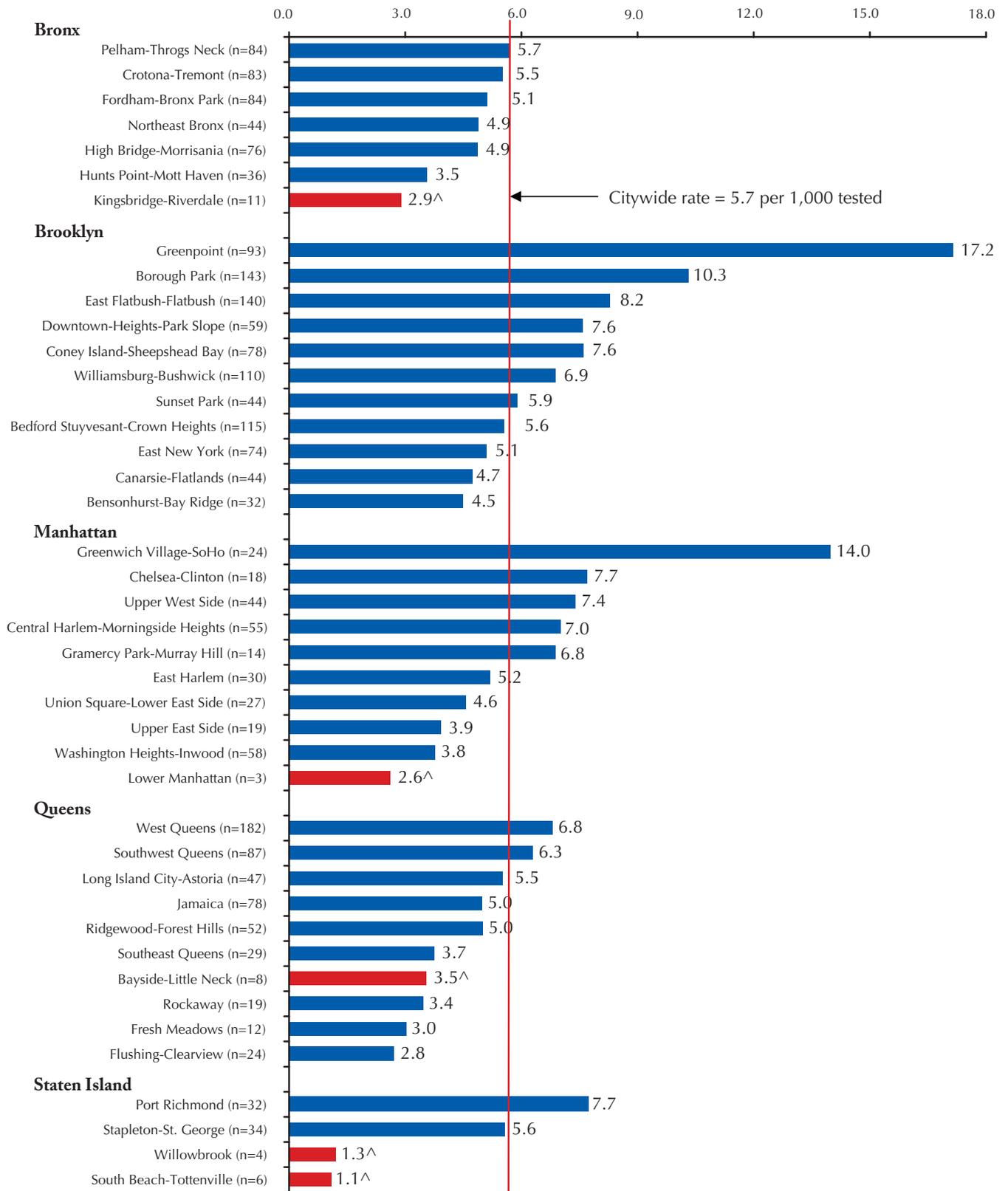
For children newly identified with EIBLL, the citywide rate was 1.6 for every 1,000 children tested. This rate was higher in 16 of 42 neighborhoods: 3 neighborhoods in the Bronx, 7 neighborhoods in Brooklyn, 4 in Queens and 2 on Staten Island (**Figure 8** and **Table 3**).

Figure 9 shows rates of EIBLL by neighborhoods; those with the highest rates lead poisoning are designated by the darkest blue color on the map.

[#]The 11 neighborhoods were: West Queens and Southwest Queens in Queens; Borough Park, East Flatbush-Flatbush, Bedford Stuyvesant-Crown Heights, Williamsburg-Bushwick, Greenpoint, and Coney Island-Sheepshead Bay in Brooklyn; and Fordham-Bronx Park, Pelham-Throgs Neck, and Crotona-Tremont in the Bronx.

^{||}The 9 neighborhoods were: Borough Park, Bedford Stuyvesant-Crown Heights, East Flatbush-Flatbush, and Williamsburg-Bushwick in Brooklyn; Pelham-Throgs Neck and Fordham-Bronx Park in the Bronx; and West Queens, Jamaica, and Ridgewood-Forest Hills in Queens.

Figure 7. Rates of Children With Elevated Blood Lead Levels Were Higher in Some Neighborhoods.*

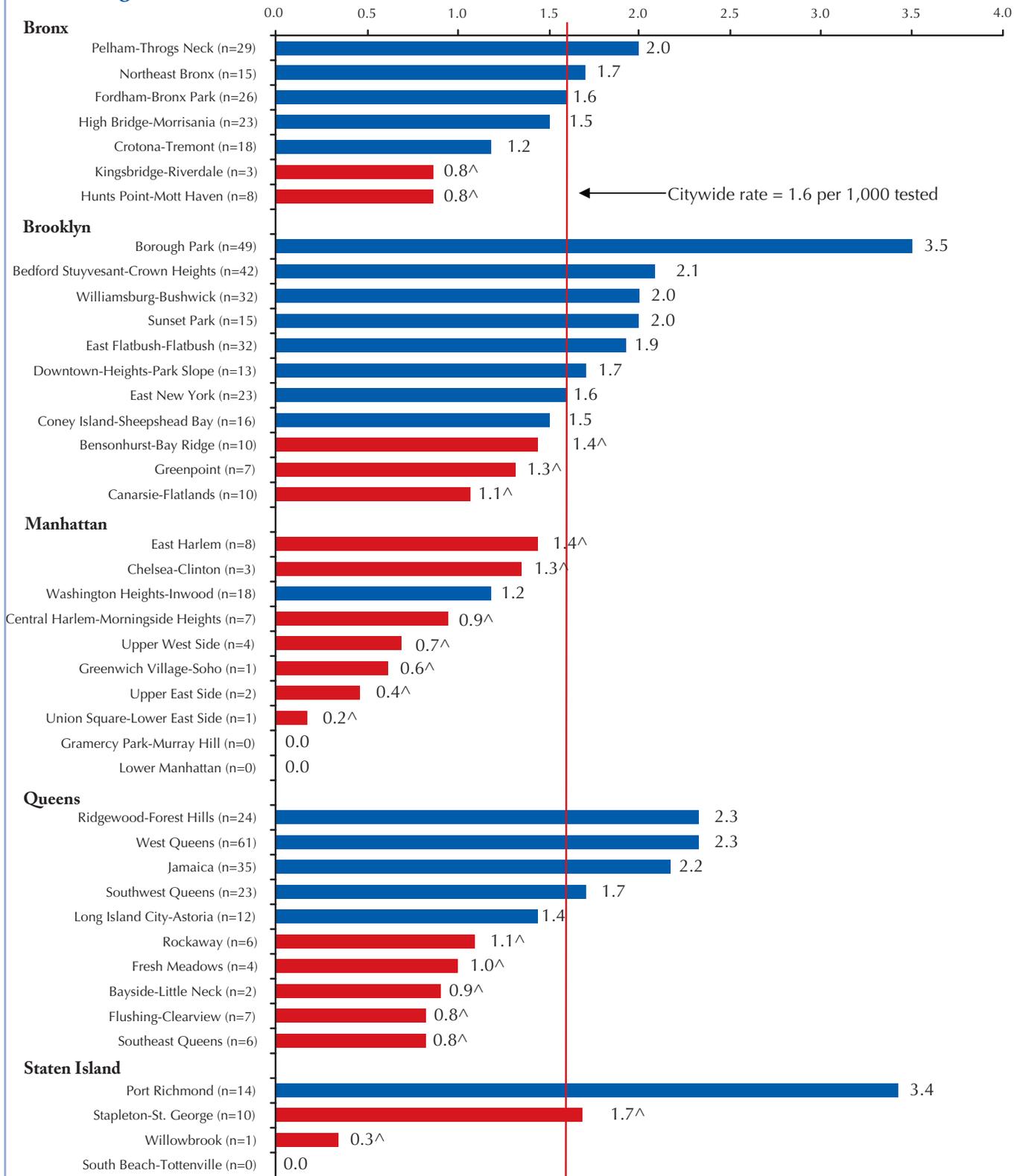


*Number and rate (per 1,000 children tested) of children, ages 0 to less than 18 years, newly identified with an Elevated Blood Lead Level ($\geq 10 \mu\text{g}/\text{dL}$), by United Hospital Fund Neighborhood (sorted highest to lowest within each borough): NYC, 2007.

[^]Elevated Blood Lead Level rates in neighborhoods represented by red bars were less precise (relative standard error > 30%) due to small numbers of children with elevated BLL. Caution should be used in interpreting these case rates.

Note: Number of cases with EBLL in each neighborhood is reported in parentheses to the right of neighborhood name.

