



# Preventing Lead Poisoning in New York City

**Annual Report 2006**

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

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**March 2008**

## Acknowledgements

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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](http://www.nyc.gov/lead).

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# Executive Summary

*This 2006 Annual Report describes the New York City Department of Health and Mental Hygiene's (NYC DOHMH) progress in preventing childhood lead poisoning, and describes the activities and accomplishments of the Lead Poisoning Prevention Program (LPPP). Since LPPP provides services to lead-poisoned children younger than 18 years of age, data presented in this report, except where specified, refer to that age group. Children six months to younger than six years of age (especially those between one and three years) are at greatest risk for lead poisoning. Specific data on both of these high-risk age groups are provided in sections of this report.*

*This report also includes a chapter on lead poisoning among NYC adults and the lead poisoning prevention activities of the Environmental and Occupational Disease Epidemiology (EODE) Program, which is responsible for surveillance and case coordination services for lead-poisoned males and non-pregnant females 18 years and older. LPPP collaborates with EODE to provide case coordination services for lead-poisoned pregnant women.*

*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.*

## Despite Notable Progress, Still a Public Health Problem

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. Adverse health effects may occur at blood lead levels (BLLs) previously thought to be safe.<sup>1, 2</sup> These health effects of lead exposure may persist long after a child's BLL has declined. Fetal exposure to lead may also adversely affect neurodevelopment, and children born with elevated blood lead levels (EBLLs) may have cognitive and developmental problems as a result of prenatal exposure.<sup>3</sup> Preventing exposure to lead, therefore, is the only effective way to protect children against the long-term consequences of lead poisoning.

New York City (NYC) has had tremendous success in reducing both the number of children with lead poisoning and the severity of lead poisonings—the number of new cases identified in 2006 marks the lowest level of childhood lead poisoning in more than a decade. Highlights of 2006 include:

- There was an 87% decrease since 1995 in the number of children younger than 18 years of age newly identified with BLLs greater than or equal to 10 µg/dL (2,722 Total).\*
- In 2006, four children younger than 18 years of age were newly identified with severe lead poisoning (BLLs greater than or equal to 45 µg/dL) as compared with 82 children in 1995 — a 95% decline.

Despite these successes, childhood lead poisoning remains a serious public health problem in NYC, one that the LPPP will continue to aggressively address throughout 2007 and beyond.

According to the NYC Health Code, lead poisoning is defined as a BLL greater than or equal to 10 micrograms of lead per deciliter of blood (10 µg/dL).

## Rigorous Lead Poisoning Prevention Policies

NYC has a solid infrastructure of policies and programs to support lead poisoning prevention. Local laws and regulations (such as Local Law 1 of 2004 and the NYC Health Code) are designed to prevent exposure to lead in housing and group day care facilities. The city health code grants the authority to DOHMH to protect the health of NYC residents by limiting exposure to lead-containing products, and New York State laws require blood lead testing of young children and reporting of all blood levels regardless of age.

NYC 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 implemented in collaboration with government and non-government partners in health and housing, with the support of the affected communities. In addition, preventing childhood lead poisoning is a goal of *Take Care New York*, the DOHMH's citywide health policy for NYC.

## Early Identification Through Blood Lead Testing

Early identification of lead-poisoned children through blood lead testing allows critical action to be taken to protect these children from additional exposure. Blood lead testing is particularly important for children younger than three years of age, which is the age group at greatest risk for lead poisoning. In New York State, blood lead testing is required for all children at both one and two years of age. The state also requires that health care providers annually assess lead poisoning risk for all children six months to younger than six years of age—those at risk are then tested.

Testing in 2006:

- 76% of one-year-olds and 65% of two-year-olds were tested.
- An estimated 89% of children born in 2003 were tested for lead at least once before their third birthday; only 41% had been tested at both ages one and two.

## Profile of 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 three years of age
- Low-income children living in older, deteriorated housing
- Children of color
- Children born outside the United States
  - ◆ In 2006, the largest numbers of foreign-born children with lead poisoning in NYC were from Bangladesh, Haiti, Mexico and Pakistan.

In 2006, 800 children age zero to younger than 18 years were newly identified with an Environmental Intervention Blood Lead Level (EIBLL), triggering environmental intervention and case coordination services from LPPP. The EIBLL level is defined as a BLL greater than or equal to 15 µg/dL.<sup>†</sup> Of these children:

- 84% lived in homes built before 1950.
- About half lived in just eight of 42 NYC neighborhoods.<sup>‡</sup> <sup>##</sup>
- 44% lived in Brooklyn.
- 61% were younger than three years old.
- 86% were younger than six years old.
- 89% were Black, Asian or Hispanic.
- 18% were foreign-born.
- 77% had lead-based paint hazards found on inspection of their homes and other dwellings in which the child spent significant amounts of time, such as the home of a babysitter.

## Programs and Services

### Childhood Lead Poisoning Prevention Program

The LPPP has developed a proactive, comprehensive approach to the prevention and control of childhood lead poisoning. The main activities of the program include:

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

LPPP hazard reduction and educational activities are targeted to communities and populations at greatest risk. The program also collaborates with a technical advisory committee, community-based organizations, social service providers, government agencies and other groups to increase resources and enhance expertise in the area of lead poisoning prevention. The LPPP works closely with organizations serving high-risk populations to develop interventions designed specifically for their communities. Services were augmented in 2006, including:

- Expanding primary prevention initiatives in high-risk neighborhoods to reduce lead-based paint hazards in the homes of newborns and young children, before lead poisoning occurs
- Funding the abatement of lead paint hazards, including the replacement of residential windows and doors, focusing on an area of Brooklyn where children are at high risk for lead poisoning
- Releasing new guidelines for health care providers on the prevention, identification and management of lead poisoning in pregnant women
- Collaborating with 17 Medicaid Managed Care Organizations (MMCOs) and the DOHMH Early Intervention Program to increase testing among high-risk children

### Environmental and Occupational Disease Epidemiology Program

The Environmental and Occupational Disease Epidemiology Program (EODE) program investigates and tracks cases of lead poisoning in NYC residents aged 18 years and older. Upon receiving information about such individuals from the New York State Department of Health, EODE notifies affected individuals of their BLL, investigates the sources of exposure and monitors BLLs. EODE also promotes best practices to prevent lead poisoning in the workplace and to reduce other adult lead exposures by educating workers, employers and medical providers. EODE efforts in preventing adult lead poisoning include:

- Continuing to educate employers about lead-related work exposures
- Collaborating with LPPP to identify and provide services to lead-poisoned pregnant women
- Collaborating with LPPP to identify and prevent adult exposures to non-paint lead sources

# Childhood Lead Poisoning: Notable 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.<sup>1, 2</sup> Marked progress has been made in reducing the number of children with elevated blood levels. To continue this progress and reach the national goal of eliminating childhood lead poisoning by 2010, New York City (NYC) is intensifying its lead poisoning prevention efforts, collaborating with new partners and building on NYC’s already substantial infrastructure of policies and programs that protect children from exposure to lead.

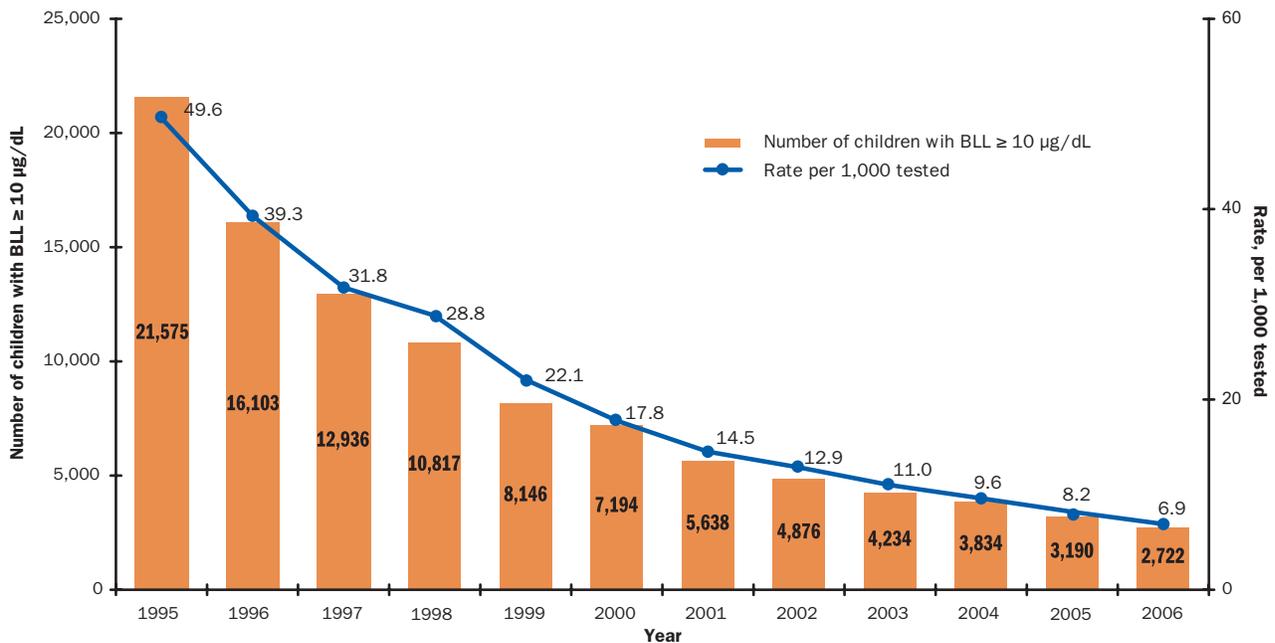
## Significant Progress Over the Past Decade

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. The NYC Health Code defines lead poisoning as a blood lead level (BLL) greater than or equal to 10 µg/dL.

**Figure 1**  
**Steady Decline in Number of Lead-Poisoned Children\***



In 2006:

- There was an 87% decrease in the number of children younger than 18 years of age newly identified with a BLL greater than or equal to 10 µg/dL (2,722 children versus 21,575 children in 1995; Figure 1).\*
- There was an 88% decrease in the number of children from six months to younger than six years of age newly identified with a BLL greater than or equal to 10 µg/dL (2,310 children versus 19,232 children in 1995).

### Fewer Children With Severe Lead Poisoning

Today, the vast majority of children with elevated BLLs have no clinical symptoms and very few have BLLs greater than or equal to 45 µg/dL, the BLL that requires immediate medical intervention and may require hospitalization for chelation, a medical treatment that removes lead from the body.

- In 2006, there was a 95% decline in the number of children younger than 18 years of age newly identified with BLLs greater than or equal to 45 µg/dL, as compared with 1995 (four children versus 82 children; Figure 2).

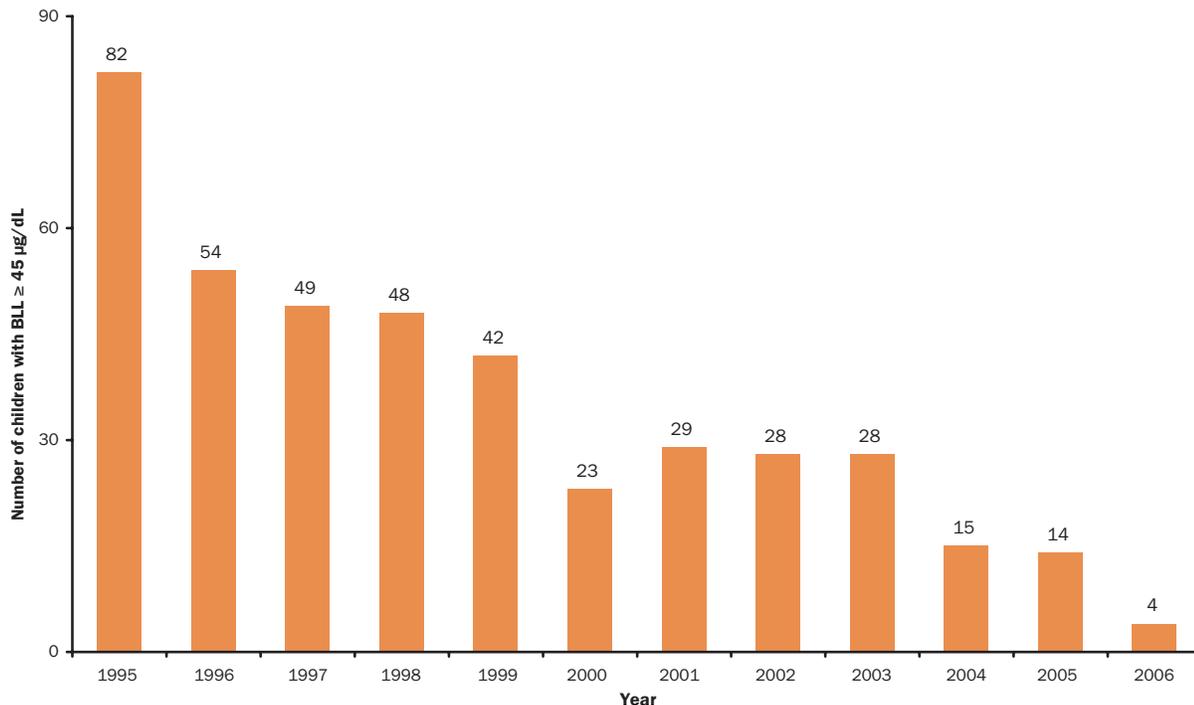
### Blood Lead Testing

Blood lead testing is the standard method for identifying children with elevated blood lead levels (EBLLs) and is particularly important for children younger than three years of age, the group at greatest risk for lead poisoning. In New York State, blood lead testing is required at age one and again at age two, and for high-risk children from six months to younger than six years of age. Information obtained from blood lead tests is also used to identify high-risk communities and populations and to target lead poisoning prevention activities. Testing in 2006 showed:

- 76% of one-year-old and 65% of two-year-old children were tested (Figure 3).
- An estimated 89% of children born in 2003 were tested for lead poisoning at least once before their third birthday, but only 41% had been tested at both ages one and two, as required by New York State law.
- Testing rates for one-year and two-year-old children showed significant geographic variation.

