

Childhood Asthma and the Asthma Counselor Program of the East Harlem Asthma Center of Excellence

Childhood asthma is a chronic illness characterized by inflammation and hyper-reactivity of the airways that can worsen when exposed to triggers such as pests, mold, pollen, cigarette smoke, and air pollution, and structural and psychosocial factors such as stress and violence.¹ Asthma symptoms include coughing, wheezing, and shortness of breath or chest tightness. Asthma is a leading cause of missed school days for children and results in missed work and wages for those caring for affected children. Asthma can lead to emergency department (ED) visits, hospitalizations, and even death; however, with proper treatment and resources, these are preventable. Effective asthma management requires care coordination with providers, controlling and avoiding triggers, managing symptoms, and proper use of medications.

Asthma disproportionately affects children of color and those in low-income neighborhoods.^{1,2} Disparities are likely due to factors such as differences in neighborhood housing quality, exposure to pests in the home, the psychosocial environment, and access to and quality of health care. Many of these relate to historical disinvestment in neighborhoods of color throughout New York City (NYC), including East Harlem.²

This brief provides an overview of racial/ethnic inequities in childhood asthma in NYC overall and between East Harlem and NYC, and data on the impact of the East Harlem Asthma Center of Excellence (EHACE) Asthma Counselor Program.

Neighborhood disinvestment:⁴

Neighborhood disinvestment is the systematic withdrawal of capital from neighborhoods as well as neglect of services, including: schools; building, street, and park maintenance; garbage collection; and transportation. Absentee landlordism and mortgage redlining also characterize disinvestment. These processes transform neighborhoods and uproot poor residents. This has happened systemically over decades in neighborhoods with primarily Black and Latino residents.

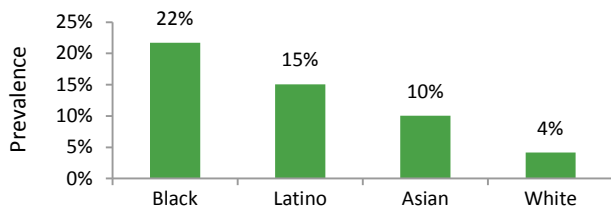
Neighborhood Health Action Centers:

To promote health equity and reduce health disparities at the neighborhood level, the Health Department established Neighborhood Health Action Centers in the South Bronx, East and Central Harlem, and North and Central Brooklyn in 2002. These centers reflect a concerted effort to reinvest in neighborhoods with the highest burden of poor health outcomes. The Neighborhood Health Action Centers (formerly called District Public Health Offices) work with community partners to improve local conditions for good health.

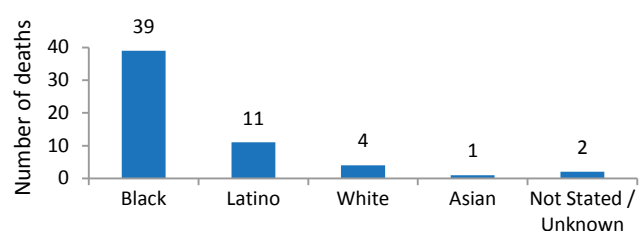
In New York City, children of color are disproportionately affected by asthma

- In 2015, 13% of NYC children aged 12 years and younger had ever been diagnosed with asthma.^A
- Black children were five times as likely and Latino* children were three times as likely as White children to have been diagnosed with asthma (22% and 15% vs. 4%).^A Asian children were twice as likely as White children to have been diagnosed with asthma (10% vs. 4%).
- Racial inequities are also evident in asthma-related deaths. In 2010-2014, of the 57 NYC children ages 1 to 14 years who died from asthma-related causes, 50 were Black or Latino.³

Prevalence of asthma among children ages 0 to 12 by race/ethnicity, New York City, 2015



Asthma-related deaths among children ages 1 to 14 by race/ethnicity, New York City, 2010-2014



White, Black, and Asian and Pacific Islander race categories exclude Latino ethnicity. Latino includes Hispanic or Latino of any race.

Sources: Child Health, Emotional Wellness and Development Survey (CHEWDS) 2015; New York City Department of Health and Mental Hygiene. Epiquery: NYC Interactive Health Data System - Death/Mortality Data 2010-14. [5/1/2017]. nyc.gov/health/epiquery

Children living in East Harlem experience high rates of asthma-related emergency department visits and hospitalizations^B

- In 2014, the asthma-related hospitalization rate was 2.2 times higher among children ages 0 to 17 years living in East Harlem versus those in the rest of NYC (99 vs. 44 per 10,000).
- The rate of asthma-related ED visits was 2.4 times higher among children in East Harlem versus those in the rest of NYC (620 vs. 255 per 10,000).