Figure 8. Environmental Intervention Blood Lead Level (EIBLL) Case Rates Were Higher in Some Neighborhoods.*

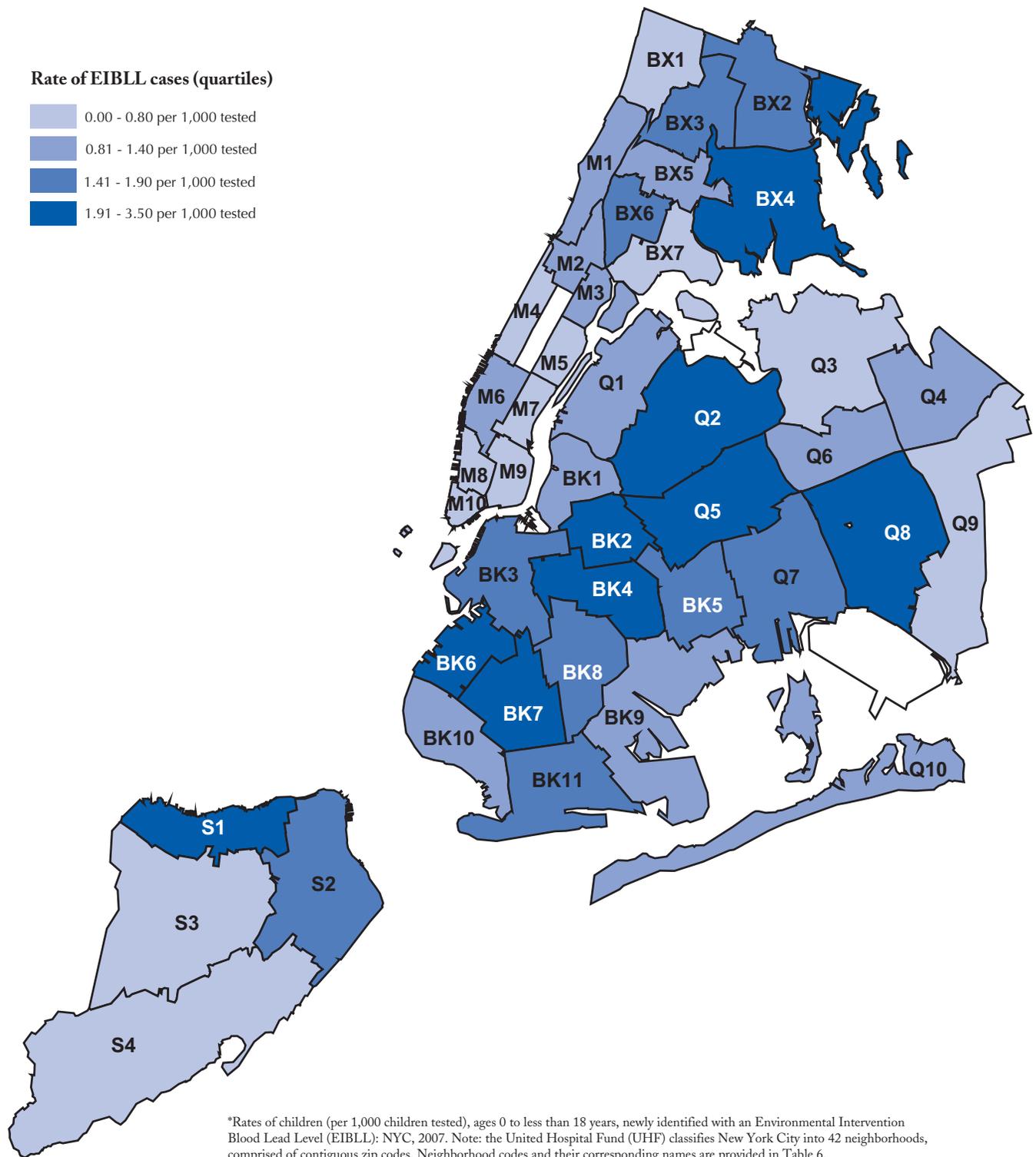


*Number and rate (per 1,000 children tested) of children, ages 0 to less than 18 years, newly identified with an Environmental Intervention Blood Lead Level (EIBLL), by United Hospital Fund Neighborhood (sorted highest to lowest within each borough): NYC, 2007.

[^]Case rates in neighborhoods represented by red bars were less precise (relative standard error > 30%) due to small numbers of cases. Caution should be used in interpreting these case rates.

Note: Number of cases with EIBLL in each neighborhood is reported in parentheses to the right of neighborhood name.

Figure 9. Environmental Intervention Blood Lead Level (EIBLL) Case Rates Varied By Neighborhood.*



Borough

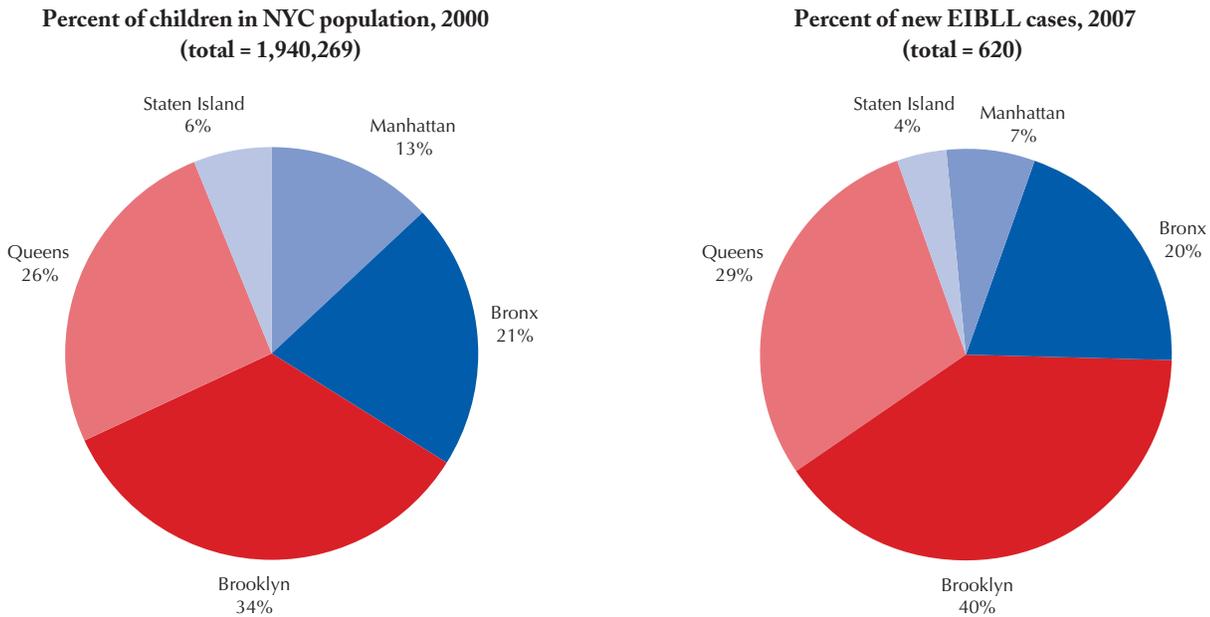
Brooklyn children are disproportionately affected by lead poisoning. About 34% of NYC children younger than 18 years of age reside in Brooklyn, but the proportion of children with BLLs greater than or equal to 10 µg/dL from that borough are considerably higher (**Figure 10**).

In 2007:

- 41% of children newly identified with BLLs greater than or equal to 10 µg/dL lived in Brooklyn (**Table 3**).
- 40% of children newly identified with EIBLLs resided in Brooklyn (**Figure 9** and **Table 3**).

Queens accounted for approximately one-third of children with EIBLLs, which is similar to the proportion of NYC children living in the borough. Children from the Bronx, Manhattan and Staten Island made up the remaining 31% of children with EIBLLs.

Figure 10. Brooklyn Children Continue To Be Overrepresented in the Environmental Intervention Blood Lead Level Group.*



*Distribution of children, ages 0 to less than 18 years, in the population, and distribution of children newly identified with an Environmental Intervention Blood Lead Level (EIBLL), by borough: New York City, 2007. Sources: NYC DOHMH LPPP and US Census 2000 (Summary File 1).

Characteristics of Children with Lead Poisoning

Age

Young children (especially those younger than 3 years of age) are at greatest risk for lead poisoning—they are more likely to ingest lead-based paint or lead dust as they crawl on floors and put their hands and toys in their mouths. Lead is also more readily absorbed in the gastrointestinal tracts of these children. In addition, research suggests that children younger than 2 years of age may be particularly vulnerable to the neurotoxic effects of lead because of their rapidly developing neurological systems.⁸

In 2007:

- Among the 2,270 children newly identified with BLL greater than or equal to 10 µg/dL, 60% (1,369) were younger than 3 years of age and another 27% (608) were between 3 years and younger than 6 years of age.
- Among the 620 children newly identified with EIBLLs, 59.5% (369 children) were younger than 3 years of age and another 28.5% (177 children) were younger than 6 years of age (**Table 2**).

Gender

Generally, there are slightly more boys than girls newly identified with EIBLLs in NYC. In 2007, 59% of all children with EIBLLs were boys (**Table 2**).

Race/Ethnicity

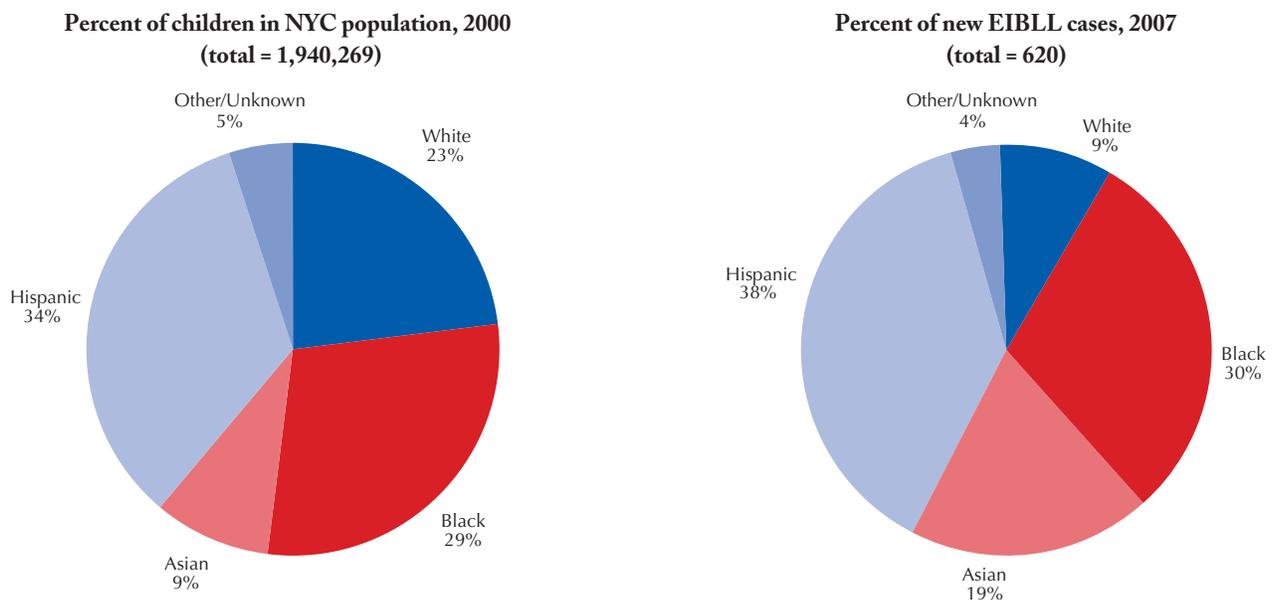
As in most of the United States, lead poisoning in the city disproportionately affects children of color (**Figure 11** and **Table 2**). This disparity is evident when comparing the race/ethnicity of children with EIBLLs with the racial/ethnic composition of NYC's population overall.