**Figure 2**

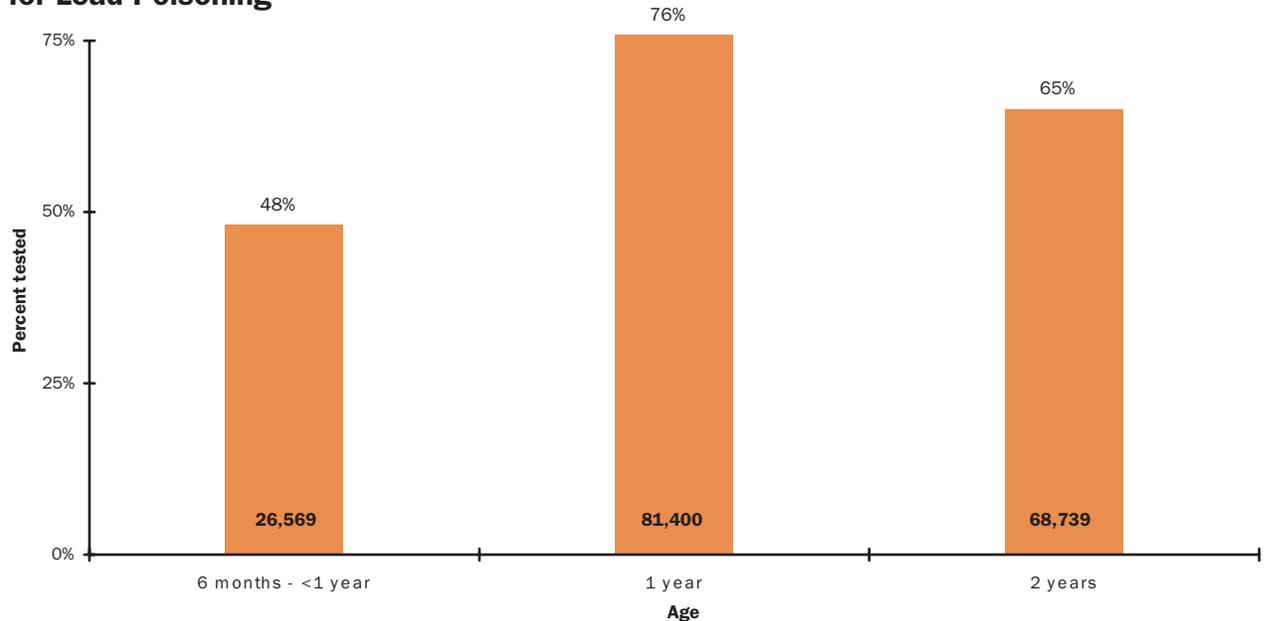
#### Fewer Severe Cases of Childhood Lead Poisoning\*



\*Number of children, ages 0 to less than 18 years, newly identified with blood lead levels ≥ 45 µg/dL, by year: NYC, 1995-2006.

**Figure 3**

**More Than Half of 1-Year-Old and 2-Year-Old Children in NYC 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, 2006. Sources: NYC DOHMH LPPP and US Census 2000 (Summary File 1).

- ◆ Across boroughs, rates ranged from 63% in Staten Island to 77% in Manhattan (Figure 4).
- ◆ Among neighborhoods, rates ranged from 54% in South Beach-Tottenville, Staten Island and in Bayside-Little Neck, Queens, to 91% in Gramercy Park-Murray Hill, Manhattan (Figure 5).

## National Decline in Childhood Lead Poisoning

The dramatic reduction in the number of lead-poisoned children in NYC is part of the nationwide decline over the last three decades. The National Health and Nutrition Examination Survey (NHANES) found that fewer than 2% of United States children from one year to younger than six years of age had BLLs greater than or equal to 10  $\mu\text{g}/\text{dL}$  in 1999–2002, in contrast with 88% of children in the same age group in 1976.

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 children 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.

## Lead-Based Paint and Dust: A Health Hazard for Children

Homes built before NYC's 1960 ban on lead-based paint may still contain lead in older layers of paint. These older paint layers can become a hazard if the paint chips, flakes, peels or when friction on windows and doors abrades painted surfaces, releasing lead-containing dust. This dust can contaminate floors and windowsills, and children's hands, toys and bottles. Young children who crawl on the floor and put their hands and toys in their mouths are at greatest risk for lead poisoning through ingestion of lead dust.

Repair and renovation work conducted without appropriate dust controls can also contaminate an apartment with lead.

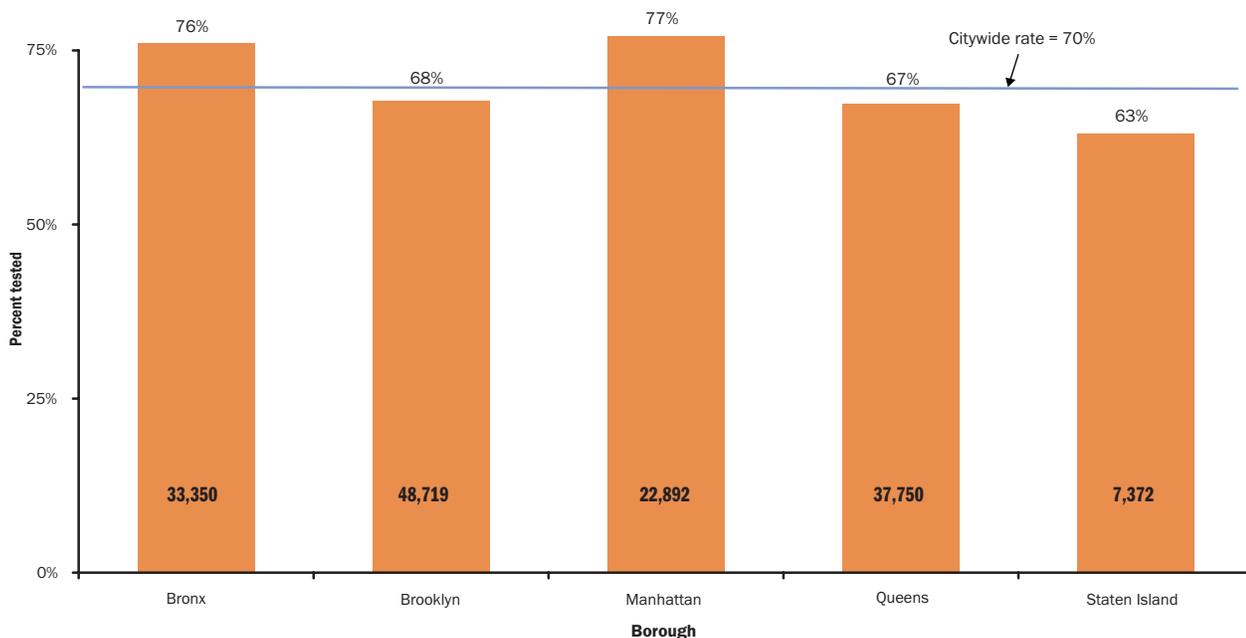
### Local Law 1 of 2004

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 six years of age.<sup>§</sup> The law applies to buildings built before 1960, and between 1960 and 1978 if it is known that the building contains lead paint. The NYC Department of Housing Preservation and Development (HPD) is primarily responsible for enforcing Local Law 1.

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 this survey must be submitted to the DOHMH.

Figure 4

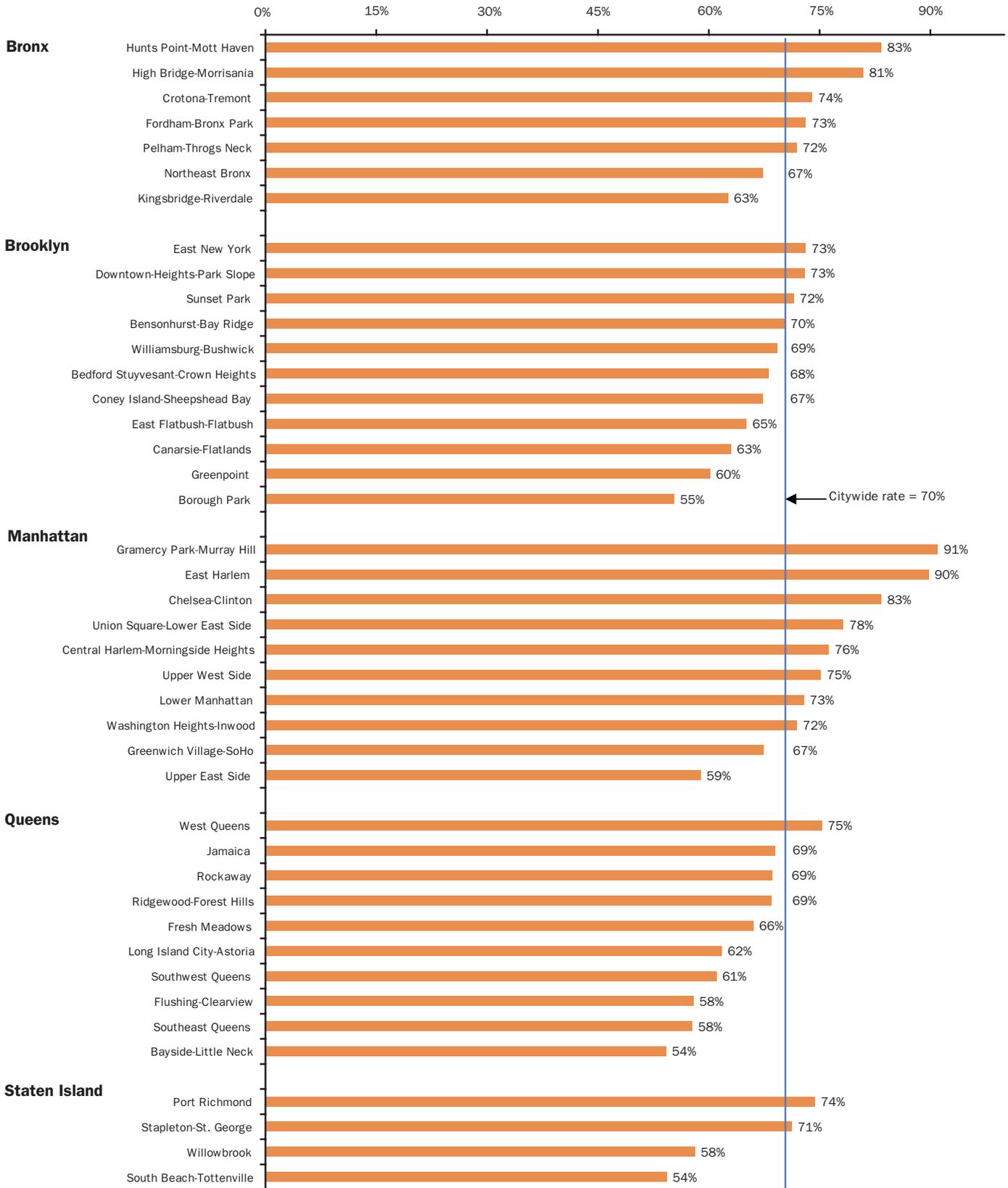
### Percent of Children Tested for Lead Poisoning Varied by Borough\*



\*Percent of children, ages 1 year to less than 3 years, tested for lead poisoning, by borough: NYC, 2006. Sources: NYC DOHMH 2000 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, 2006. Sources: NYC DOHMH LPPP and US Census 2000 (Summary File 1).

## Local Law 49 of 2005

In 2005, NYC adopted Local Law 49, which prohibits the sale of Litargirio (a yellow or peach-colored powder imported from the Dominican Republic) and any candy products that contain lead. Litargirio is sold in local botanicas (retail stores specializing in herbal medicines, cultural and spiritual items) and is used as an antiperspirant/deodorant, fungicide (foot powder) and burn treatment. Passage of the law was triggered by concerns about lead-contaminated candy from Mexico.

## New York City Health Code

The NYC Health Code authorizes DOHMH 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 and furniture and on other items used by children. The Health Code also grants authority to DOHMH to embargo and seize lead-containing consumer products.

## Take Care New York

Take Care New York is the citywide health policy to guide residents to healthier and longer lives. Childhood lead poisoning is included in the Take Care New York agenda, as part of the recommendation “Make Your Home Safe and Healthy” (see below). Inclusion in the Take Care New York initiative underscores the DOHMH’s commitment to eliminating childhood lead poisoning in NYC.

## 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 six years of age newly identified with BLLs greater than or equal to 10 µg/dL.” To meet this goal, LPPP has developed a comprehensive plan with the assistance of a technical advisory committee that focuses on:

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

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 by visiting: <http://www.nyc.gov/html/doh/downloads/pdf/lead/lead-plan.pdf>.

## Take Care New York: 10 Steps to a Longer and Healthier Life

1. Have a Regular Doctor or Other Health Care Provider
2. Be Tobacco Free
3. Keep Your Heart Healthy
4. Know Your HIV Status
5. Get Help for Depression
6. Live Free of Dependence on Alcohol and Drugs
7. Get Checked for Cancer
8. Get the Immunizations You Need

### **9. Make Your Home Safe and Healthy:**

*Have a home that is free from violence and free from lead-based paint hazards.*

10. Have a Healthy Baby



## Blood Lead Testing and Reporting Requirements

New York State law mandates:

- Blood lead testing for all children at both one and two years of age
- Annual assessment of all children six months to six years of age for risk of lead exposure
- Blood testing for children found to be at risk
- Provision of anticipatory guidance to educate parents of children younger than six years of age on ways to minimize their child's exposure to lead<sup>4</sup>

The New York State and NYC require laboratories to report all blood lead test results within five days.<sup>5</sup> 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.<sup>6</sup>

### Risk Factors for Childhood Lead Exposure

Health care providers in New York State are required to assess every child from six months to younger than six years of age for risk of lead exposure. Children who have risk factors for lead poisoning should be tested. Risk factors include:

- 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 bare 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

# Profile of Children with Lead Poisoning

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

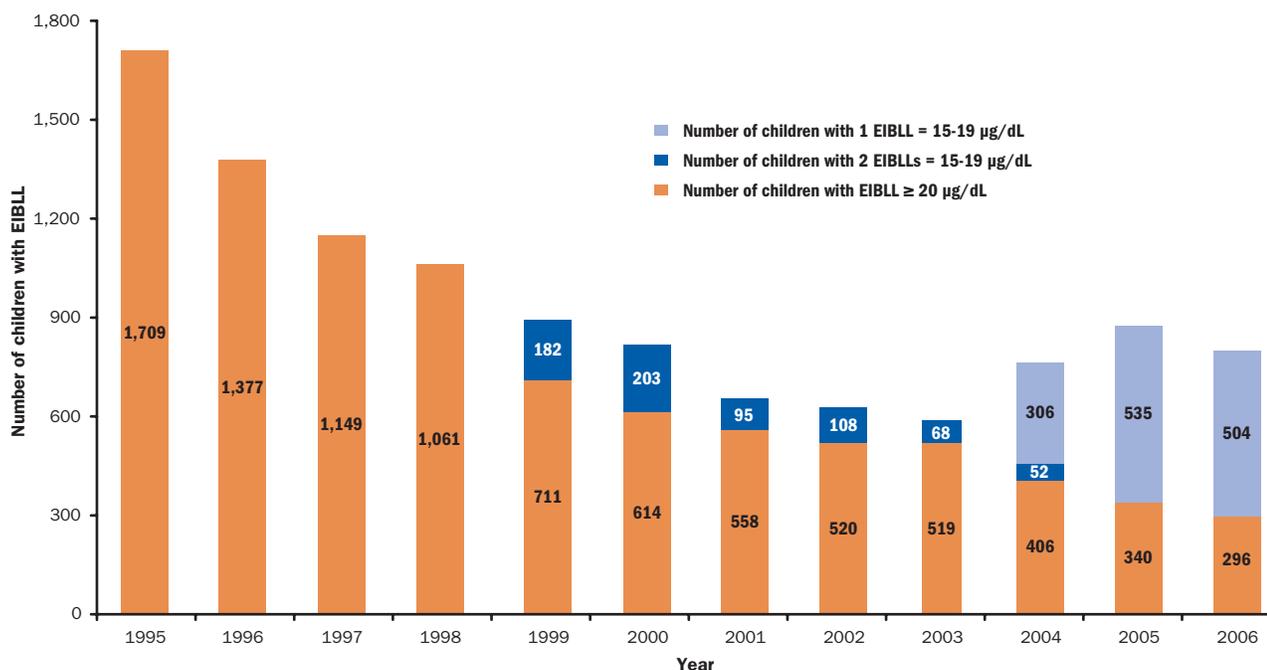
This chapter presents data on childhood lead poisoning and blood lead testing in NYC. Since the Lead Poisoning Prevention Program (LPPP) provides services to lead-poisoned children younger than 18 years of age, data presented in this report, except where specified, refer to children younger than 18 years of age. However, the age group at greatest risk for lead poisoning includes children six months to younger than six years of age, especially those between the ages of one and three years (Table 1).