Characteristics of East Harlem

The East Harlem community district is a culturally rich and diverse neighborhood primarily comprised of Black (31%) and Latino (50%) residents. Thirty-one percent of residents live below the federal poverty level, compared with just 15% in the entire borough of Manhattan. Life expectancy is almost nine years shorter compared with the Upper East Side, an affluent, predominately White neighborhood bordering East Harlem to the south (76 years vs. 85 years). In 2011, 76% of renter-occupied homes in East Harlem had maintenance problems such as leaks, cracks and holes.⁵

Asthma-related hospitalizations among children ages 0 to 17 years residing in East Harlem vs. the rest of New York City, 2014

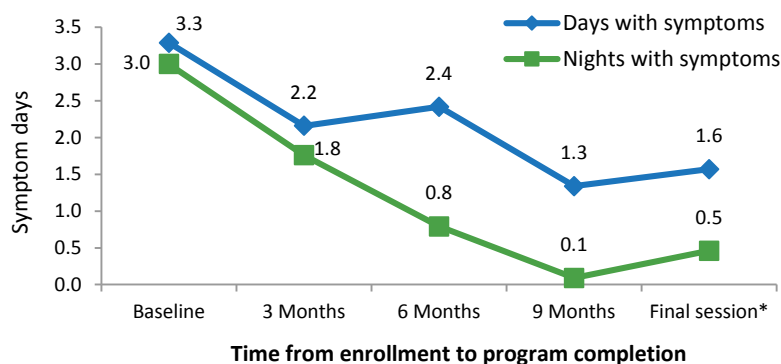


Data for East Harlem defined by United Hospital Fund (UHF 42) geography. UHF classifies NYC into 42 neighborhoods comprised of contiguous ZIP codes.
 Source: SPARCS 2014; NYC DOHMH population estimates, modified from US Census Bureau interpolated intercensal population estimates, vintage 2016. Updated August 2016

The East Harlem Asthma Center of Excellence promotes health equity by supporting families with children who have asthma^C

- More than 450 families graduated from the Asthma Counselor Program between 2008 and 2016.
- According to self-reported parent/ caregiver responses for the 45 children who graduated from the Asthma Counselor Program in 2016:
 - The average number of days children experienced coughing, wheezing, shortness of breath, or tightness in the chest in the past 14 days decreased from 3.3 days at baseline to 1.6 days at the final follow-up session.
 - In the past 30 days, the average number of nights that children experienced awakenings due to coughing, wheezing, shortness of breath or tightness in the chest decreased from 3 at baseline to 0.5 nights at the final follow-up session.

Self-reported day symptoms and nighttime awakenings among graduates of the East Harlem Asthma Center of Excellence – Asthma Counselor Program in 2016, New York City

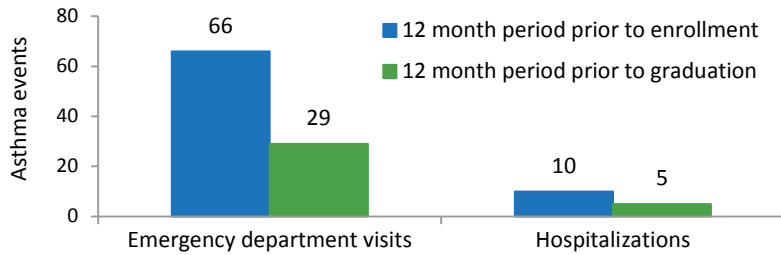


*Final session is typically 12 months after enrollment
 Source: EHACE Asthma Counselor Program data, 2016

The East Harlem Asthma Center of Excellence

Since 2008, the Asthma Counselor Program at EHACE has provided culturally and linguistically appropriate asthma counseling, including individual case management services, to more than 1,300 children and their families from East Harlem, as well as Central Harlem, the South Bronx, and other neighborhoods. The program serves children ages 0 to 17 and works with families for one year. Families graduate from the program with skills and knowledge to properly manage asthma symptoms. EHACE is part of the Harlem Neighborhood Health Action Center. For more information, search EHACE at www1.nyc.gov.