The racial/ethnic distribution of children with EIBLLs varies from year to year. In 2007, for the third year in a row, Hispanic children were the largest group among children newly identified with EIBLLs; however, since 1995, black, non-Hispanic children have usually been the largest group. The LPPP will continue to monitor the race/ethnicity distribution among children with EIBLLs to identify new trends.

In 2007, the race/ethnicity distribution of children with EIBLL was:

- 38% Hispanic children (citywide, 34% Hispanic)
- 30% black, non-Hispanic children (citywide, 29% black, non-Hispanic)
- 19% Asian, non-Hispanic children (citywide, 9% Asian)
- 9% white, non-Hispanic children (citywide, 23% white, non-Hispanic)

Figure 11. Hispanic and Asian Children Were Overrepresented in the Environmental Intervention Blood Lead Level Group.*



*Distribution of children, ages 0 to less than 18 years, in the population, and distribution of children newly identified with an Environmental Intervention Blood Lead Level (EIBLL), by race/ethnicity: New York City, 2007. Sources: NYC DOHMH LPPP and US Census 2000 (Summary File 1).

Country of Birth

In NYC, children born outside the United States are overrepresented among children with EIBLLs; they are less likely to have identified lead-based paint hazards in their homes. Frequent travel to a foreign country also appears to be an important risk factor.

In 2007, 17% of the 620 children with EIBLLs were born outside the United States; approximately 14% of NYC children are foreign born (Census 2000).

The most frequently reported countries of birth among foreign-born EIBLL cases in descending order were:

- Bangladesh
- Pakistan
- Haiti
- Mexico

The most frequently reported countries of birth overall for foreign-born NYC children younger than 18 years of age were:

- Dominican Republic
- Mexico
- China
- Jamaica

In 2007, only 62% of foreign-born children with EIBLLs had identified lead-based paint hazards in their homes, compared with 79% of U.S.-born children with EIBLLs.

Chapter 3

Accomplishments of the Childhood Lead Poisoning Prevention Program

The Lead Poisoning Prevention Program (LPPP) has developed a proactive, comprehensive approach to childhood lead poisoning prevention and control. Primary areas of activity include:

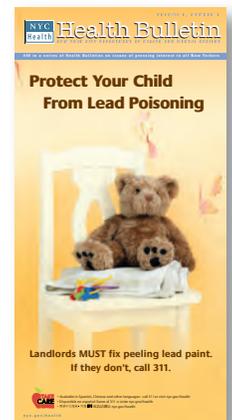
- Reduction of lead hazards in homes and communities
- Outreach and education for the public and health care providers to promote prevention and early detection of lead poisoning
- Case coordination for lead-poisoned children, as well as lead-poisoned pregnant women and their newborns
- Environmental investigations and enforcement
- Surveillance and research

Preventing Lead Poisoning

The LPPP continues to target intervention efforts in communities and populations at greatest risk for lead exposure. LPPP partners with community-based organizations, social service providers, health care providers and other government agencies to increase awareness and maximize resources devoted to lead poisoning prevention.

In 2007, LPPP:

- Expanded primary prevention efforts to address lead-based paint hazards in the homes of newborns and young children in high-risk neighborhoods
- Intensified educational, community outreach efforts, with a focus on high-risk, foreign-born communities
- Continued to collaborate with 17 Medicaid Managed Care Organizations (MMCOs) and the NYC Department of Health and Mental Hygiene (DOHMH) Early Intervention Program to increase testing among high-risk children
- Continued to work with the NYC Department of Housing Preservation and Development (HPD) on a federally funded project that provides financial support to building owners for lead hazard repair in high-risk areas
- Conducted a multilingual educational radio campaign that encouraged parents to get their children tested for lead and to report peeling paint
- Released new information for the public on imported products that may contain lead (herbal health remedies, ceramics, cosmetics, Mexican candies, jewelry and toys)



Making Housing Safer for Children

Reducing lead-based paint hazards in the home is an integral part of LPPP's prevention strategy. The NYC Health Code authorizes the LPPP to investigate lead hazards in homes and communities, order lead-based paint abatement and remediation, and enforce safe work practices during repair and renovation work.

Ordering Landlords to Correct Lead-Based Paint Hazards

When LPPP identifies lead-based paint hazards in the homes of children with environmental intervention blood lead levels (EIBLLs), it orders the building owner to safely abate the hazards. LPPP also issues orders to correct lead-based paint hazards in homes of non-lead poisoned children and newborns in high-risk neighborhoods.

In 2007, LPPP:

- Issued 739 violations for lead-based paint hazards in the homes of children
- Monitored correction of lead-based paint hazards in 909 homes

Conducting Lead Hazard Investigations in 1- and 2-Family Homes

LPPP responds to complaints about peeling or deteriorating paint from tenants in 1- and 2- family homes, and orders landlords to repair identified lead-based paint hazards. HPD performs similar functions for tenants in dwellings with three or more units.

- In 2007, LPPP conducted 144 inspections at 31 dwellings in 1- and 2-family homes.

Enforcing Safe Work Practices

LPPP enforces health code provisions requiring safe work practices during lead abatement and remediation, and also investigates complaints of paint dust and debris from unsafe work practices during repair and renovation work.

In 2007, LPPP conducted 3,132 safety inspections for work disturbing lead-based paint.

Reducing Lead-Based Paint Hazards in Communities

In 2007, LPPP collaborated with the HPD and other local government programs to reduce exposure to lead-based paint hazards. Specific activities include:

Targeting High-Risk Buildings

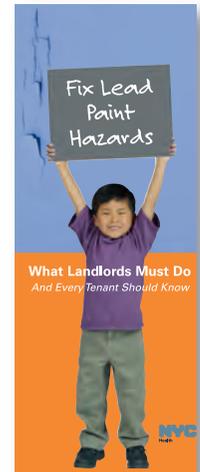
When LPPP inspects the home of a lead-poisoned child and identifies lead-based paint hazards, the building owner is ordered to abate the hazards. LPPP refers the building to HPD for building-wide action to assess compliance with Local Law 1.

In 2007, LPPP referred 509 buildings to HPD for building-wide follow-up actions.

Inspecting Homes of Newborns in High Risk Neighborhoods

LPPP works with the Brooklyn District Public Health Office (DPHO) Newborn Initiative. This home visiting program combines education on well baby care with visual inspections for lead and other environmental home hazards. When peeling paint is identified, DPHO staff refer the apartment to LPPP for an environmental inspection. If lead paint hazards are identified, the building owner is ordered to correct the hazards.

During 2007, the Newborn Initiative referred 305 dwelling units to LPPP for inspection. Lead-based paint hazards were identified in 144 units.



Supporting Financial Assistance for Hazard Reduction

Since 1995, LPPP and HPD have collaborated on a project funded by the U.S. Department of Housing and Urban Development (HUD) that provides financial assistance through forgivable loans to building owners for lead hazard reduction.

From 1995 to 2007, more than 2,005 apartments received lead hazard repairs under this project, with 439 apartments repaired in 2007.

Protecting Children from Non-Paint Sources of Lead

Lead-based paint and dust remain the primary sources of lead poisoning among NYC children.

In 2007, LPPP inspectors did not identify any lead-based paint hazards in homes and secondary addresses for 24% of lead-poisoned children; non-paint lead sources may be contributing to the elevated BLLs in these children.

In 2007, LPPP:

- Convened a meeting of other health departments to discuss ways to reduce lead exposure from herbal medicine products
- Produced a fact sheet on lead in imported products in English, Spanish and Chinese
- Disseminated a health alert on herbal medicine products to more than 20,000 health care providers in NYC
- Collaborated with the New York State Department of Health to provide information on lead in toys to parents, day care providers and health care providers
- Distributed health warnings on imported cosmetics (kohl, kajal, and surma) to store owners, wholesalers and community partners

Working with Foreign-Born Communities

In NYC, foreign-born children with EIBLLs are less likely than U.S.-born children with EIBLLs to have identified lead-based paint hazards in their homes or supplemental addresses. In 2007, 38% of foreign-born children had no identifiable lead-based paint hazards in their homes, compared to 20% of U.S.-born children.

In 2007, LPPP:

- Conducted English as a Second Language classes with a lead safety theme for 64 participants with limited English proficiency
- Provided information on imported lead-containing cosmetics (kohl, kajal and surma) that are banned from sale in NYC; Information packets in appropriate languages were distributed to 91 community-based organizations working with the Arab, South Asian and African communities (see **chapter 4** for details).



Public Education and Outreach

2007 Media Campaign

LPPP launched a media campaign using ethnic radio stations to reach communities at risk for lead poisoning. Throughout June, July and August, educational spots ran on local radio stations broadcasting in English, Spanish, Chinese, Haitian Creole, French, Bengali and Hindi. In total, the message was broadcast 1,218 times across 12 radio stations and in 7 languages. Popular DJs publicized lead poisoning prevention by attending health fairs and distributing LPPP brochures. The key messages of the 2007 radio campaign were:

- Lead is dangerous for children; it can cause learning, health and behavior problems.
- Wash floors, windowsills, children's hands and toys often.
- Test children's blood for lead at ages 1 and 2 years.
- Landlords must fix peeling paint. It's the law and it's a tenant's right.
- Call 311 for information.