## Children with Environmental Intervention Blood Lead Levels

The LPPP provides environmental intervention and case coordination services for children with blood lead levels (BLLs) greater than or equal to 15  $\mu\text{g}/\text{dL}$ . 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 changed to 15  $\mu\text{g}/\text{dL}$ , resulting in an increase in the number of children eligible for environmental intervention services (Figure 6). Case data in 2006 show:

**Figure 6**

### Fewer Children Required Environmental Intervention in 2006\*



\*Number of children, ages 0 to less than 18 years, newly identified with an Environmental Intervention Blood Lead Level by year: NYC, 1995-2006. From July 1999 through July 2004, the Environmental Intervention Blood Lead Level was defined as either (a) one venous blood lead level  $\geq 20$   $\mu\text{g}/\text{dL}$ , or (b) two blood lead levels 15-19  $\mu\text{g}/\text{dL}$  that were drawn at least 3 months apart, where the second test was a venous test. As of August 2004, the EIBLL is defined as one venous blood lead level  $\geq 15$   $\mu\text{g}/\text{dL}$ .

## Definitions in This Chapter

**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 BLL at which case coordination and environmental intervention are initiated for lead-poisoned children in NYC is currently  $15 \mu\text{g}/\text{dL}$  or greater. The NYC Health Code mandates environmental intervention at this level.

- There was a 9% decrease since 2005 in the number of children younger than 18 years of age identified with an EIBLL (800 children in 2006 versus 875 children in 2005).
- There was an 8% decrease since 2005 in the number of children six months to younger than six years of age identified with an EIBLL (667 children in 2006 versus 728 children in 2005).

## Characteristics of the Communities in Which Children with Lead Poisoning Live

### 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 2006:

- Over 80% of children in both age groups—younger than 18 years of age, and six months to younger than six years of age—newly identified with EIBLLs lived in dwellings built before 1950 (Table 2).
- For almost 80% of children in both age groups, LPPP inspectors found peeling or deteriorated lead-based paint or lead dust in the child's primary and secondary home, for example babysitter's residence (Table 2).

### Poverty

Poverty contributes to the risk of lead poisoning in children. Because poverty restricts a family's housing choices, low-income families often reside in older, poorly maintained housing. Nationally, among children one to five years of age living in older housing, those in low-income families were four times more likely to have EIBLLs than children in middle-income families.<sup>7</sup> Information on family income for lead-poisoned children in NYC is not available. However, lead poisoning in NYC continues to be concentrated in neighborhoods that have large low-income populations.

In NYC, 30% of all children younger than 18 years live in poverty, as compared with 17% of all U.S. children.

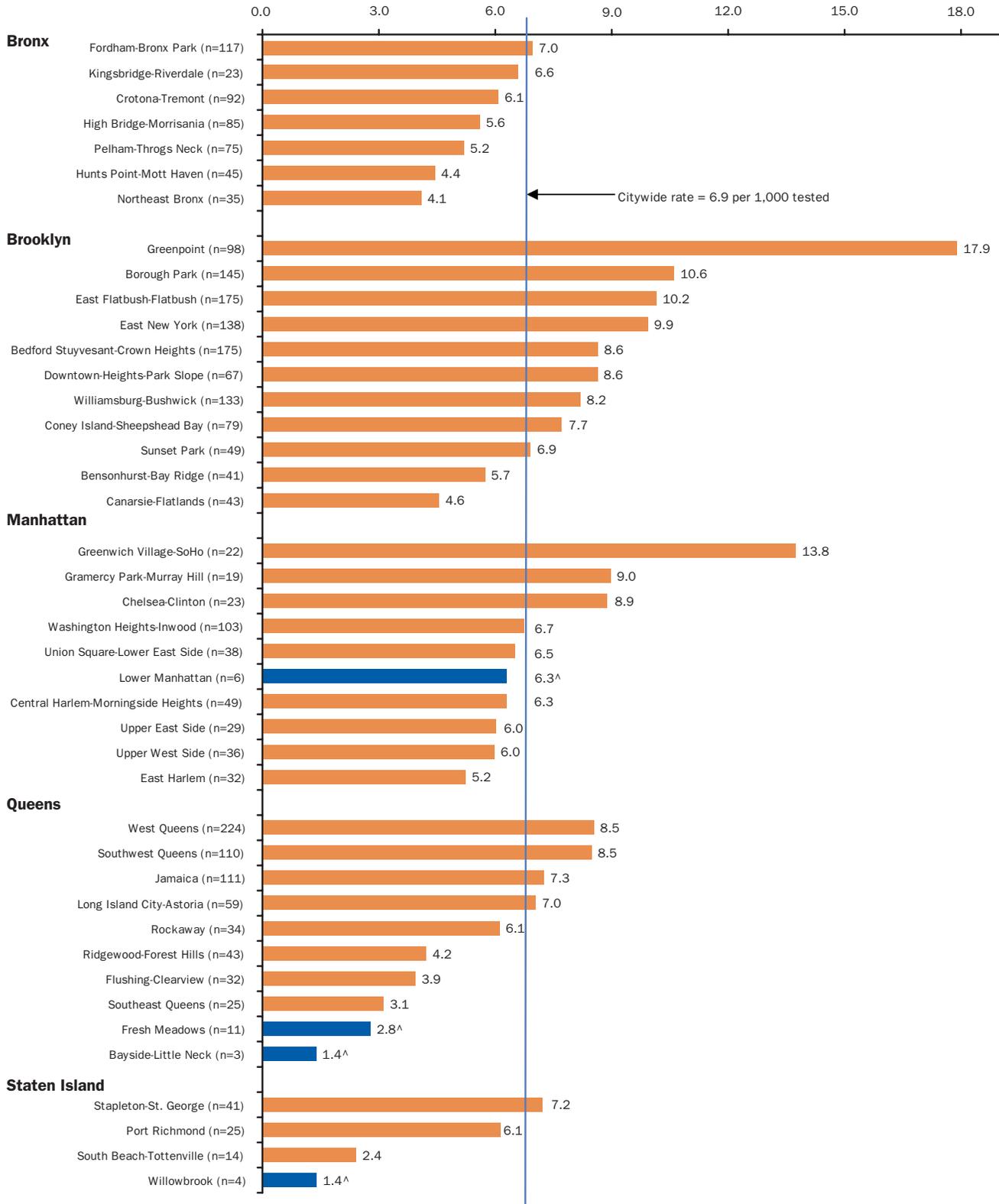
In 2006:

- More than half of children younger than 18 years old newly identified with BLLs greater than or equal to  $10 \mu\text{g}/\text{dL}$  lived in just 10 of 42 NYC neighborhoods (Table 3). In these neighborhoods, 34% of children live in poverty.<sup>††</sup>
- More than half of the children younger than 18 years old who were newly identified with EIBLLs lived in just 8 of 42 NYC neighborhoods (Table 3). In these neighborhoods, 35% of children live in poverty.<sup>††</sup>

Neighborhoods with the highest EIBLL case rates are mostly low-income communities. By contrast, neighborhoods with the lowest EIBLL case rates are generally middle- to upper-income communities.

**Figure 7**

**Rates of Children with Elevated Blood Lead Levels ( $\geq 10 \mu\text{g}/\text{dL}$ ) Were Higher in Some Neighborhoods\***



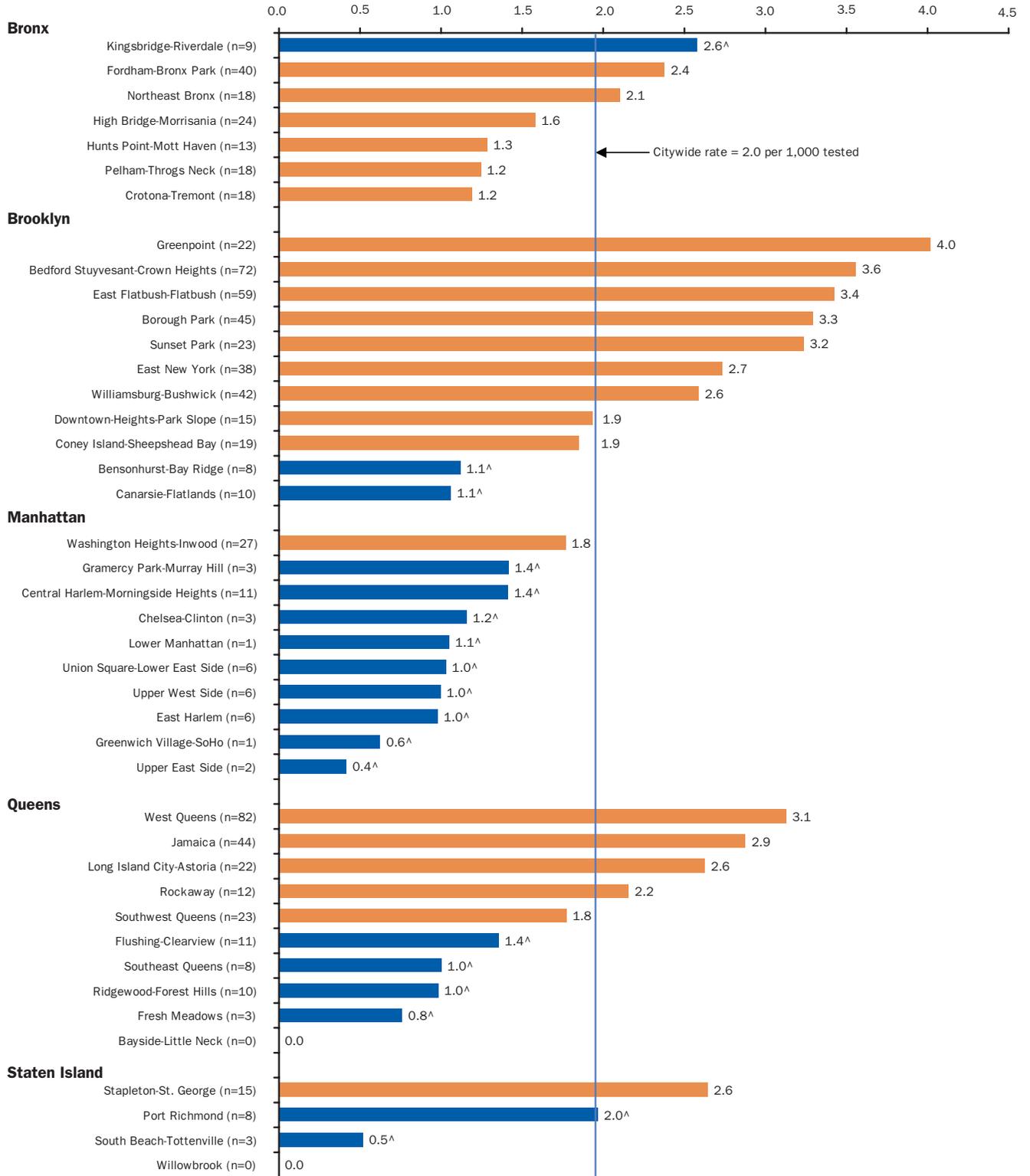
\*Number and rate (per 1,000 children tested) of children, ages 0 to less than 18 years, newly identified with an Elevated Blood Lead Level ( $\geq 10 \mu\text{g}/\text{dL}$ ), by United Hospital Fund Neighborhood (sorted highest to lowest within each borough): NYC, 2006.

<sup>^</sup>Case rates in neighborhoods represented by blue 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 EBLL in each neighborhood is reported in parentheses to the right of neighborhood name.

**Figure 8**

**Environmental Intervention Blood Lead Level 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, 2006.

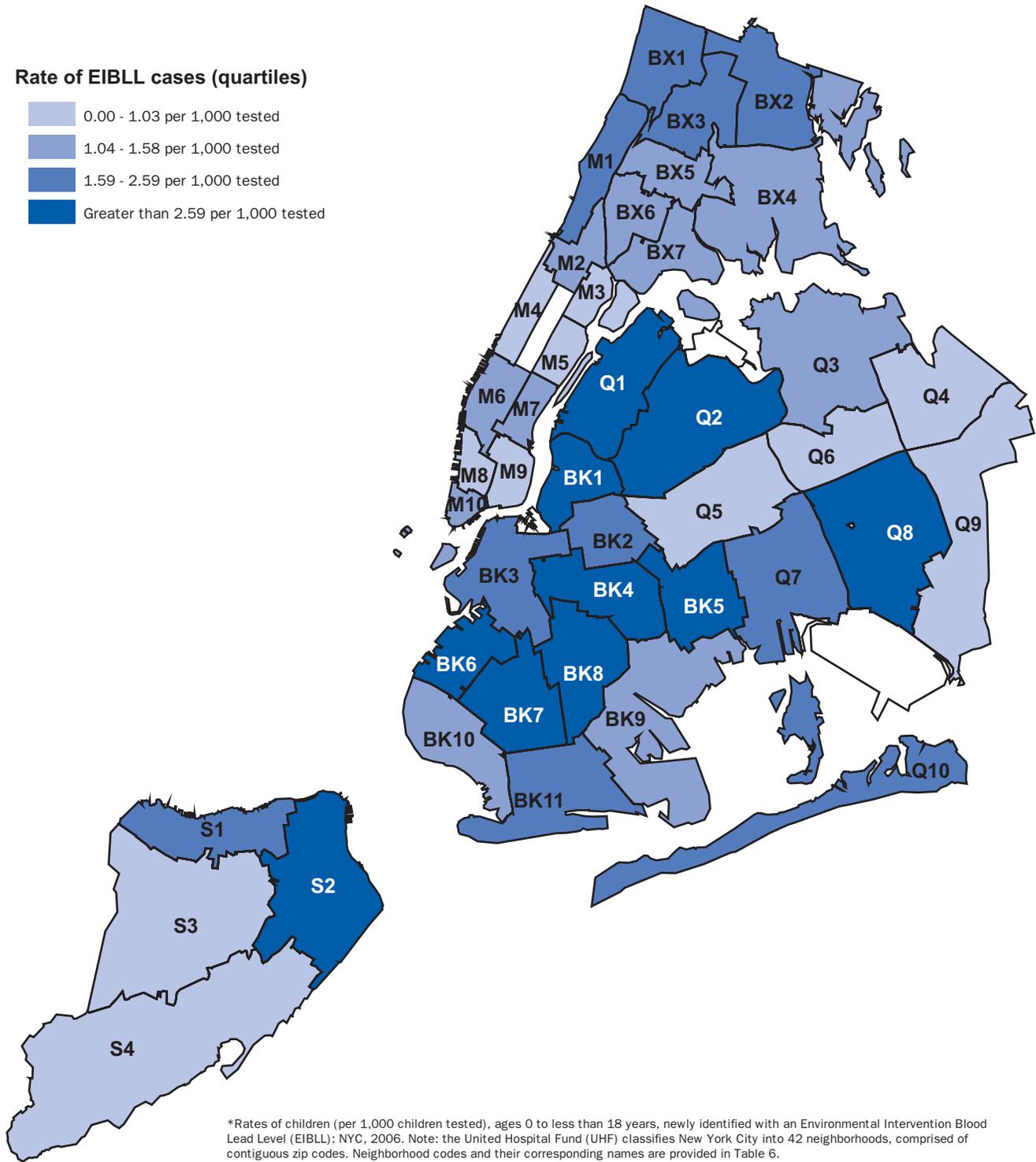
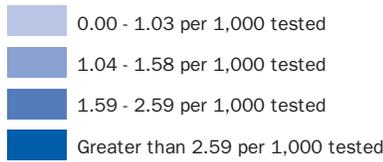
<sup>^</sup>Case rates in neighborhoods represented by blue bars were less precise (relative standard error > 30%) due to small numbers of cases. Caution should be used in interpreting these case rates.