Asthma-related emergency department visits and hospitalizations among graduates of the East Harlem Asthma Center of Excellence – Asthma Counselor Program in 2016, New York City



N=45 program graduates

Source: EHACE Asthma Counselor Program data, 2016

- Among the 45 children who graduated from the Asthma Counselor Program in 2016, parents/caregivers reported:^C
 - The total number of asthma-related ED visits in the previous 12 months declined 56% from 66 at baseline to 29 at final follow-up.
 - The number of children having two or more asthma-related ED visits in the previous 12 months decreased from 16 at baseline to five at final follow-up.
 - The total number of asthma-related hospitalizations in the previous 12 months decreased from 10 at baseline to five at final follow-up.

Data Sources

A. Child Health, Emotional Wellness and Development Survey (CHEWDS) 2015 was a random digit dialed survey of approximately 3,000 NYC families with children ages 0 to 12 conducted by the Health Department. Respondents were individuals who were “sufficiently knowledgeable” about the child (85% biological parents).

B. Statewide Planning and Research Cooperative System (SPARCS) 2014: SPARCS is an administrative database of all hospital discharges reported by New York State (NYS) hospitals to the NYS Department of Health. Data are extracted based on the International Classification of Diseases -9th Revision Code (ICD-9CM) 493.XX for all children ages 0-17 years residing in East Harlem. Rates were calculated using NYC DOHMH intercensal population estimates, modified from US Census Bureau intercensal population estimates, 2010-2015, vintage 2016, updated August 2016.

C. East Harlem Asthma Center of Excellence (EHACE) 2008-2016:

The EHACE Asthma Counselor Program collects routine data on program participants including asthma management, asthma symptoms and asthma-related ED visits and hospitalizations. Data are collected at enrollment, then every three months until graduation (minimum one year).

***Latino:** For the purpose of this publication Latino includes persons of Hispanic or Latino origin, as identified by the survey question “Is [CHILD] Hispanic or Latino?” or based on ancestry reported on the death certificate, regardless of reported race. For mortality data, Latino excludes reported ancestry from non-Spanish speaking Central/South American countries, and non-Spanish speaking Caribbean islands. Black, White, Asian, and Other race categories do not include persons of Latino origin.

References

1. Wright RJ, Mitchell H, Visness CM, et al. Community violence and asthma morbidity: the Inner-City Asthma Study. *Am J Public Health*. 2004;94(4):625-632.
2. Beck AF, Moncrief T, Huang B, et al. Inequalities in neighborhood child asthma admission rates and underlying community characteristics in one US county. *J Pediatr*. 2013;163(2):574-580. e1.
3. New York City Department of Health and Mental Hygiene. Epiquery: NYC Interactive Health Data System. *Epiquery: NYC Interactive Health Data System - Death/Mortality Data 2010-14*. [5/1/2017]. nyc.gov/health/epiquery
4. Gibson KJ. Bleeding Albina: A History of Community Disinvestment, 1940-2000. *Transforming Anthropology*. 2007;15(1):3-25.
5. King L, Hinterland K, Dragan KL, et al. Community Health Profiles 2015, Manhattan Community District 11: East Harlem; 11(59): 1-16; and, Community Health Profiles 2015, Manhattan Community District 8: Upper East Side;8(59): p. 1-16.

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For more asthma data, information, and trends:

Visit the Environment and Health Data Portal at on.nyc.gov/dataportal and

EpiQuery – the Health Department’s interactive health data system at nyc.gov/health/EpiQuery

New York City Department of Health and Mental Hygiene





Epi Data Tables

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Data Tables

- Table 1.** Asthma-related hospitalizations among children in New York City by United Hospital Fund neighborhood, 2014
- Table 2.** Asthma-related emergency department visits among in New York City by United Hospital Fund neighborhood, 2014

Data Sources

SPARCS 2014: The Statewide Planning and Research Cooperative System (SPARCS) is an administrative database of inpatient and outpatient discharges reported by New York State (NYS) hospitals to the NYS Department of Health. Diagnoses are coded according to the International Statistical Classification of Diseases and Related Health Problems-9th Revision framework.