Educating Families and Community-Based Organizations

Each year, the agency conducts hundreds of workshops for parents, and health and social service providers, and participates in health fairs and community events.

In 2007, LPPP:

- Responded to 2,794 calls to the LPPP Information Line
- Distributed 294,627 pieces of educational material
- Educated 6,316 parents at 336 workshops held at community-based organizations, health care clinics, schools, day care centers, faith-based organizations, Head Start programs and Women, Infants, and Children (WIC) centers
- Reached 6,280 NYC residents at 112 health fairs
- Trained 970 professional staff from community-based organizations, day care centers, Head Start programs, WIC centers and other government and community agencies at 56 workshops
- Recruited and maintained the enrollment of 430 stores that sell paint and home repair materials in the Healthy Homes Hardware Store campaign, an initiative to publicize safe work practices

The LPPP publishes a wide range of educational materials in multiple languages, including brochures for parents, tenants, landlords, contractors and health care providers. In 2007, LPPP initiated an effort to translate its key brochures into languages spoken by populations at risk, including Bengali, Urdu, French, Haitian Creole and others. All LPPP materials are available on the Internet at www.nyc.gov/lead.

In 2007, materials produced by LPPP included:

- *5 Simple Ways to Protect Your Child* in English, Spanish, Chinese, French, Bengali, Urdu, Russian and Haitian Creole, available at: www.nyc.gov/html/doh/downloads/pdf/lead/lead-paint-bro.pdf
- Health Bulletin – *Protect your Child from Lead Poisoning* in English, Spanish and Chinese, available at: www.nyc.gov/html/doh/downloads/pdf/public/dohmhnews6-03.pdf
- Health Warning – *Some Imported Products Contain Lead* in English, Spanish, Chinese, French, Arabic, Hindi, Urdu and Bengali, available at: www.nyc.gov/html/doh/downloads/pdf/lead/lead-fact-sheet.pdf

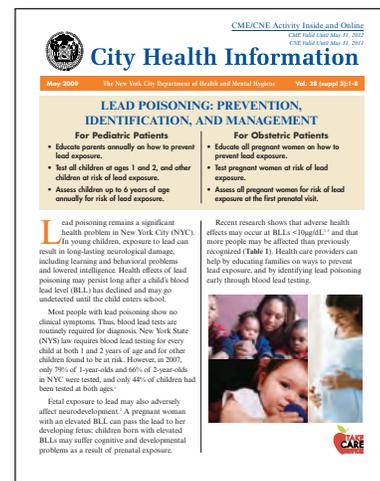


Outreach to Health Care Providers

Health care providers play a key role in lead poisoning prevention. The LPPP uses multiple strategies to reach and educate them about prevention, screening and medical management of lead-poisoned children.

In 2007, LPPP:

- Provided consultations to 33 health care providers on the management of lead-poisoned children
- Educated 285 health care providers at 6 professional forums
- Promoted the Provider Online Registry, a secure Internet database that gives providers access to immunization and blood lead histories for their pediatric patients (<http://home2.nyc.gov/html/doh/html/cir/a04.html>)
- Educated medical students and residents about public health and lead poisoning prevention through collaboration with 2 NYC medical centers
- Distributed 31,087 copies of a new *City Health Information* (CHI) newsletter on Lead Poisoning Prevention, Identification, and Management for pediatric and obstetric patients to pediatricians, family medicine providers, obstetricians, gynecologists and public health professionals (www.nyc.gov/html/doh/downloads/pdf/chi/chi26-3.pdf)
- Hosted a forum for Acupuncturists and Ayurvedic practitioners on recent research about the health effects of lead in imported herbal medicine products



Improving Screening

Medicaid Managed Care Data Match

LPPP continued its data-matching project with 17 MMCOs under contract with the DOHMH Division of Health Care Access and Improvement. Information on children enrolled in MMCOs is matched against LPPP's blood lead registry to identify children who have not been tested for lead poisoning. Each MMCO follows up with the children's health care providers, encouraging them to order the necessary blood lead test. Participation in the data match is a contractual requirement for the MMCOs.

Early Intervention Program Data Match

LPPP has established a similar data-matching project with DOHMH's Early Intervention Program, which provides services for children younger than 3 years of age or who have, or are at risk for, developmental delays. This program sends letters to parents of children who have been identified by LPPP as lacking appropriate blood lead tests, encouraging them to have their child tested.

Case Coordination and Environmental Intervention

Monitoring Blood Lead Levels for Children with Elevated Blood Lead Levels

The LPPP sends letters to families and medical providers of children with BLLs greater than or equal to 10 µg/dL, but less than 15 µg/dL.** The letter recommends follow-up blood lead testing, provides information on lead poisoning prevention, and reminds families to report peeling paint to NYC's 311 hotline if the landlord fails to make repairs.

In 2007, LPPP sent 3,338 letters to families of children with BLLs greater than or equal to 10 µg/dL and less than 15 µg/dL.

**Since August 2004, this includes children with BLLs of 10–14 µg/dL. Previously, children with BLLs of 10–19 µg/dL received these services.

Coordinating Care for Children with Environmental Intervention Blood Lead Levels

The LPPP initiates case coordination and environmental intervention services when a child is reported with a BLL greater than or equal to 15 µg/dL, the current EIBLL. Case coordination includes:

- Educating the child's family and health care provider about ways to reduce the child's exposure to lead
- Educating the child's health care provider about appropriate medical management, including appropriate intervals for follow-up blood testing
- Tracking the results of follow-up blood lead tests to determine changes in BLL
- Assisting the family and health care provider with referrals to the Early Intervention Program
- Referring families to temporary lead-safe housing as necessary
- Consulting with health care providers of children with BLLs greater than or equal to 45 µg/dL to ensure that they receive appropriate care, which may include medical treatment, such as chelation and hospitalization

Providing Environmental Intervention for Children with Environmental Intervention Blood Lead Levels

In addition to case coordination, LPPP takes action to identify and eliminate sources of lead exposure in children with BLLs greater than or equal to 15 µg/dL, including:

- Inspecting the child's primary and secondary addresses (babysitter, homes of relatives) and interviewing the child's family to identify potential sources of lead exposure
- Ordering the building owner to remediate identified lead-based paint hazards
- Monitoring remediation work for timely completion and use of lead-safe work practices
- Referring the apartment to HPD to make the repairs if the building owner fails to do so within the mandatory time period

In 2007, LPPP:

- Inspected 636 primary addresses and 206 secondary addresses
- Conducted 2,755 inspections to monitor progress and safety of ordered remediation
- Referred 159 dwelling units to HPD's Emergency Repair Program after landlords failed to make repairs
- Accommodated 22 children in lead-safe apartments

Using Data to Strengthen LPPP Activities

The LPPP monitors BLLs, screening and rates of lead poisoning throughout NYC. Each year, LPPP receives over 400,000 blood lead test results for more than 300,000 children. These testing data, along with other data collected through environmental intervention and case coordination services, are maintained in an electronic registry.

The LPPP routinely uses its surveillance and case coordination data, along with other population and housing data, to:

- Research risk factors for lead poisoning in NYC
- Identify geographic and demographic patterns of lead poisoning
- Target appropriate interventions for high-risk groups
- Assess the effectiveness of interventions
- Support data-matching collaborations that promote increased blood lead testing among high-risk children
- Track individual children with elevated BLLs to ensure they receive timely and appropriate services
- Evaluate the quality and timeliness of program activities and service delivery
- Produce reports on lead poisoning in NYC for public and government use

Chapter 4

Adult Lead Poisoning

The Environmental and Occupational Disease Epidemiology (EODE) program tracks trends in adult lead poisoning and provides intervention services to adults with elevated BLLs.

EODE also educates the public about sources of adult lead poisoning and ways to reduce blood lead levels (BLLs); the program also promotes best practices to prevent lead poisoning in the workplace and informs workers, employers and medical providers about the risks of lead exposure. EODE collaborates with LPPP to provide lead poisoning prevention services about lead and pregnancy.

The majority of adults tested for lead poisoning are workers exposed to lead on the job, pregnant women and people tested by their health care provider when a potential risk factor is identified, or signs and symptoms indicate potential exposure.

Adults in High-Risk Occupations

The most prevalent cause of adult lead poisoning is occupational exposure to lead in the construction industry. Workers are exposed by breathing lead dust or lead fumes during construction activities that disturb old, lead-based paint, such as renovations, repairs and demolition. Construction workers who repair and paint steel bridges and other steel structures are at greatest risk for lead poisoning. Workers in other industries, as well as hobbyists, may be at risk if they work with metal, paint, pigments or ceramic glazes that contain lead. Adults can also be exposed through the use of contaminated products such as imported health remedies, spices, foods, pottery and cosmetics.

Pregnant Women

During pregnancy, a woman who has an elevated blood lead level can pass lead to her developing fetus. Elevated BLLs in pregnant women may be caused by lead stored in the body from previous lead poisoning. During pregnancy, the stored lead may go into the woman's blood and carried to the fetus. Pregnant women can also have elevated BLLs from current exposures, such as using imported health remedies, foods, spices and cosmetics; cooking with imported pottery; eating non-food items such as clay, pottery, soil or paint chips; and working in a lead-related occupation or hobby.

Health Effects of Lead Poisoning in Adults

Although most adults with lead poisoning do not feel or look sick, lead poisoning can cause health problems.⁹ Common effects include:

- **Short term effects:** Headaches, irritability, stomach cramps, constipation, muscle or joint pain, fatigue, sleep problems and loss of sex drive
- **Long term effects:** High blood pressure, nerve disorders, brain damage, kidney damage and reproductive damage
- **Health effects during pregnancy:** High blood pressure, increased risk of miscarriage, premature births, decreased fetal growth and future learning and behavioral problems in children exposed to lead in utero



Blood Lead Testing in Adults

Both Federal and New York State laws require employers to provide regular blood lead testing for workers who are exposed to lead on the job. In addition, New York State law requires health care providers to assess lead poisoning risk for pregnant women at their initial prenatal visit and to perform blood lead testing for those at risk. Providers may also choose to test patients with a suspected lead exposure, such as the use of imported health remedies.