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 Case Rates Varied By Neighborhood\*

Rate of EIBLL cases (quartiles)



\*Rates of children (per 1,000 children tested), ages 0 to less than 18 years, newly identified with an Environmental Intervention Blood Lead Level (EIBLL): NYC, 2006. Note: the United Hospital Fund (UHF) classifies New York City into 42 neighborhoods, comprised of contiguous zip codes. Neighborhood codes and their corresponding names are provided in Table 6.

### Neighborhood

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

The citywide rate for children younger than 18 years newly identified with BLLs greater than or equal to 10 µg/dL in 2006 was 6.9 for every 1,000 children tested. This rate was higher than the citywide average in 17 of 42 neighborhoods: one neighborhood in the Bronx, eight in Brooklyn, three in Manhattan, four in Queens and one on Staten Island (Figure 7 and Table 3).

For children younger than 18 years newly identified with EIBLL, the citywide rate was 2.0 for every 1,000 children tested. This rate was higher in 15 of 42 neighborhoods: three neighborhoods in the Bronx, seven in Brooklyn, four in Queens, and one on Staten Island (Figure 8 and Table 3).

Figure 9 displays rates of EIBLL by neighborhoods. The map gives a visual representation of the neighborhoods with the highest rates of lead poisoning.

### Borough

Brooklyn children are disproportionately affected by lead poisoning. About 34% of NYC children younger than 18 years old reside in Brooklyn, but the proportion of children with lead poisoning from that borough is considerably higher (Figure 10).

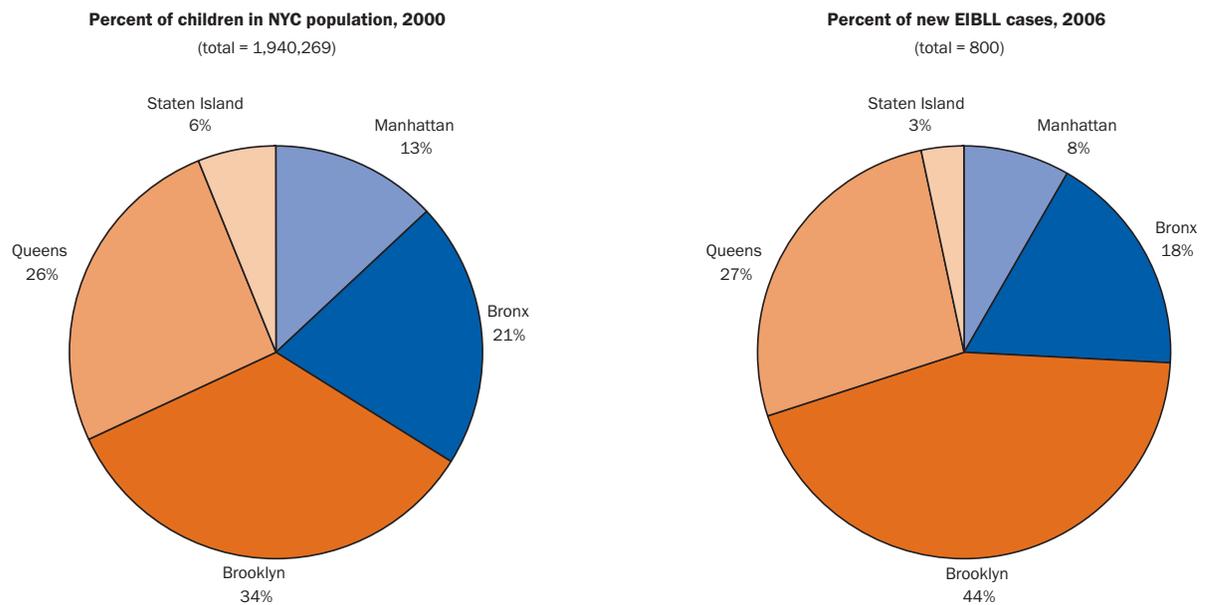
In 2006:

- 42% of children younger than 18 years old newly identified with BLLs greater than or equal to 10 µg/dL lived in Brooklyn (Table 3).
- 44% of children younger than 18 years old newly identified with EIBLLs resided in Brooklyn (Figure 10 and Table 3).

Queens accounted for approximately a quarter 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 29% 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, 2006. Sources: NYC DOHMH LPPP and US Census 2000 (Summary File 1).

## Characteristics of Children with Lead Poisoning

### Age

Young children (especially those younger than three years of age) are at greatest risk for lead poisoning as 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 tract of young children, and research suggests that children younger than two years of age may be particularly vulnerable to the neurotoxic effects of lead because of their rapidly developing neurological systems.<sup>8</sup>

In 2006:

- Among the 2,722 children newly identified with BLL greater than or equal to 10 µg/dL, 60% (1,637) were younger than three years of age and another 27% (730) were between three years of age and younger than six years of age.
- Among the 800 children newly identified with EIBLLs, 61% (486 children) were younger than three years of age and another 25% (198 children) were younger than six years of age (Table 2).

### Gender

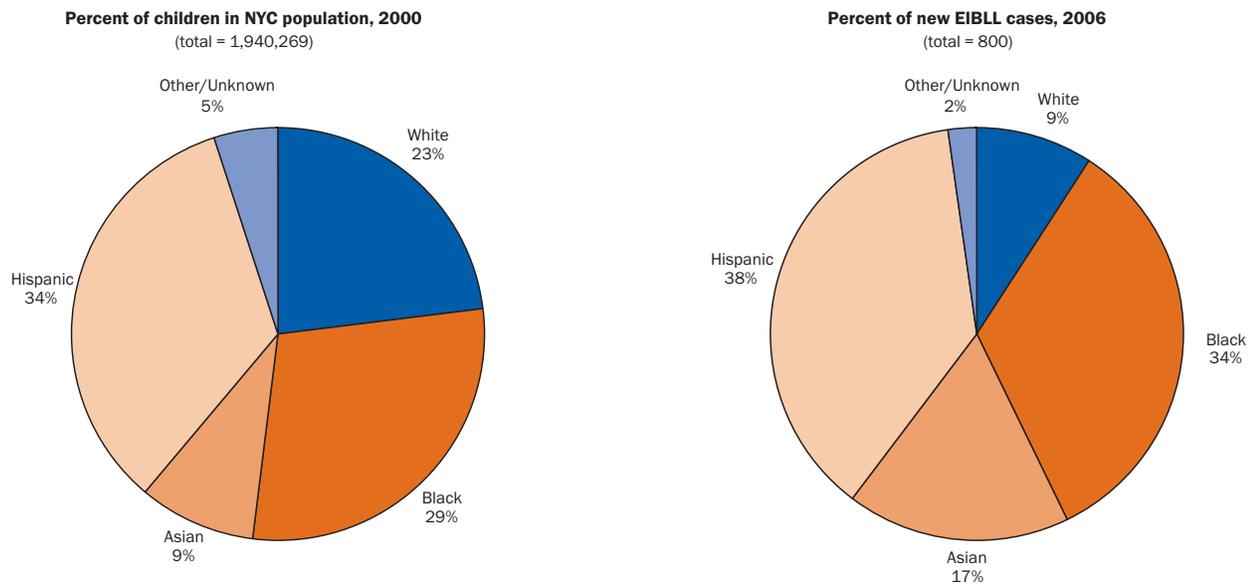
Generally, there are slightly more male than female children newly identified with EIBLLs in NYC. In 2006, 57% of all children younger than 18 years of age with EIBLLs were male (Table 2).

### Race/Ethnicity

As in most parts of the United States, lead poisoning in NYC 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.

**Figure 11**

### Black, 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, 2006. Sources: NYC DOHMH LPPP and US Census 2000 (Summary File 1).

The racial/ethnic distribution of children with EIBLLs varies from year to year. In 2006, for the second 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 group with the largest number of EIBLLs. In 2007 and beyond, the LPPP will continue to monitor the race/ethnicity distribution among children with EIBLLs to identify any new trends.

In 2006, the race/ethnicity distribution of children with EIBLL was:

- 38% Hispanic children (34% of NYC children are Hispanic)
- 34% black, non-Hispanic children (29% of NYC children are black, non-Hispanic)
- 17% Asian, non-Hispanic children (9% of NYC children are Asian, non-Hispanic)
- 9% white, non-Hispanic children (23% of NYC children are white, non-Hispanic)

### Country of Birth

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

In 2006:

- 18% of the 800 children with EIBLLs had been 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
  - ◆ Haiti
  - ◆ Mexico
  - ◆ Pakistan

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 2006, only 65% of foreign-born children with EIBLLs had identified lead-based paint hazards in their homes compared with 80% of U.S.-born children with EIBLLs.

# 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 sources and 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.

Continuing efforts in 2006 include:

- Primary prevention efforts to address lead-based paint hazards in the homes of newborns and young children in high-risk neighborhoods
- Contributing funds to abate lead paint hazards, including replacing residential windows and doors, in an area of Brooklyn where children are at high risk for lead poisoning
- Intensified educational, community outreach efforts with a focus on high-risk foreign-born communities
- Collaborating 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
- Partnering 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
- Establishing a bilingual educational campaign targeting check-cashing stores in high-risk neighborhoods that encourages parents to get their children tested for lead and to report peeling paint
- Releasing new guidelines for health care providers on the prevention, identification and management of lead poisoning in pregnant women in conjunction with new educational materials on lead poisoning and pregnancy

## Making Housing Safer for Children

Reducing lead-based paint hazards in the home is an integral part of LPPP's prevention strategy.

LPPP uses its authority under the NYC Health Code to issue orders for landlords to correct lead paint hazards, to conduct lead hazard investigations and to enforce safe work practices.

## Ordering Landlords to Correct Lead-Based Paint Hazards

The LPPP issues violations to landlords and orders them to correct lead-based paint hazards in homes of children with environmental intervention blood lead levels (EIBLLs).

In 2006, LPPP:

- Issued 931 violations for lead-based paint hazards in primary and secondary addresses
- Monitored correction of lead-based paint hazards in 893 homes by order of the Commissioner of Health and Mental Hygiene

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

The 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 3 or more units.

- In 2006, LPPP conducted 83 inspections at 22 dwellings in 1- and 2- family homes.

## Enforcing Safe Work Practices

The LPPP enforces health code regulations that require safe work practices during lead abatement and remediation. Lead-safe work practices include isolation of work area, minimizing dispersion of dust, wet work methods and daily cleaning. The LPPP inspectors also investigate complaints of unsafe work that creates potential lead hazards in and around homes of young children.

- In 2006, LPPP conducted 3,401 safety inspections for work disturbing lead-based paint.

## Safety Procedures for Home Repair and Renovation Work

Lead-based paint is commonly found in NYC housing built before 1960. Repairs and renovation work in homes with lead-based paint may create lead dust hazards. Safe work practices can help reduce the risk of lead poisoning.

For work performed in buildings where young children live, or when a tenant moves out, certain legal requirements may apply, such as using appropriately trained workers and dust clearance testing at the end of the job.

### Before Work Begins:

- Keep children and pregnant women away from the work area.
- Wet clean or High Efficiency Particulate Air (HEPA) vacuum floors, furniture and draperies. Remove moveable furniture and other items.
- Seal off work area by covering floors, vents, doors, windows and furniture with heavy plastic.

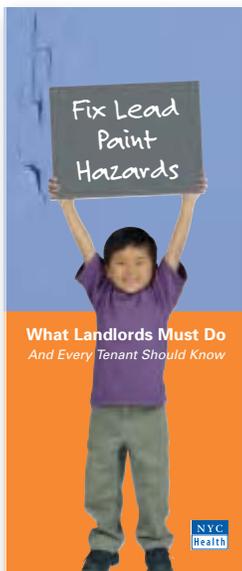
### During Repair and Renovation Work:

- Use wet methods. Always mist before sanding, scraping or performing other activities that disturb paint.
- Clean up daily by wet mopping (using separate wash and rinse water) and a HEPA vacuum.

### When Work Is Completed:

- Mist all dust and debris with water and place in double plastic garbage bag.
- HEPA vacuum, then wet mop, using separate wash and rinse water.
- Dust-clearance tests may be required.
- Call 311 for more information.

## Reducing Lead-Based Paint Hazards in Communities



The LPPP uses health, housing and population data to target its intervention efforts to communities and populations at greatest risk for lead poisoning. In 2006, LPPP collaborated with the HPD and other local government programs to reduce exposure to lead-based paint hazards.

### Targeting High-Risk Buildings

Lead-based paint hazards are often the result of poor building maintenance—peeling paint in one apartment often can be an indicator of poor conditions throughout the building. 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. The LPPP refers the building to HPD for building-wide action to assess compliance with Local Law 1.

- In 2006, LPPP referred 702 buildings to HPD for building-wide follow-up actions.

### Conducting Home Visits to High-Risk Homes

LPPP collaborates with the Brooklyn District Public Health Office on their Newborn Initiative, a home visiting program that provides parents of newborns with well baby care education and also conducts visual inspections for lead and other environmental home hazards. When peeling paint is identified, Newborn Initiative staff refer the apartment to LPPP for an inspection, including environmental testing. If lead paint hazards are identified the building owner is ordered to correct the hazards.

- During 2006, the Newborn Initiative referred 272 apartments to LPPP for inspection. Lead-based paint hazards were identified in 160 apartments.

### 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), which provides financial assistance through forgivable loans to building owners for lead hazard reduction.

The LPPP is responsible for: identifying buildings with a history of lead-based paint hazard violations that are eligible; providing home visits and lead poisoning prevention education for families in the buildings; monitoring dust lead levels in apartments undergoing remediation; and monitoring blood lead levels (BLLs) for children younger than six years of age residing in these buildings.

- From 1995 to 2006, more than 1,643 apartments received lead hazard repairs under this project, with 152 apartments treated in 2006.

### Eliminating Lead-Based Paint Hazards in Bushwick, Brooklyn

In 2006, for the second year in a row, DOHMH contributed \$500,000 to replace lead-painted doors and windows in the Bushwick area of Brooklyn. This project is part of a larger, multi-agency, community-based effort to improve living conditions and health in Bushwick.

- In 2006, 240 doors and 174 windows in 74 dwelling units were repaired or replaced.

## Protecting Children from Non-Paint Sources of Lead

Lead-based paint and dust remain the primary sources of lead poisoning among NYC children. In 2006, however, LPPP inspectors were unable to identify lead-based paint hazards in homes and secondary addresses for 23% of lead-poisoned children; non-paint lead sources may contribute to these elevated blood lead levels (EBLLs). The LPPP is working to better understand the range of non-paint lead sources in NYC to develop effective strategies to reduce exposure to these sources.