In 2007:

- There was a 14% increase in testing among adults (81,646 adults compared with 71,600 adults in 2006).^{††}
- Of the adults tested, 68,553 were women and 12,104 were men.^{‡‡}
- There was a 7% decrease in the number of adults tested with BLLs greater than or equal to 10 µg/dL (1,027 adults compared to 1,104 adults in 2006).^{§§}



Lead poisoning was more prevalent among men than among women—6.3% of the tested men had BLLs greater than or equal to 10 µg/dL, compared with 0.3% of the tested women. Based on 2004 NYC Health and Nutrition Examination Survey data, less than 1% of the city's men and around 0.1% of women aged 20 years and older are estimated to have BLLs greater than or equal to 10 µg/dL. Because most men in the registry are tested because of potential lead exposure at their jobs, there is a greater difference in prevalence between the registry and the survey data. Women tend to be tested as a part of routine prenatal care, not because they present a specific risk factor for exposure (**Table 4**).

Case Coordination and Case Investigation Services for Adults with Lead Poisoning

EODE provides services to adults with lead poisoning depending on BLLs and gender. EODE sends letters advising follow-up BLL testing along with educational materials on preventing lead poisoning to all adults with BLLs greater than or equal to 10 µg/dL.

For women with BLLs greater than or equal to 15 µg/dL, EODE determines if the woman is pregnant by calling the woman or her health care provider; if so, they are referred to LPPP for case coordination services. In women who are not pregnant, EODE interviews them to assess potential sources of lead exposure and provides information on the general health effects of lead, lead poisoning during pregnancy and ways to prevent lead poisoning.

EODE also conducts interviews with men with BLLs greater than or equal to 25 µg/dL to assess potential lead exposure and provide information on preventing future exposures. If potential occupational lead exposure is identified during the case interviews, EODE may conduct employer interviews and work site visits.

In 2007, EODE:

- Sent 617 letters to adults with BLLs greater than or equal to 10 µg/dL
- Contacted 5 employers to discuss lead-related work exposures on their job sites
- In collaboration with LPPP, provided referrals and services for 77 pregnant women newly identified with BLLs greater than or equal to 15 µg/dL

^{††} The number of blood lead tests for adults in 2006 was corrected. It was previously reported as 72,747, not 71,600.

^{‡‡} Gender was not confirmed for 989 adults because their blood lead levels were less than 10 µg.

^{§§} The number of adults in 2006 with BLLs greater than or equal to 10 µg/dL was corrected. It was previously reported as 1,097, not 1,104.

Sources of Exposure for Non-Pregnant Women and for Men

EODE conducts interviews with non-pregnant women with BLLs greater than or equal to 15 µg/dL, and with men with BLLs greater than or equal to 25 µg/dL to assess potential sources of lead exposure. **Figure 12** shows the total number of men and women (non-pregnant and pregnant)^{¶¶} with lead poisoning and their potential sources of lead exposure.

In 2007, there were 125 men identified with BLLs greater than or equal to 25 µg/dL (a 33% decline compared to 2006). Among these men:

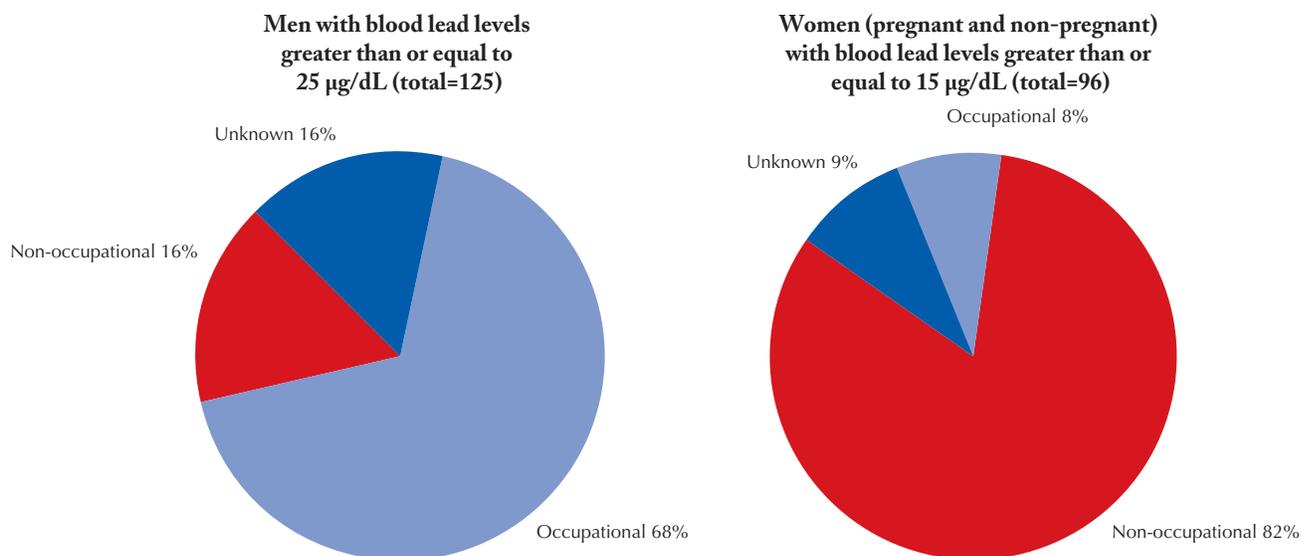
- 68% reported potential occupational sources of lead exposure. Among them:
 - 56% were construction workers who mainly engaged in bridge painting and repair.
 - 19% worked in other occupations, including cable splicing, stained-glass work, shooting-range work and metal-recycling work.
 - 25% were in unknown occupations.
- 16% reported potential non-occupational sources of lead exposure, such as target shooting as a hobby, bullet fragments in their bodies and the use of imported spices.
- 16% had unknown exposures because they could not be contacted for an interview.

Case Coordination for Pregnant Women and Their Newborns

The LPPP, in collaboration with EODE, provides case coordination services to pregnant women with elevated BLLs. Since August 2004, these services have been provided for women with BLLs greater than or equal to 15 µg/dL; prior to that time, the level that triggered case coordination services was 20 µg/dL to match. Case coordination services for pregnant women include:

- Contacting both the women and their health care providers to provide information on the consequences of prenatal exposure to lead and ways to prevent lead poisoning

Figure 12. Potential Sources of Lead Exposure Among New York City Men and Women With Lead Poisoning, 2007.



^{¶¶}Since the number of non-pregnant women is low, the reported percentages for non-pregnant women are statistically unstable. The distribution of potential occupational and non-occupational sources of lead exposure is similar among non-pregnant and pregnant women. For that reason, we present the data for these two groups of women together.

- Interviewing pregnant women to identify possible sources of lead exposure
- Monitoring women throughout their pregnancies and advising their health care providers on appropriate medical management
- Providing case coordination services for newborns if born with an environmental intervention blood lead level (EIBLL)

Profile of Pregnant Women with Elevated Blood Lead Levels

Lead poisoning disproportionately affects foreign-born pregnant women, and among these, certain countries of birth are over-represented. The boroughs with large immigrant populations from these countries also have a higher numbers of pregnant women with lead poisoning.

LPPP, in collaboration with EODE, provided services to 77 pregnant women with BLLs greater than or equal to 15 µg/dL in 2007. The number of women who receive case coordination services has almost doubled since the 2004 change in blood lead level (from 20 µg/dL to 15 µg/dL) that triggers provision of services (**Figure 13**).

In 2007:

- 94% of pregnant women newly identified with lead poisoning in NYC were foreign-born, yet only about 50% of women who give birth in NYC each year are foreign-born.
- 55% of pregnant women with lead poisoning were born in Mexico, 16% were born in Bangladesh, and 5% were born in India.##
- 44% of women identified with lead poisoning lived in Queens, 25% in Brooklyn and 22% in the Bronx.
- Overall, foreign-born pregnant women with lead poisoning were relatively recent immigrants; more than 50% of them had lived in the United States less than 5 years (**Table 5**).

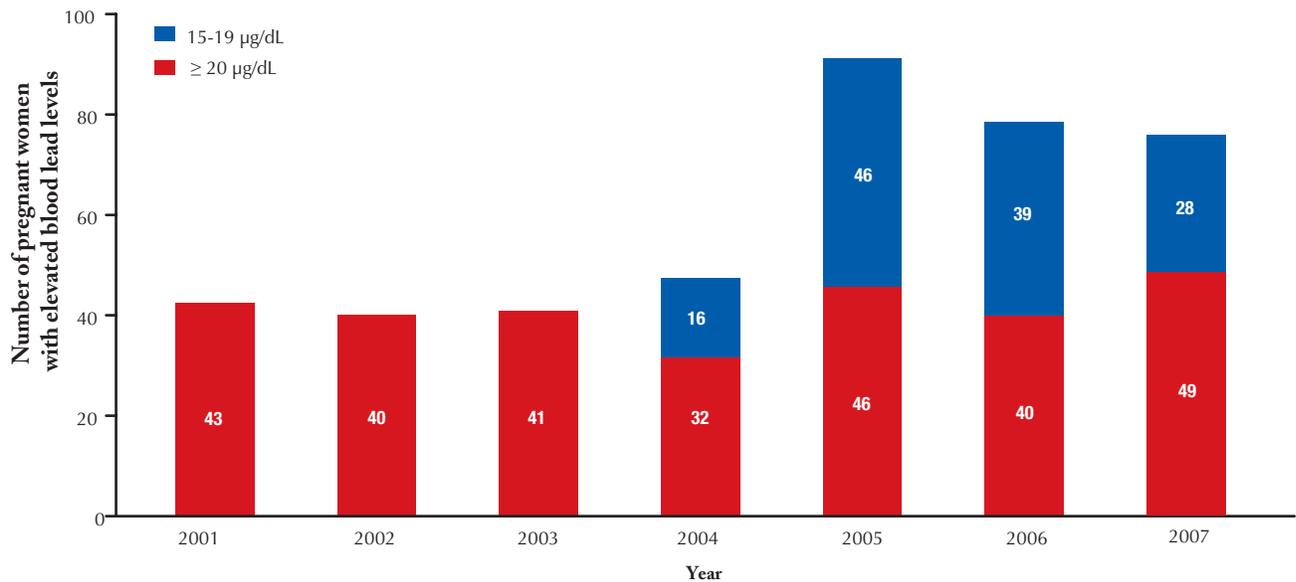
Sources of Lead Exposure in Pregnant Women with Lead Poisoning

An important potential risk factor for lead poisoning among pregnant women is their country of origin; those from countries where lead exposure is common, such as Mexico, may be at greater risk during pregnancy. Lead from previous exposures is stored in the bones and other body tissues, and during pregnancy, the stored lead may be released into the bloodstream, resulting in elevated BLLs for the women and their fetuses. During pregnancy, women may also be exposed to lead in imported products, or from jobs or hobbies.