In 2006, LPPP:

- Improved our risk assessment questionnaire to enhance the quality of the information gathered during case investigations
- Improved our database on non-paint lead sources
- Provided intensive staff training and education to improve risk assessment for non-paint sources of lead exposure

## Non-Paint Sources of Lead Exposure

- Lead-glazed pottery, food, spices, health remedies, cosmetics and other products contaminated with lead
- Living in or traveling to foreign countries where lead contamination persists from gasoline, industrial emissions, consumer products and paint
- Lead brought into homes by family members whose jobs or hobbies are related to lead exposure.
- Playing in bare soil near a heavily traveled highway, bridge or elevated train where there is peeling paint
- Lead in drinking water
- Prenatal exposure

### Working with Foreign-Born Communities

LPPP surveillance data indicate that 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 2006, 35% of foreign-born children had no identifiable lead-based paint hazards in their homes compared to 20% of U.S.-born children.

Lead poisoning among foreign-born children may be associated with exposures in other countries and/or lead sources related to cultural practices of the child's birth country. Lead exposure sources in other countries may include air pollution from leaded gasoline exhaust and industrial emissions, occupational exposures of children and their families, lead-contaminated foods and food containers, lead-containing pottery used for cooking and storing foods, traditional herbal and mineral medicine products and cosmetics. Some children may have had prenatal exposure to lead.

The LPPP works with community and social service organizations serving immigrant communities to build partnerships and increase awareness of lead poisoning.

In 2006, LPPP also engaged in specific efforts to reach Mexican and Asian communities and continued its intensive outreach and education efforts, including:

- Developing partnerships with organizations serving immigrants and non-English-speaking day laborers to provide information on lead poisoning, safe work practices and non-paint sources of lead
  - ◆ In December 2006, LPPP held a meeting on outreach strategies targeting foreign-born NYC families, attended by several of our community-based organization partners
- Conducting four English as a Second Language classes with lead poisoning prevention and/or safe work practices as the theme at community-based organizations reaching 83 participants
- Collaborating with the DOHMH adult lead poisoning program to identify imported herbal medicine products contaminated with lead and mercury and ordering store owners and wholesalers to remove products from sale and to post warning signs for customers (See Chapter 4 on adult lead poisoning for further details).

### Prenatal Exposure

Pregnant women with lead poisoning pass lead in their blood to their fetus. Research suggests that children born with higher BLLs have an increased risk of cognitive problems and developmental delays. During pregnancy, maternal bone stores of calcium are released into the bloodstream to support development of the fetal bone structure. When this happens, bone stores of lead from past exposure may be released as well. A pregnant woman's BLL may, therefore, reflect past exposure, recent exposure or both. For information on services provided to lead-poisoned pregnant women and their newborns, see Chapter 4.

## Public Education and Outreach

### 2006 Media Campaign

In high-risk neighborhoods in NYC from June through October 2006, LPPP initiated a bilingual (English and Spanish) print media campaign on bus shelters, billboards, phone kiosks and in check-cashing stores. Messages were also carried on city sanitation trucks, and the 33 participating check-cashing stores distributed 412,500 educational brochures to customers. The key messages of the 2006 campaign were:

- Lead can cause learning problems.
- Landlords must fix peeling paint. It's the law.
- Wash floors, windowsills, children's hands and toys often.
- Test children's blood for lead at age 1 and 2.
- Call 311 for information.



### Educating Families and Community-Based Organizations

An important component of LPPP's lead poisoning prevention strategy is community outreach and education targeted to high-risk groups and neighborhoods. 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 2006, LPPP:

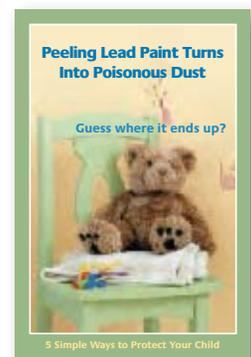
- Responded to 2,936 calls to the LPPP Information Line
- Distributed 214,518 pieces of educational material
  - Educated 4,576 parents at 345 workshops held at community-based organizations, health care clinics, schools, day care centers, faith-based organizations, Head Start programs, and Women, Infants, and Children (WIC) centers
  - Reached 5,228 NYC residents at 127 health fairs
  - Trained 1,363 professional staff from community-based organizations, day care centers, Head Start programs, WIC centers and other governmental and community agencies at 32 workshops
  - Recruited and maintained the enrollment of 370 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. English and Spanish brochures, as well as select materials in Chinese and Bengali, are available on the Internet at [www.nyc.gov/lead](http://www.nyc.gov/lead).

In 2006, LPPP produced several new, easy-to-understand brochures in English and Spanish:

- 5 Simple Ways to Protect Your Child available at: [www.nyc.gov/html/doh/downloads/pdf/lead/lead-paint-bro.pdf](http://www.nyc.gov/html/doh/downloads/pdf/lead/lead-paint-bro.pdf).
- Fix Lead Paint Hazards: What Landlords Must Do and Every Tenant Should Know available at: [www.nyc.gov/html/doh/downloads/pdf/lead/lead-paint-fix-bro.pdf](http://www.nyc.gov/html/doh/downloads/pdf/lead/lead-paint-fix-bro.pdf).
- Pregnancy and Lead Poisoning: What Every Woman Should Know available at: [www.nyc.gov/html/doh/downloads/pdf/lead/lead-pregnancy-brochure.pdf](http://www.nyc.gov/html/doh/downloads/pdf/lead/lead-pregnancy-brochure.pdf).



## Promoting Blood Lead Testing

Early identification of lead-poisoned children through blood lead testing allows critical action to be taken to protect children from additional exposure to lead.

### 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 health care providers about prevention, screening and medical management of lead-poisoned children.

Health care provider activities in 2006 included:

- Providing consultations to 47 health care providers on the management of lead-poisoned children
- Educating 225 health care providers at six professional forums
- Promoting the Online Registry, a secure Internet database that gives providers access to immunization and blood lead histories for their pediatric patients (visit: <http://home2.nyc.gov/html/doh/html/cir/a04.html>)
- Educating medical students and residents about public health and lead poisoning prevention through collaboration with two NYC medical centers
- Organizing a forum for 60 health care providers on recent research findings about the health effects of lead on pregnancy and fetal development, and on DOHMH's new prenatal guidelines
- Mailing 31,333 copies of a "Dear Colleague" letter to pediatricians, family medicine providers and public health professionals; the letter promoted DOHMH's new guidelines on the prevention, identification and management of lead poisoning during pregnancy (visit: <http://home2.nyc.gov/html/doh/downloads/pdf/lead/lead-pregnant-letter.pdf>)

## 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 to provide services for Medicaid-eligible children. Information on children enrolled in MMCOs is matched against LPPP's blood lead registry to identify children lacking appropriate blood lead tests. 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 the DOHMH Early Intervention Program, which provides services for children younger than three years of age or who have, or are at risk for, developmental delays. The Early Intervention Program sends letters to parents of children who have been identified by LPPP as lacking appropriate blood lead tests. The letters encourage them to have their child tested.

### New York State law requires that health care providers:

- Test every child at both one and two years of age.
- Test children from six months to younger than six years of age if an annual risk assessment shows that they are at risk for lead exposure.

## Case Coordination and Environmental Intervention

### Monitoring Blood Lead Levels for Children with Elevated Blood Lead Levels

LPPP sends a letter and educational material to the family and health care provider of every child with a BLL greater than or equal to 10 µg/dL but less than 15 µg/dL.<sup>§§</sup> The letter:

- Recommends follow-up blood lead testing
- Provides information on lead poisoning prevention
- Reminds families to report peeling paint to NYC's 311 hotline if the landlord fails to make repairs

The LPPP also monitors children's records in the blood lead test registry. If follow-up blood lead tests are not administered within the appropriate period, reminder letters are sent to the family and the health care provider.

### 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 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 2006, LPPP:

- Inspected 829 primary addresses and 244 secondary addresses
- Conducted 4,173 inspections to monitor progress and safety of ordered remediation
- Referred 200 dwelling units to HPD's Division of Maintenance after landlords failed to make repairs
- Accommodated 23 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 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

# Adult Lead Poisoning

*In 2006, the Environmental and Occupational Disease Epidemiology (EODE) program received blood lead test results for 72,747 New York City (NYC) residents, age 18 years and older. EODE notifies adults with lead poisoning, provides information on preventing lead exposures, investigates the potential sources of exposure and monitors follow-up testing.*

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

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

## Lead Poisoning Still a Problem for Adults in High-Risk Occupations and Pregnant Women

The most common 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, demolition and clean-up. 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 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.

Lead can also be harmful to pregnant women and their unborn children. During pregnancy, a woman who has a history of lead poisoning can pass lead to her developing fetus. Other sources of exposure for pregnant women include: 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.<sup>9</sup> Common effects are listed below.

- **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 the child who was exposed to lead in utero

## Blood Lead Testing in Adults

Blood lead testing is important for the detection and monitoring of adults exposed to lead, especially since most adults are asymptomatic except at very high BLLs. 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 pregnant women for the risk of lead exposure at the initial prenatal visit and to measure their BLL if indicated. Providers may also choose to screen their patients if there is a suspected lead source, such as imported health remedies.

In 2006:

- There was an 18% increase in testing among adults (72,747 adults compared with 61,404 adults in 2005).
- Of the adults tested, 60,513 were women and 11,406 were men.\*\*\*
- There was an 11% decrease in the number of adults with BLL greater than or equal to 10 µg/dL (1,097 adults compared to 1,228 adults in 2005).

Lead poisoning was more prevalent among men than among women—7% of the tested men had BLLs greater than or equal to 10 µg/dL compared with 0.5% of the tested women. These numbers may not accurately reflect the prevalence of lead poisoning in men versus women. Most of the men were tested because of potential lead exposure at their jobs. Most women were tested as part of routine prenatal care, not because they presented a specific risk factor for exposure. See Table 4 for a summary of the data on BLLs among adults in NYC in 2006.

## Preventing Lead Poisoning in the Workplace

Federal and New York State laws require employers to protect workers from exposure to lead. Employers must:

- Inspect lead work areas and test the air for lead
- Provide medical exams when BLLs reach 40 µg/dL or higher 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, including:

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

## Case Coordination and Case Investigation Services for Adults with Lead Poisoning

Services provided depend upon BLLs and gender. EODE sends letters and educational materials 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 first determines if the woman is pregnant by calling the woman or her health care provider. Pregnant women are referred to LPPP for case coordination services; EODE interviews women who are not pregnant to assess potential sources of lead exposure. These women are also provided information on general health effects of lead, health effects of lead poisoning during pregnancy and ways to prevent lead poisoning.

EODE also conducts individual 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.

EODE may also conduct employer interviews and worksite visits if potential occupational lead exposure is identified during the case interviews.

In 2006, EODE provided the following services for adults with lead poisoning:

- Sent 2,351 letters to adults with BLLs greater than or equal to 10 µg/dL
- Contacted 35 employers to discuss lead-related work exposures
- Referred 75 pregnant women to LPPP for case coordination and environmental intervention services

## Lead Exposure Sources Among Non-Pregnant Women and Men with Lead Poisoning

EODE conducts interviews with non-pregnant women with BLLs greater than or equal to 15 µg/dL and men with BLLs greater than or equal to 25 µg/dL to assess potential sources of lead exposure. In 2006, most men reported potential occupational lead exposures related to construction work. Among non-pregnant women, most frequently reported potential sources of lead exposure were non-occupational and included use of imported products and home renovations. Figure 12 shows the total numbers of men and non-pregnant women with lead poisoning, and the potential sources of lead exposure.

In 2006, 187 men were identified with BLLs greater than or equal to 25 µg/dL.

- 58% of men reported occupational sources of lead exposure; among these men, 88% were construction workers, and 12% reported other occupations including cable splicing, glass work and gun repair work.
- 4% of men reported non-occupational sources of lead exposure; among these men, three reported high-risk hobbies, three reported home renovation, one reported herbal medicine use and one reported having bullet fragments in the body.
- EODE was unable to determine potential sources of lead exposure for 38% of the men. In most cases, a source was not identified because EODE was unable to contact the person.

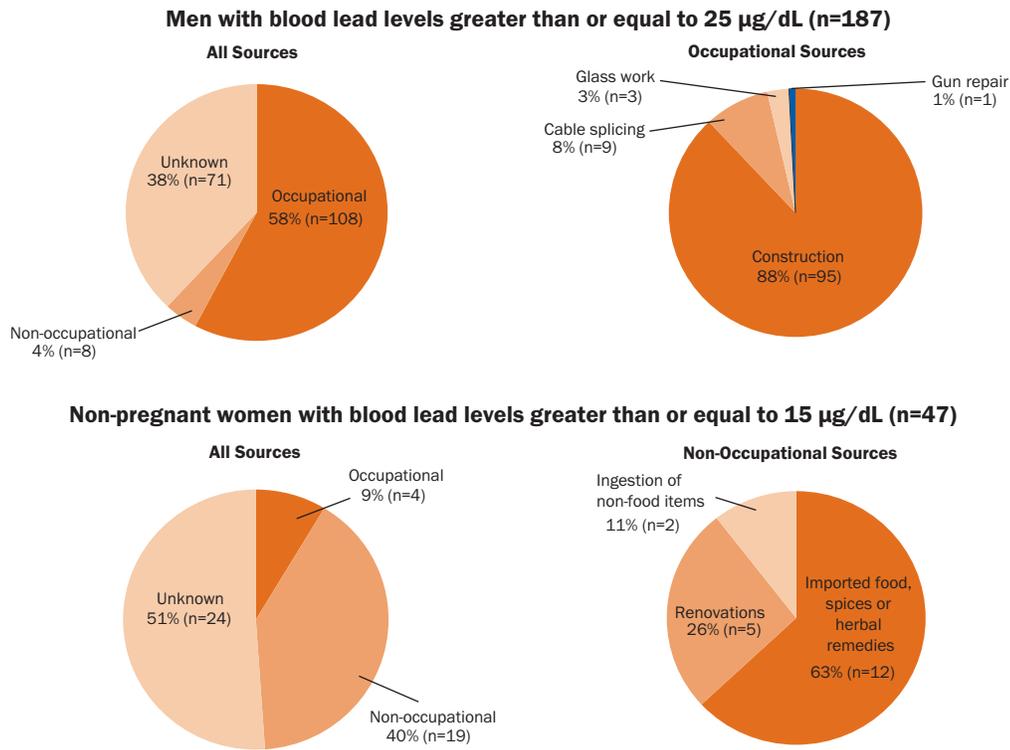
In 2006, 47 non-pregnant women were identified with BLLs greater than or equal to 15 µg/dL.

- 40% of women reported non-occupational sources of lead exposure, including use of imported products, home renovations and ingestion of non-food items.
- 9% of women reported occupational sources of lead exposure; among these women, two were artists, one worked in construction and one was a cable splicer.
- EODE was unable to determine potential sources of lead exposure for 51% of the women. In most cases, a source was not identified because EODE was unable to contact the person for the interview.



**Figure 12**

**Occupational and Non-Occupational Sources of Lead Exposure Among New York City Men and Non-Pregnant Women with Lead Poisoning, 2006**



**Case Coordination for Pregnant Women with Elevated Blood Lead Levels and Their Newborns**

The LPPP, in collaboration with EODE, has been providing case coordination services to pregnant women with elevated BLLs since the mid 1990s. Prior to August 2004, services were provided for women with BLLs greater than or equal to 20 µg/dL; however, the level that triggers case coordination services was reduced to 15 µg/dL in August 2004 to correspond to the change in BLL that triggers services for children. Case coordination services for pregnant women include:

- Contacting both the woman and her health care provider to provide information on the consequences of prenatal exposure to lead
- Interviewing the pregnant woman to identify possible sources of lead exposure
- Monitoring the woman throughout her pregnancy, and advising her health care provider on appropriate medical management to minimize exposure to the fetus and newborn
- Providing case coordination services for the newborn if the child is born with an Environmental Intervention Blood Lead Level (EIBLL)



**Profile of Pregnant Women with Elevated Blood Lead Levels**

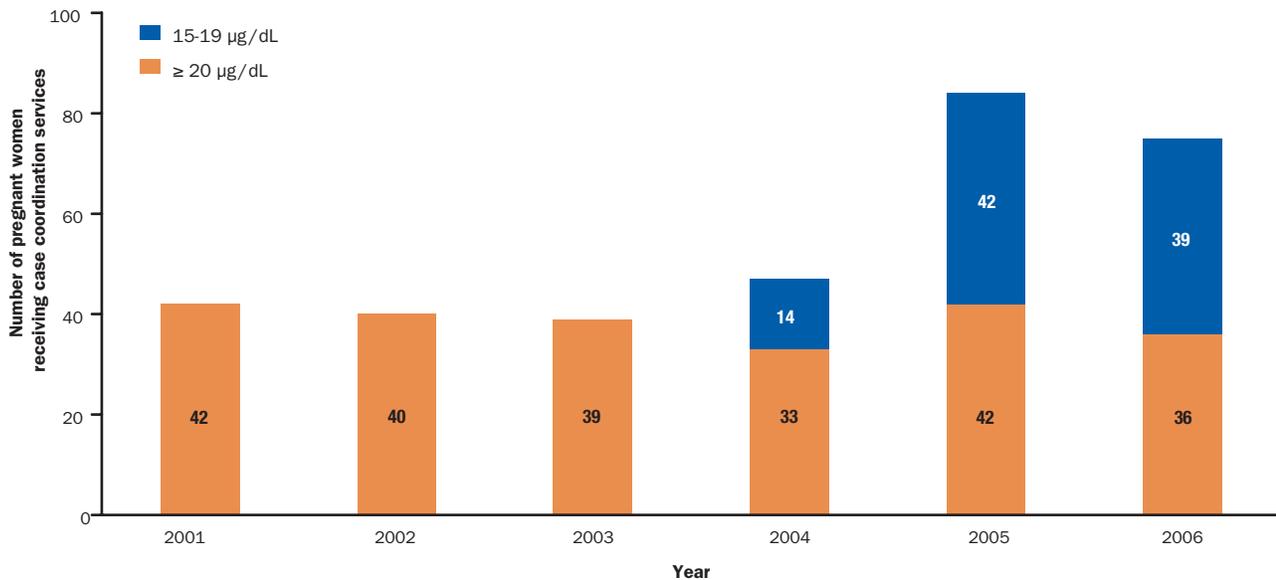
Despite overall citywide decreases in BLLs, certain subgroups of pregnant women continue to be at higher risk of lead exposure. Lead poisoning disproportionately affects foreign-born pregnant women. Among these women, certain countries of birth are overrepresented. The boroughs with large immigrant populations from these countries also have a higher number of pregnant women with lead poisoning.

In 2006:

- LPPP, in collaboration with EODE, provided services to 75 pregnant women with BLLs greater than or equal to 15 µg/dL compared to an average of 40 pregnant women per year from 2001 through 2004. Since the 2004 change in BLL that triggers services, the number of women who receive case coordination has almost doubled (Figure 13).
- 99% of pregnant women newly identified with lead poisoning in NYC were foreign-born while only 50% of women who give birth in NYC each year are foreign born.
- 68% of pregnant women with lead poisoning were born in Mexico, 15% were born in Bangladesh and 3% each were born in China and Ecuador.
- 49% of women identified with lead poisoning lived in Queens, more than twice the number identified in Brooklyn and the Bronx (approximately 20% each).
- Overall, foreign-born pregnant women with lead poisoning were relatively recent immigrants; more than 60% of them had lived in the United States less than five years (Table 5).

**Figure 13**

**Number of Pregnant Women Receiving Case Coordination Services Increased Since 2004 When the Blood Lead Level Threshold That Triggers Services Was Lowered, New York City, 2001-2006**



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.

### Sources of Lead Exposure for Pregnant Women with Lead Poisoning

One 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 have high cumulative body lead burden due to childhood exposure. Significant mobilization of lead from bones may occur during pregnancy, and lead released from bones may contribute to pregnant women’s BLLs.

In 2006, pregnant women with lead poisoning reported one or more of the following sources of lead exposure:

- 73% reported using imported products during pregnancy, including food, spices, herbal medicine, pottery and cosmetics that present potential risk for lead exposure.

- 31% reported recent travel to a foreign country, which raises the risk for lead exposure if the foreign country is one where lead exposure is widespread.
- 27% reported having recent renovations in their homes.
- 12% reported the presence of peeling paint in their homes.
- 11% reported possible occupational exposure.
- 1% reported eating dirt, clay or crushed pottery during pregnancy.

## Risk Factors for Lead Exposure Among Pregnant Women

Health care providers are required by New York State law to assess all pregnant women for lead exposure at the initial prenatal visit and to test those at risk. Risk factors for lead poisoning include:

- Foreign birth or travel outside of the United States<sup>†††</sup>
- Using imported health remedies, spices, foods or cosmetics
- Eating food that has been prepared, stored or served in lead-glazed pottery
- Chewing, eating or mouthing non-food items such as clay, crushed pottery, soil or paint chips at any time during pregnancy
- Living in a home where recent renovation or repair work has occurred
- Having a job or hobby that involves possible lead exposure, such as home renovation or working with glass, ceramics or jewelry

## Imported Herbal Medicine Products Containing Lead

In 2006, EODE and LPPP identified two herbal medicine products made in China that contained high levels of lead and mercury during a case investigation of an adult with lead poisoning. The products were prescribed by an acupuncturist in NYC. As a part of the case investigation, DOHMH staff visited retail stores and purchased the identified products that, upon laboratory testing, were confirmed to be contaminated.

Using its authority under the Health Code, DOHMH banned the sale of these herbal medicine products in NYC through a multi-faceted enforcement action. DOHMH ordered the:

- Acupuncturist who had prescribed these products to cease prescribing the products
- Store owners and wholesalers to stop selling these products and post warning signs on the premises
- Wholesalers to recall these products from businesses to which these products were sold
- Wholesalers to destroy all banned products in their possession under DOHMH and U.S. Food and Drug Administration supervision

As a result of this approach, more than 7,000 units of contaminated products were embargoed.

These enforcement actions were supplemented by community outreach efforts including:

- Issuing a press release warning NYC consumers and vendors about these herbal medicine products
- Distributing a fact sheet with information for consumers and vendors and other materials in English and Chinese

Adult outreach and education were conducted in collaboration with local Chinese media, and community organizations serving the Chinese community

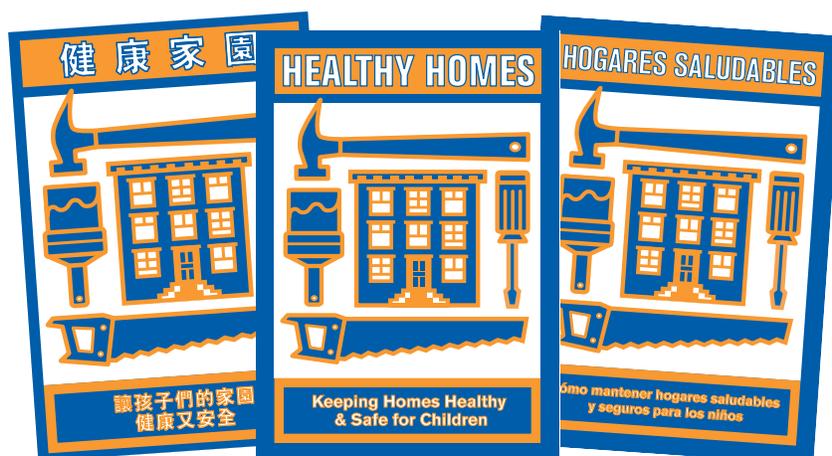


## Strategies for Continued Progress

*New York City is working toward the national goal of eliminating childhood and adult lead poisoning by the year 2010. While we have made tremendous progress over the past decades, lead poisoning remains a serious public health problem.*

Reaching this goal requires innovative strategies as well as continued implementation of successful programs; intervention efforts must be targeted to communities and populations at greatest risk and new partnerships must be developed to maximize our impact and leverage resources. For adult lead poisoning, this also requires strengthening surveillance, increasing screening and building partnerships with communities, workers, employers and owners of lead-painted structures. In 2007, we will utilize strategies that:

- Encourage primary prevention of lead poisoning
- Eliminate or reduce lead-based paint hazards in homes and communities
- Reach tenants, landlords, housing organizations, contractors, hardware stores and other agencies to increase knowledge of lead-safe work practices and NYC laws
- Integrate a “healthy homes” approach to inspection and outreach activities to target lead-based paint and other home health issues, such as pests, mold, smoke and carbon monoxide alarms, and window guards
- Establish contact with and educate high-risk foreign-born communities about all sources of lead exposure
- Identify non-paint and non-occupational sources of lead poisoning and develop effective prevention activities through research, investigations and collaborations among Lead Poisoning Prevention Program (LPPP), Environmental and Occupational Disease Epidemiology Program (EODE) and organizations serving high risk groups
- Improve screening for children through outreach to health care providers, community organizations and families, and through data-matching projects to identify children who have not been tested
- Prevent lead poisoning in pregnant women and their newborns through outreach, education and appropriate medical management
- Increase blood lead screening among workers at risk for lead exposure
- Improve information submitted by laboratories to the child and adult lead registries
- Target new education and outreach efforts to construction workers, workers at shooting ranges and their employers
- Collaborate with unions to educate members about preventing exposure to lead



## Notes

- \* 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.
- † 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  $\geq 15$   $\mu\text{g}/\text{dL}$ . From July 1999 to August 2004, the EIBLL was defined as a BLL  $\geq 20$   $\mu\text{g}/\text{dL}$  or two BLLs of 15 – 19  $\mu\text{g}/\text{dL}$  taken at least 3 months apart. The EIBLL has been reduced 6 times since it was set at 60  $\mu\text{g}/\text{dL}$  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.
- § 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.
- \*\* From 2002 through 2006, lead poisoning has been found in children emigrating from the following countries, in descending order of frequency: Haiti, Mexico, Bangladesh, Pakistan, Dominican Republic, India, China, Liberia, Guyana, Guinea, Georgia, Jamaica, Ecuador, Guatemala, Albania, Nigeria, Sierra Leone, Senegal, Togo, United Kingdom, Yemen, Yugoslavia, Canada, Ghana, Israel, Ivory Coast, Mali, Morocco, Nepal, Suriname, Thailand, Trinidad and Tobago, Uzbekistan, Afghanistan, Cuba, Egypt, El Salvador, Gambia, Honduras, Mauritania, Peru, Angola, Burkina Faso, Burma, Republic of the Congo, France, Democratic People's Republic of Korea, Macau, Poland, Russia, Saint Kitts and Nevis and Saudi Arabia.
- †† The 10 neighborhoods were: Bedford Stuyvesant-Crown Heights, East Flatbush-Flatbush, Williamsburg-Bushwick, East New York and Borough Park in Brooklyn; Fordham-Bronx Park in the Bronx; Southwest Queens, Jamaica and West Queens in Queens; and Washington Heights-Inwood in Manhattan.
- ‡‡ The 8 neighborhoods were: Bedford Stuyvesant-Crown Heights, East Flatbush-Flatbush, Williamsburg-Bushwick, East New York and Borough Park in Brooklyn; Fordham-Bronx Park in the Bronx; Jamaica and West Queens in Queens.
- §§ Since August 2004, this includes children with BLLs of 10 – 14  $\mu\text{g}/\text{dL}$ . Previously, children with BLLs of 10 – 19  $\mu\text{g}/\text{dL}$  received these services.
- \*\*\* Gender was not confirmed for 828 adults because their BLL was less than 15  $\mu\text{g}/\text{dL}$ .
- ††† From 2001 through 2006 lead poisoning has been found in NYC pregnant women emigrating from the following countries, in descending order of frequency: Mexico, Bangladesh, India, Pakistan, Russia, Ecuador, Jamaica, Haiti, Georgia, Morocco, Dominican Republic, Guatemala, Guyana, China, Afghanistan, Dominica, El Salvador, Gambia, Germany, Ghana, Guinea, Honduras, Israel, Ivory Coast, Korea, Nepal, Sierra Leone and Trinidad and Tobago.

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## Acronyms Used in This Report

|               |  |
|---------------|--|
| <b>BLL</b>    | Blood Lead Level   |
| <b>EBLL</b>   | Elevated Blood Lead Level  |
| <b>EIBLL</b>  | Environmental Intervention Blood Lead Level                            |
| <b>EODE</b>   | Environmental and Occupational Disease and Epidemiology Program, DOHMH |
| <b>DOHMH</b>  | Department of Health and Mental Hygiene                                |
| <b>HEPA</b>   | High Efficiency Particulate Air  |
| <b>HPD</b>    | New York City Department of Housing Preservation and Development       |
| <b>HUD</b>    | United States Department of Housing and Urban Development              |
| <b>LPPP</b>   | Lead Poisoning Prevention Program, DOHMH                               |
| <b>MMCO</b>   | Medicaid Managed Care Organization                                     |
| <b>NYC</b>    | New York City  |
| <b>NHANES</b> | National Health and Nutrition Examination Survey                       |
| <b>WIC</b>    | Women, Infants, Children Education Nutritional Program                 |

**Table 1** - Numbers and rates of children tested for lead poisoning; children with elevated blood lead levels (EBLLs); and children with an environmental intervention blood lead level (EIBLL), 6 months to younger than 6 years, by borough and United Hospital Fund Neighborhood: New York City, 2006.