From 2002 through 2007, lead poisoning has been found in in at least two NYC pregnant women emigrating from, in descending order of frequency: Mexico, Bangladesh, India, Ecuador, Pakistan, Guatemala, China, Russia, Dominican Republic, Georgia, Jamaica, Morocco, Afghanistan and Haiti.

Figure 13. Number of Pregnant Women Newly Identified with Elevated Blood Lead Levels, New York City, 2001-2007.



Note: Prior to August 2004, LPPP provided services to pregnant women with blood lead levels equal to or greater than 20 µg/dL. In August 2004, the blood lead level that triggers case coordination was reduced to 15 µg/dL to correspond with the change in blood lead level that triggers services for children. Due to continuous data cleaning efforts, numbers published in the 2005 and 2006 annual report have been corrected. The corrections reflect LPPP and EODE's increased capacity to identify and report women who were pregnant at the time of their elevated blood lead test, but may have had a pregnancy termination or may have delivered before they were contacted by LPPP or EODE.

In 2007, 91% of pregnant women with lead poisoning reported potential non-occupational sources of lead exposure; 3% reported potential occupational sources.^{||||} Among pregnant women with potential non-occupational sources of lead exposures:

- 84% reported use of imported products during pregnancy, including food, spices, herbal medicine, pottery and cosmetics
- 30% reported recent travel to a foreign country, which raises the risk for lead exposure if the country is 1 where lead exposure is widespread
- 16% reported recent renovations in their homes
- 14% reported peeling paint in their homes
- 10% reported eating dirt, clay or crushed pottery during pregnancy

^{||||} Further information was not available for 6% of pregnant women.

Imported Herbal Medicine Products Containing Lead

In 2007, DOHMH banned the sale of imported eye cosmetics — kohl, kajal, and surma — in NYC and conducted widespread outreach and education to storeowners, wholesalers and community-based organizations. The banned cosmetics have been found to contain high levels of lead and are imported from Asia, Africa and the Middle East.

In 2007, the Health Department:

- Issued 64 orders to store owners and wholesalers to stop selling these products, and to post warning signs on the premises
- Required wholesalers to recall products that they had sold to other businesses
- Removed 2,400 contaminated products from sale
- Issued a press release alerting the public to the hazards of using lead-containing cosmetics
- Distributed 53 educational packets to community-based organizations



References

1. Lanphear BP, Hornung R, Khoury J, et al. Low level environmental lead exposure and children's intellectual function: an international pooled analysis. *Environ Health Perspect.* 2005; 113(7):894-899.
2. Canfield RL, Henderson CR JR, Cory-Slechta DA, et al. Intellectual impairment in children with blood lead concentrations below 10 µg per deciliter. *N Engl J Med.* 2003; 348(16):1517-1526.
3. Centers for Disease Control and Prevention. Blood Lead Levels — United States, 1999-2002. *Morb Mortal Wkly Report.* 2005; 54(20):513-516. www.cdc.gov/mmwr/preview/mmwrhtml/mm5420a5.htm.
4. 10 NYCRR Subpart §67-12.
5. 10 NYCRR Subpart §67-3.1.
6. 24 RCNY §11.03.
7. Centers for Disease Control and Prevention. Update: Blood Lead Levels-United States, 1991-1994. *Morb Mortal Wkly Rep Surveill Summ.* 1997; 46(07):141-146. www.cdc.gov/mmwr/preview/mmwrhtml/00048339.htm.
8. Bellinger DC, Lead. *Pediatrics.* 2004;113(4):1016-1022.
9. Kosnett MJ, Wedeen RP, Rothenberg SJ, et al. Recommendations for medical management of adult lead exposure. *Environ Health Perspect.* 2007;115(3): 463-471.

Appendix I. Risk Factors for Childhood Lead Exposure[±]

- Having a sibling or playmate with a high blood lead level
- Living in, or regularly visiting, an older home (built before 1960) or other location with peeling or damaged paint
- Living in, or regularly visiting, an older home (built before 1960) or other location that is being, or was, renovated within the last 12 months
- Having developmental delays
- Eating non-food items such as paint chips, crushed pottery or soil
- Moving to the United States from, or traveling to, a foreign country where lead poisoning may be common[†]
- Ingesting imported health remedies, cosmetics, spices, food or pottery
- Eating food prepared, served or stored using lead-glazed pottery
- Playing in soil near a heavily-traveled highway, bridge or elevated train where there is peeling paint
- Interacting with an adult whose job or hobby involves exposure to lead
- Being enrolled in Medicaid or the New York City Early Intervention Program

[±] Health care providers in New York State are required to assess every child from 6 months to younger than 6 years of age for risk of lead exposure; those who have risk factors for lead poisoning should be tested.

[†] From 2002 through 2007, lead poisoning has been found in at least 2 children emigrating from the following countries, in descending order of frequency: Haiti, Mexico, Bangladesh, Pakistan, Dominican Republic, India, China, Liberia, Guinea, Guyana, Georgia, Jamaica, Ecuador, Nigeria, Guatemala, Sierra Leone, Albania, Yemen, Mali, Senegal, Canada, Egypt, Israel, Ivory Coast, Togo, Trinidad and Tobago, United Kingdom, Yugoslavia, Ghana, Morocco, Nepal, Suriname, Thailand, Uzbekistan, Afghanistan, Cuba, El Salvador, Gambia, Honduras, Mauritania, and Peru.

Appendix II. Preventing Lead Poisoning in the Workplace

Federal and New York State laws require construction and general industry employers to protect workers from exposure to lead. Construction employers must:

- Inspect lead work areas and test the air for lead
- Provide medical exams when BLLs reach 40 µg/dL or higher, or if workers are concerned about lead exposure and their ability to have children
- Keep lead exposures low by:
 - Providing engineering controls and safe work practices
 - Keeping work areas clean
 - Providing proper respirators and work clothes
 - Providing regular blood tests and informing workers of results
 - Providing hand-washing stations and showers
 - Providing clean areas for breaks, lunch and changing clothes
 - Training workers about lead hazards on the job and ways to prevent lead exposure
 - Removing workers from lead work if their BLL reaches the medical removal level of 50 µg/dL or higher

Research has shown health effects in adults at BLLs well below the medical removal level. Therefore, employers should adopt best practices to protect workers by:

- Providing monthly blood lead testing
- Tracking BLLs over time
- Investigating work conditions and implementing improvements when a worker's blood lead level increases by 5 µg/dL or more
- Removing workers from lead exposure when their blood lead level is 25 µg/dL or higher

Appendix III. Data Tables

Table 1. Lead poisoning surveillance data for New York City children, ages 6 months to younger than 6 years, by borough and United Hospital Fund Neighborhood, New York City, 2007.

United Hospital Fund Neighborhood	Ages 6 months to younger than 6 years								
	(1) Tests ^(a)			(2) Elevated blood lead levels ^(b)		(3) Environmental intervention blood lead levels (EIBLL) ^(c)			
	Tested		Number	Newly identified ≥ 10 $\mu\text{g}/\text{dL}$		Newly identified EIBLL			
Number	Percent tested Vital Records ^(d) Census 2000 ^(e)	Number		Rate BLL $\geq 10/1,000$ tested	Number	Rate EIBLL/1,000 tested	95% CI Low High		
New York City total	317,156	51	53	1,947	6.1	538	1.70	1.85	1.56
<i>NYC, unknown borough</i>	258	—	—	0	—	0	—	—	—
Bronx	68,405	59	55	362	5.3	102	1.49	1.81	1.22
<i>Bronx, unknown or invalid ZIP code</i>	1,190	—	—	2	—	0	—	—	—
Crotona - Tremont	11,930	56	54	75	6.3	17	1.42	2.28	0.83
Fordham - Bronx Park	13,137	56	52	71	5.4	21	1.60	2.44	0.99
High Bridge - Morrisania	12,290	59	61	65	5.3	19	1.55	2.41	0.93
Hunts Point - Mott Haven	8,065	62	63	30	3.7	6	0.74	1.62	0.27
Kingsbridge - Riverdale	3,159	60	55	10	3.2	3	0.95	2.78	0.20
Northeast Bronx	7,008	61	50	39	5.6	15	2.14	3.53	1.20
Pelham - Throgs Neck	11,626	56	50	70	6.0	21	1.81	2.76	1.12
Brooklyn	104,096	48	52	830	8.0	226	2.17	2.47	1.90
<i>Brooklyn, unknown or invalid ZIP code</i>	2,445	—	—	3	—	0	—	—	—
Bedford Stuyvesant - Crown Heights	15,196	55	54	107	7.0	38	2.50	3.43	1.77
Bensonhurst - Bay Ridge	5,924	45	49	30	5.1	10	1.69	3.10	0.81
Borough Park	11,592	33	39	127	11.0	44	3.80	5.10	2.76
Canarsie - Flatlands	7,214	53	49	35	4.9	8	1.11	2.19	0.48
Coney Island - Sheepshead Bay	8,856	47	50	71	8.0	15	1.69	2.79	0.95
Downtown-Brooklyn Heights - Park Slope	6,568	40	48	53	8.1	12	1.83	3.19	0.94
East Flatbush - Flatbush	13,520	51	51	114	8.4	28	2.07	2.99	1.38
East New York	10,642	65	61	61	5.7	18	1.69	2.67	1.00
Greenpoint	4,652	37	40	90	19.3	7	1.50	3.10	0.60
Sunset Park	6,216	39	59	42	6.8	15	2.41	3.98	1.35
Williamsburg - Bushwick	11,271	56	57	97	8.6	31	2.75	3.90	1.87

Ages 6 months to younger than 6 years

United Hospital Fund Neighborhood	(1) Tests ^(a)		(2) Elevated blood lead levels ^(b)		(3) Environmental intervention blood lead levels (EIBLL) ^(c)				
	Tested			Newly identified ≥10 µg/dL		Newly identified EIBLL			
	Number	Percent tested Vital Records ^(d)	Census 2000 ^(e)	Number	Rate BLL ≥ 10/ 1,000 tested	Number	Rate EIBLL /1,000 tested	95% CI Low High	
Manhattan	44,620	41	55	251	5.6	36	0.81	1.12	0.57
<i>Manhattan, unknown or invalid ZIP code</i>	1,090	—	—	1	—	0	—	—	—
Central Harlem - Morningside Heights	6,201	51	54	44	7.1	7	1.13	2.33	0.45
Chelsea - Clinton	2,079	30	59	17	8.2	3	1.44	4.22	0.30
East Harlem	4,696	52	55	23	4.9	5	1.06	2.48	0.35
Gramercy Park - Murray Hill	1,883	28	54	13	6.9	0	0.00	0.00	0.00
Greenwich Village - SoHo	1,545	32	55	22	14.2	1	0.65	3.61	0.02
Lower Manhattan	1,021	34	70	2	2.0	0	0.00	0.00	0.00
Union Square - Lower East Side	4,962	36	58	24	4.8	1	0.20	1.12	0.01
Upper East Side	4,592	29	45	19	4.1	2	0.44	1.57	0.05
Upper West Side	5,490	34	52	40	7.3	2	0.36	1.32	0.04
Washington Heights - Inwood	11,061	51	53	46	4.2	15	1.36	2.24	0.76
Queens	83,950	56	53	436	5.2	151	1.80	2.11	1.52
<i>Queens, unknown or invalid ZIP code</i>	1,452	—	—	4	—	0	—	—	—
Bayside - Little Neck	1,948	70	40	8	4.1	2	1.03	3.71	0.12
Flushing - Clearview	7,228	52	46	24	3.3	7	0.97	2.00	0.39
Fresh Meadows	3,456	57	52	10	2.9	3	0.87	2.54	0.18
Jamaica	12,539	61	57	62	4.9	29	2.31	3.32	1.55
Long Island City - Astoria	6,887	50	49	39	5.7	11	1.60	2.86	0.80
Ridgewood - Forest Hills	8,031	51	53	43	5.4	21	2.61	4.00	1.62
Rockaway	4,587	65	50	18	3.9	5	1.09	2.54	0.35
Southeast Queens	6,123	61	43	26	4.2	5	0.82	1.91	0.27
Southwest Queens	10,727	55	51	79	7.4	22	2.05	3.11	1.29
West Queens	20,972	52	61	123	5.9	46	2.19	2.93	1.61
Staten Island	15,827	50	48	68	4.3	23	1.45	2.18	0.92
<i>Staten Island, unknown or invalid ZIP code</i>	289	—	—	0	—	0	—	—	—
Port Richmond	3,364	59	60	28	8.3	13	3.86	6.61	2.06
South Beach - Tottenville	4,714	41	36	6	1.3	0	0.00	0.00	0.00
Stapleton - St. George	4,919	54	56	30	6.1	9	1.83	3.47	0.84
Willowbrook	2,541	47	44	4	1.6	1	0.39	2.19	0.01

(a) Test types: venous, capillary, unspecified.

(b) Elevated blood lead level was defined as a venous, capillary, or unspecified BLL ≥10 µg/dL.

(c) The Environmental Intervention Blood Lead Level (EIBLL) is defined as a venous BLL ≥ 15 µg/dL, consistent with Local Law 1.

(d) In this column, population counts used as the denominator for percent of children tested were calculated by summing NYC births 2002-2007. Data were obtained from the NYC DOHMH Office of Vital Statistics.

(e) In this column, population counts used as the denominator for the percent of children tested come from the US Census 2000.

Table 2. Profile of children newly identified with blood lead levels at or above the Environmental Intervention Blood Lead Level (EIBLL), ages 0 to younger than 18 years and ages 6 months to younger than 6 years, New York City, 2007.

	EIBLL	0 years – < 18 years			6 months – < 6 years		
		Number EIBLL ^(a)	Percent EIBLL	EIBLL Rate ^(b) (number per 1,000 tested)	Number EIBLL ^(a)	Percent EIBLL	EIBLL Rate ^(b) (number per 1,000 tested)
Total		620	100.0%	1.6	538	100.0%	1.7
Age							
	Less than 6 months old	8	1.3	5.5 ^(c)	—	—	—
	6 months to less than 1 year old	26	4.2	1.0	26	4.8	1.0
	1 year old	196	31.6	2.3	196	36.4	2.3
	2 years old	139	22.4	2.0	139	25.8	2.0
	3 years old	64	10.3	1.2	64	11.9	1.2
	4 years old	66	10.6	1.3	66	12.3	1.3
	5 years old	47	7.6	1.3	47	8.7	1.3
	6 to less than 18 years old	74	11.9	0.9	—	—	—
Gender							
	Female	256	41.3	1.3	230	42.8	1.5
	Male	364	58.7	1.8	308	57.2	1.9
Borough							
	Manhattan	44	7.1	0.8	36	6.7	0.8
	Bronx	122	19.7	1.4	102	19.0	1.5
	Brooklyn	249	40.2	1.9	226	42.0	2.2
	Queens	180	29.0	1.7	151	28.1	1.8
	Staten Island	25	4.0	1.3	23	4.3	1.5
Race/ethnicity							
	Hispanic	235	37.9		204	37.9	
	Non-Hispanic Black	187	30.2		166	30.9	
	Non-Hispanic White	58	9.4		54	10.0	
	Asian	115	18.5		93	17.3	
	Other/Unknown	25	4.0		21	3.9	
Country of Birth							
	United States	511	82.4		475	88.3	
	Not United States	108	17.4		62	11.5	
	Unknown	1	0.2		1	0.2	
Blood lead level at case assignment (µg/dL)							
	15 - 19	334	53.9		287	53.3	
	20 - 29	201	32.4		171	31.8	
	30 - 39	57	9.2		53	9.9	
	40 - 49	17	2.7		16	3.0	
	50 - 59	8	1.3		8	1.5	
	60 - 69	2	0.3		2	0.4	
	70+	1	0.2		1	0.2	

	0 years – < 18 years			6 months – < 6 years		
	Number EIBLL ^(a)	Percent EIBLL	EIBLL Rate ^(b) (number per 1,000 tested)	Number EIBLL ^(a)	Percent EIBLL	EIBLL Rate ^(b) (number per 1,000 tested)
Year primary residence was built						
1939 or earlier	488	78.7		424	78.8	
1940 - 1949	19	3.1		17	3.2	
1950 - 1959	37	6.0		30	5.6	
1960 - 1969	32	5.2		29	5.4	
1970 - present	39	6.3		35	6.5	
Unknown	5	0.8		3	0.6	
Size of the building where the child resides						
Building has less than 3 dwelling units	219	35.3		198	36.8	
Building has 3 units or more dwelling units	401	64.7		340	63.2	
Lead-based paint hazard identified at child's residence^d						
No lead-based paint hazard identified	147	23.7		121	22.5	
Lead-based paint hazard was identified	473	76.3		417	77.5	

(a) The Environmental Intervention Blood Lead Level (EIBLL) is defined as a venous BLL \geq 15 $\mu\text{g}/\text{dL}$, consistent with Local Law 1.

(b) Data on some indicators were missing from a sizeable number of tests reported to the LPPP; thus, case rates could not be calculated for all indicators because denominator data were not available.

(c) The case rate for children younger than 6 months was very high because many of the infants tested were referred for testing due to their high risk for lead poisoning from prenatal exposure.

(d) This included the child's primary residence and supplementary addresses where the child spent considerable periods of time. Hazards were identified by March 31, 2008.

Table 3. Lead poisoning surveillance data for New York City children, ages 0 to younger than 18 years, by borough and United Hospital Fund Neighborhood, New York City, 2007.

Ages 0 months to younger than 18 years

United Hospital Fund Neighborhood	(1) Tests ^(a)	(2) Elevated blood lead levels ^(b)		(3) Environmental intervention blood lead levels (EIBLL) ^(c)			
	Tested	Newly identified $\geq 10 \mu\text{g/dL}$		Newly identified EIBLL			
	Number	Number	Rate BLL $\geq 10/1,000$ tested	Number	Rate EIBLL/1,000 tested	95%CI Low	High
New York City total	398,121	2,270	5.7	620	1.6	1.68	1.44
<i>NYC, unknown borough</i>	333	0	—	0	—	—	—
Bronx	86,647	420	4.8	122	1.4	1.68	1.17
<i>Bronx, unknown or invalid ZIP code</i>	1,602	2	—	0	—	—	—
Crotona - Tremont	15,102	83	5.5	18	1.2	1.88	0.71
Fordham - Bronx Park	16,560	84	5.1	26	1.6	2.30	1.03
High Bridge - Morrisania	15,654	76	4.9	23	1.5	2.20	0.93
Hunts Point - Mott Haven	10,352	36	3.5	8	0.8	1.52	0.33
Kingsbridge - Riverdale	3,821	11	2.9	3	0.8	2.29	0.16
Northeast Bronx	8,930	44	4.9	15	1.7	2.77	0.94
Pelham - Throgs Neck	14,626	84	5.7	29	2.0	2.85	1.33
Brooklyn	132,580	936	7.1	249	1.9	2.13	1.65
<i>Brooklyn, unknown or invalid ZIP code</i>	3,345	4	—	0	—	—	—
Bedford Stuyvesant - Crown Heights	20,411	115	5.6	42	2.1	2.78	1.48
Bensonhurst - Bay Ridge	7,101	32	4.5	10	1.4	2.59	0.68
Borough Park	13,828	143	10.3	49	3.5	4.68	2.62
Canarsie - Flatlands	9,360	44	4.7	10	1.1	1.96	0.51
Coney Island - Sheepshead Bay	10,331	78	7.6	16	1.5	2.52	0.89
Downtown - Brooklyn Heights - Park Slope	7,814	59	7.6	13	1.7	2.84	0.89
East Flatbush - Flatbush	17,124	140	8.2	32	1.9	2.64	1.28
East New York	14,389	74	5.1	23	1.6	2.40	1.01
Greenpoint	5,401	93	17.2	7	1.3	2.67	0.52
Sunset Park	7,512	44	5.9	15	2.0	3.29	1.12
Williamsburg - Bushwick	15,964	110	6.9	32	2.0	2.83	1.37