**Ages 6 months to younger than 6 years**

| United Hospital Fund Neighborhood            | (1) Tests <sup>(a)</sup> |                            |           | (2) EBLL <sup>(b)</sup>                   |                                     | (3) EIBLL <sup>(c)</sup> |                                      |             |             |
|--|--------------------------|----------------------------|-----------|---|-------------------------------------|--------------------------|--------------------------------------|-------------|-------------|
|  | Tested                   |                            |           | Newly identified $\geq 10 \mu\text{g/dL}$ |                                     | Newly identified EIBLL   |                                      |             |             |
|  | Number                   | Percent tested             |           | Number                                    | EBLL Rate (number per 1,000 tested) | Number                   | EIBLL Rate (number per 1,000 tested) | 95% CI      |             |
| Vital Records <sup>(d)</sup>                 |                          | Census 2000 <sup>(e)</sup> | Low       |   |                                     |                          |                                      | High        |             |
| <b>New York City total</b>                   | <b>314,440</b>           | <b>51</b>                  | <b>53</b> | <b>2,310</b>                              | <b>7.3</b>                          | <b>667</b>               | <b>2.12</b>                          | <b>1.96</b> | <b>2.29</b> |
| <i>NYC, unknown borough</i>                  | 114                      | —                          | —         | 0   | —                                   | 0                        | —                                    | —           | —           |
| <b>Bronx</b>                                 | <b>67,371</b>            | <b>58</b>                  | <b>55</b> | <b>403</b>                                | <b>6.0</b>                          | <b>110</b>               | <b>1.63</b>                          | <b>1.34</b> | <b>1.97</b> |
| <i>Bronx unknown or invalid ZIP code</i>     | 1,571                    | —                          | —         | 2   | —                                   | 0                        | —                                    | —           | —           |
| Crotona - Tremont                            | 11,771                   | 55                         | 53        | 81  | 6.9                                 | 13                       | 1.10                                 | 0.59        | 1.89        |
| Fordham - Bronx Park                         | 13,076                   | 55                         | 52        | 96  | 7.3                                 | 28                       | 2.14                                 | 1.42        | 3.09        |
| High Bridge - Morrisania                     | 11,987                   | 58                         | 60        | 73  | 6.1                                 | 19                       | 1.59                                 | 0.95        | 2.48        |
| Hunts Point - Mott Haven                     | 7,781                    | 60                         | 60        | 37  | 4.8                                 | 9                        | 1.16                                 | 0.53        | 2.20        |
| Kingsbridge - Riverdale                      | 2,930                    | 56                         | 51        | 20  | 6.8                                 | 8                        | 2.73                                 | 1.18        | 5.38        |
| Northeast Bronx                              | 6,821                    | 60                         | 49        | 32  | 4.7                                 | 18                       | 2.64                                 | 1.56        | 4.17        |
| Pelham - Throgs Neck                         | 11,434                   | 55                         | 49        | 62  | 5.4                                 | 15                       | 1.31                                 | 0.73        | 2.16        |
| <b>Brooklyn</b>                              | <b>103,897</b>           | <b>48</b>                  | <b>51</b> | <b>1,001</b>                              | <b>9.6</b>                          | <b>302</b>               | <b>2.91</b>                          | <b>2.59</b> | <b>3.25</b> |
| <i>Brooklyn unknown or invalid ZIP code</i>  | 2,822                    | —                          | —         | 2   | —                                   | 0                        | —                                    | —           | —           |
| Bedford Stuyvesant - Crown Heights           | 14,923                   | 53                         | 53        | 162                                       | 10.9                                | 65                       | 4.36                                 | 3.36        | 5.55        |
| Bensonhurst - Bay Ridge                      | 6,054                    | 46                         | 51        | 38  | 6.3                                 | 8                        | 1.32                                 | 0.57        | 2.60        |
| Borough Park                                 | 11,609                   | 33                         | 39        | 120                                       | 10.3                                | 36                       | 3.10                                 | 2.17        | 4.29        |
| Canarsie - Flatlands                         | 7,385                    | 54                         | 50        | 37  | 5.0                                 | 8                        | 1.08                                 | 0.47        | 2.13        |
| Coney Island - Sheepshead Bay                | 8,938                    | 47                         | 50        | 74  | 8.3                                 | 17                       | 1.90                                 | 1.11        | 3.05        |
| Downtown-Brooklyn Heights-Park Slope         | 6,431                    | 40                         | 47        | 63  | 9.8                                 | 14                       | 2.18                                 | 1.19        | 3.65        |
| East Flatbush - Flatbush                     | 13,713                   | 50                         | 51        | 136                                       | 9.9                                 | 46                       | 3.35                                 | 2.46        | 4.47        |
| East New York                                | 10,232                   | 62                         | 59        | 117                                       | 11.4                                | 30                       | 2.93                                 | 1.98        | 4.19        |
| Greenpoint                                   | 4,574                    | 36                         | 40        | 91  | 19.9                                | 18                       | 3.94                                 | 2.33        | 6.22        |
| Sunset Park                                  | 5,866                    | 39                         | 56        | 42  | 7.2                                 | 20                       | 3.41                                 | 2.08        | 5.27        |
| Williamsburg - Bushwick                      | 11,350                   | 57                         | 57        | 119                                       | 10.5                                | 40                       | 3.52                                 | 2.52        | 4.80        |
| <b>Manhattan</b>                             | <b>44,885</b>            | <b>41</b>                  | <b>55</b> | <b>315</b>                                | <b>7.0</b>                          | <b>57</b>                | <b>1.29</b>                          | <b>0.96</b> | <b>1.65</b> |
| <i>Manhattan unknown or invalid ZIP code</i> | 1,342                    | —                          | —         | 2   | —                                   | 0                        | —                                    | —           | —           |
| Central Harlem - Morningside Heights         | 6,214                    | 50                         | 54        | 41  | 6.6                                 | 11                       | 1.77                                 | 0.88        | 3.17        |
| Chelsea - Clinton                            | 2,200                    | 33                         | 63        | 21  | 9.5                                 | 2                        | 0.91                                 | 0.11        | 3.28        |
| East Harlem                                  | 4,897                    | 53                         | 57        | 22  | 4.5                                 | 3                        | 0.61                                 | 0.13        | 1.79        |
| Gramercy Park - Murray Hill                  | 1,940                    | 30                         | 56        | 19  | 9.8                                 | 3                        | 1.55                                 | 0.32        | 4.52        |
| Greenwich Village - SoHo                     | 1,455                    | 31                         | 52        | 22  | 15.1                                | 1                        | 0.69                                 | 0.02        | 3.83        |
| Lower Manhattan                              | 803                      | 30                         | 55        | 5   | 6.2                                 | 1                        | 1.25                                 | 0.03        | 6.94        |
| Union Square - Lower East Side               | 4,941                    | 36                         | 58        | 34  | 6.9                                 | 6                        | 1.21                                 | 0.45        | 2.64        |
| Upper East Side                              | 4,535                    | 29                         | 44        | 27  | 6.0                                 | 2                        | 0.44                                 | 0.05        | 1.59        |
| Upper West Side                              | 5,448                    | 34                         | 52        | 34  | 6.2                                 | 5                        | 0.92                                 | 0.30        | 2.14        |
| Washington Heights - Inwood                  | 11,110                   | 50                         | 54        | 88  | 7.9                                 | 23                       | 2.07                                 | 1.31        | 3.11        |

**Table 1 - Continued**

| United Hospital<br>Fund Neighborhood                 | (1) Tests <sup>(a)</sup> |                               |           | (2) EBLL <sup>(b)</sup>        |   | (3) EIBLL <sup>(c)</sup> |  |             |             |
|--|--------------------------|-------------------------------|-----------|--------------------------------|---|--------------------------|--|-------------|-------------|
|  | Tested                   |                               |           | Newly identified<br>≥ 10 µg/dL |   | Newly identified EIBLL   |  |             |             |
|  | Number                   | Percent tested                |           | Number                         | EBLL Rate<br>(number per<br>1,000 tested) | Number                   | EIBLL Rate<br>(number per<br>1,000 tested) | 95% CI      |             |
| Vital<br>Records <sup>(d)</sup>                      |                          | Census<br>2000 <sup>(e)</sup> | Low       |                                |   |                          |  | High        |             |
| <b>Queens</b>  | <b>82,652</b>            | <b>55</b>                     | <b>53</b> | <b>514</b>                     | <b>6.2</b>                                | <b>174</b>               | <b>2.11</b>                                | <b>1.80</b> | <b>2.44</b> |
| <i>Queens unknown or<br/>invalid ZIP code</i>        | 1,696                    | —                             | —         | 4                              | —   | 0                        | —  | —           | —           |
| Bayside - Little Neck                                | 1,867                    | 66                            | 38        | 3                              | 1.6                                       | 0                        | 0.00                                       | 0.00        | 0.00        |
| Flushing - Clearview                                 | 6,907                    | 51                            | 44        | 27                             | 3.9                                       | 9                        | 1.30                                       | 0.60        | 2.47        |
| Fresh Meadows  | 3,414                    | 57                            | 52        | 9                              | 2.6                                       | 2                        | 0.59                                       | 0.07        | 2.12        |
| Jamaica  | 12,165                   | 59                            | 55        | 94                             | 7.7                                       | 35                       | 2.88                                       | 2.00        | 4.00        |
| Long Island City - Astoria                           | 6,819                    | 49                            | 48        | 44                             | 6.5                                       | 21                       | 3.08                                       | 1.91        | 4.71        |
| Ridgewood - Forest Hills                             | 7,898                    | 51                            | 53        | 34                             | 4.3                                       | 7                        | 0.89                                       | 0.36        | 1.83        |
| Rockaway   | 4,513                    | 65                            | 49        | 33                             | 7.3                                       | 12                       | 2.66                                       | 1.37        | 4.64        |
| Southeast Queens                                     | 6,271                    | 63                            | 44        | 20                             | 3.2                                       | 7                        | 1.12                                       | 0.45        | 2.30        |
| Southwest Queens                                     | 10,216                   | 53                            | 49        | 93                             | 9.1                                       | 21                       | 2.06                                       | 1.27        | 3.14        |
| West Queens  | 20,886                   | 52                            | 61        | 153                            | 7.3                                       | 60                       | 2.87                                       | 2.19        | 3.70        |
| <b>Staten Island</b>                                 | <b>15,521</b>            | <b>49</b>                     | <b>47</b> | <b>77</b>                      | <b>5.0</b>                                | <b>24</b>                | <b>1.55</b>                                | <b>0.99</b> | <b>2.30</b> |
| <i>Staten Island unknown or<br/>invalid ZIP code</i> | 70                       | —                             | —         | 0                              | —   | 0                        | —  | —           | —           |
| Port Richmond  | 3,248                    | 57                            | 58        | 22                             | 6.8                                       | 7                        | 2.16                                       | 0.87        | 4.44        |
| South Beach - Tottenville                            | 5,096                    | 44                            | 39        | 12                             | 2.4                                       | 3                        | 0.59                                       | 0.12        | 1.72        |
| Stapleton - St. George                               | 4,690                    | 52                            | 54        | 39                             | 8.3                                       | 14                       | 2.99                                       | 1.63        | 5.01        |
| Willowbrook  | 2,417                    | 45                            | 42        | 4                              | 1.7                                       | 0                        | 0.00                                       | 0.00        | 0.00        |

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

(b) EBLL was defined as a venous, capillary or unspecified BLL ≥ 10 µg/dL.

(c) The EIBLL is defined as a venous BLL ≥ 15 µg/dL, consistent with Local Law 1 of 2004.

(d) In this column, population counts used as the denominator for percent of children tested were calculated by summing NYC births 2000-2006. Data were obtained from the NYCDOHMH Office of Vital Statistics.

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

**Table 2 - Profile of children newly identified with blood lead levels (BLLs) 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, 2006.**

|  | EIBLL                                       | 0 years - < 18 years        |               |  | 6 months - < 6 years        |               |  |
|--|---|-----------------------------|---------------|--|-----------------------------|---------------|--|
|  |   | Number EIBLL <sup>(1)</sup> | Percent EIBLL | EIBLL Rate <sup>(2)</sup><br>(number per 1,000 tested) | Number EIBLL <sup>(1)</sup> | Percent EIBLL | EIBLL Rate <sup>(2)</sup><br>(number per 1,000 tested) |
| <b>Total</b>   |   | <b>800</b>                  | <b>100.0%</b> | <b>2.0</b>   | <b>667</b>                  | <b>100.0%</b> | <b>2.1</b>   |
| <b>Age</b>   |   |                             |               |  |                             |               |  |
|  | Less than 6 months old                      | 17                          | 2.1%          | 11.7 <sup>(3)</sup>                                    | —                           | —             | —  |
|  | 6 months to less than 1 year old            | 38                          | 4.8%          | 1.4  | 38                          | 5.7%          | 1.4  |
|  | 1 year old                                  | 230                         | 28.8%         | 2.8  | 230                         | 34.5%         | 2.8  |
|  | 2 years old                                 | 201                         | 25.1%         | 2.9  | 201                         | 30.1%         | 2.9  |
|  | 3 years old                                 | 89                          | 11.1%         | 1.7  | 89                          | 13.3%         | 1.7  |
|  | 4 years old                                 | 62                          | 7.8%          | 1.2  | 62                          | 9.3%          | 1.2  |
|  | 5 years old                                 | 47                          | 5.9%          | 1.3  | 47                          | 7.0%          | 1.3  |
|  | 6 to less than 18 years old                 | 116                         | 14.5%         | 1.5  | —                           | —             | —  |
| <b>Gender</b>  |   |                             |               |  |                             |               |  |
|  | Female                                      | 344                         | 43.0%         | 1.8  | 287                         | 43.0%         | 1.9  |
|  | Male  | 456                         | 57.0%         | 2.3  | 380                         | 57.0%         | 2.4  |
| <b>Borough</b>   |   |                             |               |  |                             |               |  |
|  | Manhattan                                   | 66                          | 8.3%          | 1.2  | 57                          | 8.5%          | 1.3  |
|  | Bronx                                       | 140                         | 17.5%         | 1.6  | 110                         | 16.5%         | 1.6  |
|  | Brooklyn                                    | 353                         | 44.1%         | 2.7  | 302                         | 45.3%         | 2.9  |
|  | Queens                                      | 215                         | 26.9%         | 2.1  | 174                         | 26.1%         | 2.1  |
|  | Staten Island                               | 26                          | 3.3%          | 1.4  | 24                          | 3.6%          | 1.5  |
| <b>Race/ethnicity</b>  |   |                             |               |  |                             |               |  |
|  | Hispanic                                    | 301                         | 37.6%         |  | 235                         | 35.2%         |  |
|  | Non-Hispanic Black                          | 269                         | 33.6%         |  | 237                         | 35.5%         |  |
|  | Non-Hispanic White                          | 74                          | 9.3%          |  | 69                          | 10.3%         |  |
|  | Asian                                       | 139                         | 17.4%         |  | 110                         | 16.5%         |  |
|  | Other/Unknown                               | 17                          | 2.1%          |  | 16                          | 2.4%          |  |
| <b>Country of Birth</b>  |   |                             |               |  |                             |               |  |
|  | United States                               | 657                         | 82.1%         |  | 584                         | 87.6%         |  |
|  | Not United States                           | 142                         | 17.8%         |  | 82                          | 12.3%         |  |
|  | Unknown                                     | 1                           | 0.1%          |  | 1                           | 0.1%          |  |
| <b>Blood lead level at case assignment (µg/dL)</b>                           |   |                             |               |  |                             |               |  |
|  | 15 - 19                                     | 504                         | 63.0%         |  | 420                         | 63.0%         |  |
|  | 20 - 29                                     | 231                         | 28.9%         |  | 189                         | 28.3%         |  |
|  | 30 - 39                                     | 51                          | 6.4%          |  | 45                          | 6.7%          |  |
|  | 40 - 49                                     | 11                          | 1.4%          |  | 10                          | 1.5%          |  |
|  | 50 - 59                                     | 3                           | 0.4%          |  | 3                           | 0.4%          |  |
|  | 60 - 69                                     | 0                           | 0.0%          |  | 0                           | 0.0%          |  |
|  | 70+   | 0                           | 0.0%          |  | 0                           | 0.0%          |  |
| <b>Year primary residence was built</b>                                      |   |                             |               |  |                             |               |  |
|  | 1939 or earlier                             | 641                         | 80.1%         |  | 540                         | 81.0%         |  |
|  | 1940 - 1949                                 | 30                          | 3.8%          |  | 24                          | 3.6%          |  |
|  | 1950 - 1959                                 | 41                          | 5.1%          |  | 28                          | 4.2%          |  |
|  | 1960 - 1969                                 | 40                          | 5.0%          |  | 30                          | 4.5%          |  |
|  | 1970 - present                              | 42                          | 5.3%          |  | 40                          | 6.0%          |  |
|  | Unknown                                     | 6                           | 0.8%          |  | 5                           | 0.7%          |  |
| <b>Size of the building where the child resides</b>                          |   |                             |               |  |                             |               |  |
|  | Building has less than 3 dwelling units     | 289                         | 36.1%         |  | 247                         | 37.0%         |  |
|  | Building has 3 units or more dwelling units | 511                         | 63.9%         |  | 420                         | 63.0%         |  |
| <b>Lead-based paint hazard identified at child's residence<sup>(4)</sup></b> |   |                             |               |  |                             |               |  |
|  | No lead-based paint hazard identified       | 184                         | 23.0%         |  | 150                         | 22.5%         |  |
|  | Lead-based paint hazard was identified      | 616                         | 77.0%         |  | 517                         | 77.5%         |  |

(1) The EIBLL is defined as a venous BLL  $\geq 15$  µg/dL, consistent with Local Law 1 of 2004.