Ages 0 months to younger than 18 years

United Hospital Fund Neighborhood	(1) Tests ^(a)	(2) Elevated blood lead levels ^(b)		(3) Environmental intervention blood lead levels (EIBLL) ^(c)			
	Tested	Newly identified $\geq 10 \mu\text{g/dL}$		Newly identified EIBLL			
	Number	Number	Rate BLL $\geq 10/1,000$ tested	Number	Rate EIBLL /1,000 tested	95%CI Low High	
Manhattan	54,351	293	5.4	44	0.8	1.09	0.59
<i>Manhattan, unknown or invalid ZIP code</i>	1,427	1	—	0	—	—	—
Central Harlem - Morningside Heights	7,825	55	7.0	7	0.9	1.84	0.36
Chelsea - Clinton	2,349	18	7.7	3	1.3	3.73	0.26
East Harlem	5,775	30	5.2	8	1.4	2.73	0.60
Gramercy Park - Murray Hill	2,055	14	6.8	0	0.0	0.00	0.00
Greenwich Village - SoHo	1,718	24	14.0	1	0.6	3.24	0.01
Lower Manhattan	1,170	3	2.6	0	0.0	0.00	0.00
Union Square - Lower East Side	5,929	27	4.6	1	0.2	0.94	0.00
Upper East Side	4,925	19	3.9	2	0.4	1.47	0.05
Upper West Side	5,974	44	7.4	4	0.7	1.71	0.18
Washington Heights - Inwood	15,204	58	3.8	18	1.2	1.87	0.70
Queens	105,060	545	5.2	180	1.7	1.98	1.47
<i>Queens, unknown or invalid ZIP code</i>	1,935	7	—	0	—	—	—
Bayside - Little Neck	2,287	8	3.5	2	0.9	3.16	0.11
Flushing - Clearview	8,443	24	2.8	7	0.8	1.71	0.33
Fresh Meadows	3,995	12	3.0	4	1.0	2.56	0.27
Jamaica	15,612	78	5.0	35	2.2	3.12	1.56
Long Island City - Astoria	8,589	47	5.5	12	1.4	2.44	0.72
Ridgewood - Forest Hills	10,417	52	5.0	24	2.3	3.43	1.48
Rockaway	5,510	19	3.4	6	1.1	2.37	0.40
Southeast Queens	7,754	29	3.7	6	0.8	1.68	0.28
Southwest Queens	13,817	87	6.3	23	1.7	2.50	1.06
West Queens	26,701	182	6.8	61	2.3	2.93	1.75
Staten Island	19,150	76	4.0	25	1.3	1.93	0.84
<i>Staten Island, unknown or invalid ZIP code</i>	387	0	—	0	—	—	—
Port Richmond	4,133	32	7.7	14	3.4	5.68	1.85
South Beach - Tottenville	5,587	6	1.1	0	0.0	0.00	0.00
Stapleton - St. George	6,034	34	5.6	10	1.7	3.05	0.79
Willowbrook	3,009	4	1.3	1	0.3	1.85	0.01

(a) Test types: venous, capillary, unspecified.

(b) Elevated blood lead level was defined as a venous, capillary, or unspecified BLL $\geq 10 \mu\text{g/dL}$.

(c) The Environmental Intervention Blood Lead Level (EIBLL) is defined as a venous BLL $\geq 15 \mu\text{g/dL}$, consistent with Local Law 1.

Table 4. Blood lead levels (BLLs) for adults by gender, New York City, 2007.

BLL (µg/dL)*	Number	Percent
Men		
<10	11,336	93.7%
10-24	643	5.3%
≥ 25	125	1.0%
Total	12,104	100.0%
Women		
<10	68,294	99.6%
10-14	163	0.2%
Non-pregnant		
≥ 15	19	0.0%
Pregnant		
≥ 15	77	0.1%
Total	68,553	100.0%
Unknown gender**		
< 10	989	100.0%
10-14	0	0.0%
≥ 15	0	0.0%
Total	989	100.0%
Total		
< 10	80,619	98.7%
≥ 10	1,027	1.3%
Total	81,646	100.0%

* Categories correspond to the BLL associated with different EODE actions.

** Gender was not confirmed because their BLL was less than 15 µg/dL.

Table 5. Profile of pregnant women newly identified with elevated blood levels, New York City, 2007.

	Number	Percent
Total	77	100%
Age at identification		
Under 20 years old	9	12%
20-24 years old	22	29%
25-29 years old	22	29%
30-34 years old	13	17%
35+ years old	11	14%
Mean	27 years	
Median	26 years	
Range	16-39 years	
Race/ethnicity		
Hispanic	47	61%
Asian	21	27%
Non-Hispanic Black	3	4%
Non-Hispanic White	—	—
Unknown	6	8%
Country of birth		
Mexico	42	55%
Bangladesh	12	16%
India	4	5%
Guatemala	3	4%
China	2	3%
Ecuador	2	3%
Other foreign countries*	7	9%
USA	1	1%
Unknown	4	5%
Length of time in U.S. (for foreign-born)		
< 1 year	19	26%
1-4 years	22	31%
≥5 years	30	42%
Unknown	1	1%
Mean	4.8 years	
Median	4 years	
Range	1 month to 20 years	
Borough		
Queens	34	44%
Brooklyn	19	25%
Bronx	17	22%
Staten Island	4	5%
Manhattan	3	4%

* Includes women from Afghanistan, Dominican Republic, Ghana, Pakistan, Senegal, St. Lucia, and Yemen.

Table 6. Neighborhood codes and their corresponding names, New York City*

	Code	Neighborhood Name
Bronx	BX1	Kingsbridge-Riverdale
	BX2	Northeast Bronx
	BX3	Fordham-Bronx Park
	BX4	Pelham-Throgs Neck
	BX5	Crotona-Tremont
	BX6	High Bridge-Morrisania
	BX7	Hunts Point-Mott Haven
Brooklyn	BK1	Greenpoint
	BK2	Williamsburg-Bushwick
	BK3	Downtown-Heights-Park Slope
	BK4	Bedford Stuyvesant-Crown Heights
	BK5	East New York
	BK6	Sunset Park
	BK7	Borough Park
	BK8	East Flatbush-Flatbush
	BK9	Canarsie-Flatlands
	BK10	Bensonhurst-Bay Ridge
	BK11	Coney Island-Sheepshead Bay
Manhattan	M1	Washington Heights-Inwood
	M2	Central Harlem-Morningside Heights
	M3	East Harlem
	M4	Upper West Side
	M5	Upper East Side
	M6	Chelsea-Clinton
	M7	Gramercy Park-Murray Hill
	M8	Greenwich Village-SoHo
	M9	Union Square-Lower East Side
	M10	Lower Manhattan
Queens	Q1	Long Island City-Astoria
	Q2	West Queens
	Q3	Flushing-Clearview
	Q4	Bayside-Little Neck
	Q5	Ridgewood-Forest Hills
	Q6	Fresh Meadows
	Q7	Southwest Queens
	Q8	Jamaica
	Q9	Southeast Queens
	Q10	Rockaway
Staten Island	S1	Port Richmond
	S2	Stapleton-St. George
	S3	Willowbrook
	S4	South Beach-Tottenville

*The United Hospital Fund (UHF) classifies New York City into 42 neighborhoods, comprised of contiguous ZIP codes.



NEW YORK CITY DEPARTMENT OF HEALTH AND MENTAL HYGIENE
Lead Poisoning Prevention Program Education & Community Partnerships Unit

Questions: Phone us at 212-BAN-LEAD (212) 226-5323

Costs: All materials are free. Please allow 3 weeks for delivery.

Quantity: Please limit your request to 50 copies of each item. Your order will be filled based on the availability of supplies.

Write the amount you are requesting in the **WHITE SPACES ONLY** below the requested language. Not all materials are available in all languages.

Mail your order to:

Miriam Price, Materials Coordinator
 New York City Department of Health and Mental Hygiene
 Lead Poisoning Prevention Program – ECP Unit
 253 Broadway, 12th Fl, CN-58
 New York, NY 10007

FAX: (Attention) Miriam Price (212) 442-3156

ITEM	English	Spanish	Bengali	Chinese	Urdu	Hindi	Arabic	French	Haitian Creole	Russian
Brochure: Peeling Lead Paint Turns into Poisonous Dust–5 Simple Ways to Protect Your Child (mini)										
Fact Sheet: Lead in Imported Products										
Brochure: Pregnancy and Lead Poisoning: What Every Woman Should Know										
Brochure: Preventing Lead Poisoning: What Every Parent Should Know										
Brochure: Healthy Homes: Keeping Homes Healthy & Safe for Children										
Brochure: Fix Lead Paint Hazards: What Landlords Must Do and Every Tenant Should Know (LL1)										
Report: Preventing Lead Poisoning in New York City Annual Report 2007										
Poster: Peeling Lead Paint Turns Into Poisonous Dust–Lead Can Cause Learning Problems (bullets)										
Poster: Peeling Lead Paint Turns Into Poisonous Dust–Protect Your Child’s Health (no bullets)										
Bookmark: Peeling Lead Paint Turns Into Poisonous Dust										
For Providers: City Health Information May 2009 Lead Poisoning Prevention, Identification and Management										
For Hardware Stores Only: Dry Sanding/Drying Scraping Paint Prohibited by Law Poster										
For Hardware Stores Only: Healthy Homes Palm Cards										

Organization Name: _____ Contact Person: _____ Date: _____

Mailing Address: _____ Contact Phone: _____ Fax: _____

ECP User: _____ E-mail: _____

Office Use Only:

Order Received: Completed by: _____ Date: _____ Total Items Sent: _____ Entered by: _____

MP-7/31/08

Call 311

- Report peeling paint or unsafe lead paint removal work
- Get information on childhood or adult lead poisoning prevention
- Find the nearest health clinic to have your child tested for lead poisoning
- Request a workshop for your organization
- Order educational materials



Department of Health and Mental Hygiene
The City of New York

Michael R. Bloomberg
Mayor

Thomas A. Farley, M.D., M.P.H.
Commissioner