(2) 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.

(3) 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.

(4) This included the child's primary residence and secondary addresses where the child spent considerable periods of time. Hazards were identified by March 31, 2007.

**Table 3 -** Numbers and rates of children tested for lead poisoning; children with elevated blood lead levels (EBLLs); and children with an environmental intervention blood lead level (EIBLL), ages 0 to younger than 18 years, by borough and United Hospital Fund Neighborhood: New York City, 2006.

**Ages 0 months to younger than 18 years**

| United Hospital Fund Neighborhood            | (1) Tests <sup>(a)</sup> | (2) EBLL <sup>(b)</sup>                   |                                     | (3) EIBLL <sup>(c)</sup> |                                      |                    |             |
|--|--------------------------|---|-------------------------------------|--------------------------|--------------------------------------|--------------------|-------------|
|  | Tested                   | Newly identified BLL $\geq$ 10 $\mu$ g/dL |                                     | Newly identified EIBLL   |                                      |                    |             |
|  | Number                   | Number                                    | EBLL Rate (number per 1,000 tested) | Number                   | EIBLL Rate (number per 1,000 tested) | 95% CI<br>Low High |             |
| <b>New York City total</b>                   | <b>394,704</b>           | <b>2,722</b>                              | <b>6.9</b>                          | <b>800</b>               | <b>2.0</b>                           | <b>1.89</b>        | <b>2.17</b> |
| <i>NYC, unknown borough</i>                  | 193                      | 0   | —                                   | 0                        | —                                    | —                  | —           |
| <b>Bronx</b>                                 | <b>85,810</b>            | <b>474</b>                                | <b>5.5</b>                          | <b>140</b>               | <b>1.6</b>                           | <b>1.37</b>        | <b>1.93</b> |
| <i>Bronx unknown or invalid ZIP code</i>     | 2,108                    | 2   | —                                   | 0                        | —                                    | —                  | —           |
| Crotona - Tremont                            | 15,117                   | 92  | 6.1                                 | 18                       | 1.2                                  | 0.71               | 1.88        |
| Fordham - Bronx Park                         | 16,812                   | 117                                       | 7.0                                 | 40                       | 2.4                                  | 1.70               | 3.24        |
| High Bridge - Morrisania                     | 15,176                   | 85  | 5.6                                 | 24                       | 1.6                                  | 1.01               | 2.35        |
| Hunts Point - Mott Haven                     | 10,114                   | 45  | 4.4                                 | 13                       | 1.3                                  | 0.68               | 2.20        |
| Kingsbridge - Riverdale                      | 3,488                    | 23  | 6.6                                 | 9                        | 2.6                                  | 1.18               | 4.90        |
| Northeast Bronx                              | 8,559                    | 35  | 4.1                                 | 18                       | 2.1                                  | 1.25               | 3.32        |
| Pelham - Throgs Neck                         | 14,436                   | 75  | 5.2                                 | 18                       | 1.2                                  | 0.74               | 1.97        |
| <b>Brooklyn</b>                              | <b>132,255</b>           | <b>1,146</b>                              | <b>8.7</b>                          | <b>353</b>               | <b>2.7</b>                           | <b>2.40</b>        | <b>2.96</b> |
| <i>Brooklyn unknown or invalid ZIP code</i>  | 3,831                    | 3   | —                                   | 0                        | —                                    | —                  | —           |
| Bedford Stuyvesant - Crown Heights           | 20,234                   | 175                                       | 8.6                                 | 72                       | 3.6                                  | 2.78               | 4.48        |
| Bensonhurst - Bay Ridge                      | 7,148                    | 41  | 5.7                                 | 8                        | 1.1                                  | 0.48               | 2.21        |
| Borough Park                                 | 13,664                   | 145                                       | 10.6                                | 45                       | 3.3                                  | 2.40               | 4.41        |
| Canarsie - Flatlands                         | 9,431                    | 43  | 4.6                                 | 10                       | 1.1                                  | 0.51               | 1.95        |
| Coney Island - Sheepshead Bay                | 10,265                   | 79  | 7.7                                 | 19                       | 1.9                                  | 1.11               | 2.89        |
| Downtown - Brooklyn Heights - Park Slope     | 7,758                    | 67  | 8.6                                 | 15                       | 1.9                                  | 1.08               | 3.19        |
| East Flatbush - Flatbush                     | 17,232                   | 175                                       | 10.2                                | 59                       | 3.4                                  | 2.61               | 4.42        |
| East New York                                | 13,891                   | 138                                       | 9.9                                 | 38                       | 2.7                                  | 1.94               | 3.75        |
| Greenpoint                                   | 5,473                    | 98  | 17.9                                | 22                       | 4.0                                  | 2.52               | 6.09        |
| Sunset Park                                  | 7,106                    | 49  | 6.9                                 | 23                       | 3.2                                  | 2.05               | 4.86        |
| Williamsburg - Bushwick                      | 16,222                   | 133                                       | 8.2                                 | 42                       | 2.6                                  | 1.87               | 3.50        |
| <b>Manhattan</b>                             | <b>54,805</b>            | <b>360</b>                                | <b>6.6</b>                          | <b>66</b>                | <b>1.2</b>                           | <b>0.93</b>        | <b>1.53</b> |
| <i>Manhattan unknown or invalid ZIP code</i> | 1,697                    | 3   | —                                   | 0                        | —                                    | —                  | —           |
| Central Harlem - Morningside Heights         | 7,787                    | 49  | 6.3                                 | 11                       | 1.4                                  | 0.71               | 2.53        |
| Chelsea - Clinton                            | 2,591                    | 23  | 8.9                                 | 3                        | 1.2                                  | 0.24               | 3.38        |
| East Harlem                                  | 6,124                    | 32  | 5.2                                 | 6                        | 1.0                                  | 0.36               | 2.13        |
| Gramercy Park - Murray Hill                  | 2,118                    | 19  | 9.0                                 | 3                        | 1.4                                  | 0.29               | 4.14        |
| Greenwich Village - SoHo                     | 1,600                    | 22  | 13.8                                | 1                        | 0.6                                  | 0.02               | 3.48        |
| Lower Manhattan                              | 952                      | 6   | 6.3                                 | 1                        | 1.1                                  | 0.03               | 5.85        |
| Union Square - Lower East Side               | 5,831                    | 38  | 6.5                                 | 6                        | 1.0                                  | 0.38               | 2.24        |
| Upper East Side                              | 4,815                    | 29  | 6.0                                 | 2                        | 0.4                                  | 0.05               | 1.50        |
| Upper West Side                              | 6,017                    | 36  | 6.0                                 | 6                        | 1.0                                  | 0.37               | 2.17        |
| Washington Heights - Inwood                  | 15,273                   | 103                                       | 6.7                                 | 27                       | 1.8                                  | 1.17               | 2.57        |

**Table 3 - continued**

| United Hospital<br>Fund Neighborhood                 | (1) Tests <sup>(a)</sup> | (2) EBLL <sup>(b)</sup>            |   | (3) EIBLL <sup>(c)</sup> |  |                    |             |
|--|--------------------------|------------------------------------|---|--------------------------|--|--------------------|-------------|
|  | Tested                   | Newly identified<br>BLL ≥ 10 µg/dL |   | Newly identified EIBLL   |  |                    |             |
|  | Number                   | Number                             | EBLL Rate<br>(number per<br>1,000 tested) | Number                   | EIBLL Rate<br>(number per<br>1,000 tested) | 95% CI<br>Low High |             |
| <b>Queens</b>  | <b>103,153</b>           | <b>658</b>                         | <b>6.4</b>                                | <b>215</b>               | <b>2.1</b>                                 | <b>1.81</b>        | <b>2.38</b> |
| <i>Queens unknown or<br/>invalid ZIP code</i>        | 2,338                    | 6                                  | —   | 0                        | —  | —                  | —           |
| Bayside - Little Neck                                | 2,163                    | 3                                  | 1.4                                       | 0                        | 0.0  | 0.00               | 0.00        |
| Flushing - Clearview                                 | 8,115                    | 32                                 | 3.9                                       | 11                       | 1.4  | 0.68               | 2.43        |
| Fresh Meadows  | 3,947                    | 11                                 | 2.8                                       | 3                        | 0.8  | 0.16               | 2.22        |
| Jamaica  | 15,293                   | 111                                | 7.3                                       | 44                       | 2.9  | 2.09               | 3.86        |
| Long Island City - Astoria                           | 8,376                    | 59                                 | 7.0                                       | 22                       | 2.6  | 1.65               | 3.98        |
| Ridgewood - Forest Hills                             | 10,177                   | 43                                 | 4.2                                       | 10                       | 1.0  | 0.47               | 1.81        |
| Rockaway   | 5,563                    | 34                                 | 6.1                                       | 12                       | 2.2  | 1.11               | 3.77        |
| Southeast Queens                                     | 7,996                    | 25                                 | 3.1                                       | 8                        | 1.0  | 0.43               | 1.97        |
| Southwest Queens                                     | 12,969                   | 110                                | 8.5                                       | 23                       | 1.8  | 1.12               | 2.66        |
| West Queens  | 26,216                   | 224                                | 8.5                                       | 82                       | 3.1  | 2.49               | 3.88        |
| <b>Staten Island</b>                                 | <b>18,488</b>            | <b>84</b>                          | <b>4.5</b>                                | <b>26</b>                | <b>1.4</b>                                 | <b>0.92</b>        | <b>2.06</b> |
| <i>Staten Island unknown or<br/>invalid ZIP code</i> | 100                      | 0                                  | —   | 0                        | —  | —                  | —           |
| Port Richmond  | 4,068                    | 25                                 | 6.1                                       | 8                        | 2.0  | 0.85               | 3.87        |
| South Beach - Tottenville                            | 5,796                    | 14                                 | 2.4                                       | 3                        | 0.5  | 0.11               | 1.51        |
| Stapleton - St. George                               | 5,674                    | 41                                 | 7.2                                       | 15                       | 2.6  | 1.48               | 4.36        |
| Willowbrook  | 2,850                    | 4                                  | 1.4                                       | 0                        | 0.0  | 0.00               | 0.00        |

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

(b) EBLL was defined as a venous, capillary, or unspecified BLL ≥ 10 µg/dL.

(c) The EIBLL is defined as a venous BLL ≥ 15 µg/dL, consistent with Local Law 1 of 2004.

**Table 4 -** Blood lead levels (BLLs) for adults by gender, New York City, 2006.

| BLL (µg/dL)*            | Number        | Percent       |
|-------------------------|---------------|---------------|
| <b>Men</b>              |               |               |
| <10                     | 10,636        | 93.3%         |
| 10-24                   | 583           | 5.1%          |
| ≥ 25                    | 187           | 1.6%          |
| <b>Total</b>            | <b>11,406</b> | <b>100.0%</b> |
| <b>Women</b>            |               |               |
| < 10                    | 60,191        | 99.5%         |
| 10-14                   | 200           | 0.3%          |
| <b>Non-pregnant</b>     |               |               |
| ≥ 15                    | 47            | 0.1%          |
| <b>Pregnant</b>         |               |               |
| ≥ 15                    | 75            | 0.1%          |
| <b>Total</b>            | <b>60,513</b> | <b>100.0%</b> |
| <b>Unknown gender**</b> |               |               |
| < 10                    | 823           | 99.4%         |
| 10-14                   | 5             | 0.6%          |
| ≥ 15                    | 0             | 0.0%          |
| <b>Total</b>            | <b>828</b>    | <b>100.0%</b> |
| <b>Total</b>            |               |               |
| < 10                    | 71,650        | 98.5%         |
| ≥ 10                    | 1097          | 1.5%          |
| <b>Total</b>            | <b>72,747</b> | <b>100.0%</b> |

\* 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 receiving case coordination services, New York City, 2006.

|  | Number    | Percent     |
|--|-----------|-------------|
| <b>Total</b>                                     | <b>75</b> | <b>100%</b> |
| <b>Age at identification</b>                     |           |             |
| Under 20 years old                               | 9         | 12%         |
| 20-24 years old                                  | 24        | 32%         |
| 25-29 years old                                  | 22        | 29%         |
| 30-34 years old                                  | 16        | 21%         |
| 35+ years old                                    | 4         | 5%          |
| Mean 26 years                                    |           |             |
| Median 26 years                                  |           |             |
| Range 16-40 years                                |           |             |
| <b>Race/ethnicity</b>                            |           |             |
| Hispanic   | 54        | 72%         |
| Asian  | 17        | 23%         |
| Non-Hispanic Black                               | 4         | 5%          |
| Non-Hispanic White                               | 0         | 0%          |
| <b>Country of birth</b>                          |           |             |
| Mexico   | 51        | 68%         |
| Bangladesh                                       | 11        | 15%         |
| China  | 2         | 3%          |
| Ecuador  | 2         | 3%          |
| Other foreign countries*                         | 8         | 11%         |
| United States                                    | 1         | 1%          |
| <b>Length of time in U.S. (for foreign-born)</b> |           |             |
| < 1 year   | 19        | 26%         |
| 1-4 years  | 28        | 38%         |
| ≥ 5 years  | 27        | 36%         |
| Mean 4.3 years                                   |           |             |
| Median 2 years                                   |           |             |
| Range 1 month to 24 years                        |           |             |
| <b>Borough</b>                                   |           |             |
| Queens   | 37        | 49%         |
| Brooklyn   | 16        | 21%         |
| Bronx  | 15        | 20%         |
| Manhattan  | 6         | 8%          |
| Staten Island                                    | 1         | 1%          |

\* Includes women from Afghanistan, Dominica, Dominican Republic, Guatemala, Guinea, India, Jamaica and Pakistan.

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

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





## ***Call 311 for information.***

**Call 311 to:**

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



Department of Health and Mental Hygiene  
The City of New York

Michael R. Bloomberg  
Mayor

Thomas R. Frieden, M.D., M.P.H.  
Commissioner