Table 1. Asthma-related hospitalizations in New York City by United Hospital Fund neighborhood,^ 2014

Source: New York Statewide Planning and Cooperative System, 2014; NYC DOHMH population estimates, modified from US Census Bureau interpolated intercensal population estimates, 2000-2015.

| UHF | Neighborhood | Ages 0-4 years | | Ages 5-17 years | | Ages 0-17 years | |
|-----|--------------------------------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | Count | Rate per 10,000 | Count | Rate per 10,000 | Count | Rate per 10,000 |
| 101 | Kingsbridge - Riverdale | 25 | 39.7 | 47 | 38.0 | 72 | 38.6 |
| 102 | Northeast Bronx | 138 | 115.8 | 188 | 59.4 | 326 | 74.8 |
| 103 | Fordham - Bronx Park | 303 | 143.3 | 350 | 73.8 | 653 | 95.2 |
| 104 | Pelham - Throgs Neck | 269 | 126.9 | 257 | 49.2 | 526 | 71.6 |
| 105 | Crotona - Tremont | 271 | 147.1 | 285 | 66.4 | 556 | 90.6 |
| 106 | High Bridge - Morrisania | 323 | 175.8 | 295 | 68.4 | 618 | 100.5 |
| 107 | Hunts Point - Mott Haven | 240 | 197.9 | 248 | 86.3 | 488 | 119.4 |
| 201 | Greenpoint | 25 | 21.6 | 22 | 11.0 | 47 | 14.9 |
| 202 | Downtown - Heights - Slope | 66 | 36.6 | 53 | 20.9 | 119 | 27.4 |
| 203 | Bedford Stuyvesant - Crown Heights | 296 | 128.7 | 302 | 59.7 | 598 | 81.2 |
| 204 | East New York | 178 | 117.3 | 193 | 52.5 | 371 | 71.5 |
| 205 | Sunset Park | 30 | 25.8 | 27 | 13.4 | 57 | 17.9 |
| 206 | Borough Park | 37 | 10.4 | 36 | 5.3 | 73 | 7.0 |
| 207 | East Flatbush - Flatbush | 231 | 114.7 | 231 | 50.1 | 462 | 69.8 |
| 208 | Canarsie - Flatlands | 89 | 73.2 | 81 | 25.4 | 170 | 38.6 |
| 209 | Bensonhurst - Bay Ridge | 17 | 11.8 | -- | -- | -- | -- |
| 210 | Coney Island - Sheepshead Bay | 44 | 22.9 | 42 | 9.8 | 86 | 13.9 |
| 211 | Williamsburg - Bushwick | 135 | 79.1 | 160 | 42.6 | 295 | 54.0 |
| 301 | Washington Heights - Inwood | 105 | 68.5 | 120 | 36.8 | 225 | 46.9 |
| 302 | Central Harlem - Morningside Heights | 112 | 108.6 | 123 | 54.9 | 235 | 71.8 |
| 303 | East Harlem | 129 | 173.2 | 112 | 66.0 | 241 | 98.7 |
| 304 | Upper West Side | 36 | 28.7 | 30 | 14.4 | 66 | 19.8 |
| 305 | Upper East Side | 18 | 14.9 | 24 | 11.7 | 42 | 12.9 |
| 306 | Chelsea - Clinton | 12 | 21.6 | 21 | 27.6 | 33 | 25.0 |
| 307 | Gramercy Park - Murray Hill | 14 | 28.5 | -- | -- | -- | -- |
| 308 | Greenwich Village - Soho | -- | -- | -- | -- | -- | -- |
| 309 | Union Square - Lower East Side | 26 | 32.1 | 32 | 19.0 | 58 | 23.2 |
| 310 | Lower Manhattan | -- | -- | -- | -- | -- | -- |
| 401 | Long Island City - Astoria | 17 | 14.2 | 49 | 20.8 | 66 | 18.6 |
| 402 | West Queens | 120 | 33.6 | 130 | 18.6 | 250 | 23.6 |
| 403 | Flushing - Clearview | 46 | 31.7 | 30 | 9.4 | 76 | 16.3 |
| 404 | Bayside - Little Neck | -- | -- | 13 | 10.3 | -- | -- |
| 405 | Ridgewood - Forest Hills | 65 | 40.4 | 46 | 14.3 | 111 | 23.0 |
| 406 | Fresh Meadows | 20 | 28.1 | 15 | 10.5 | 35 | 16.3 |
| 407 | Southwest Queens | 109 | 61.1 | 101 | 22.8 | 210 | 33.8 |
| 408 | Jamaica | 153 | 81.2 | 124 | 27.1 | 277 | 42.9 |
| 409 | Southeast Queens | 63 | 57.8 | 101 | 34.4 | 164 | 40.7 |
| 410 | Rockaway | 50 | 53.5 | 53 | 25.3 | 103 | 34.0 |
| 501 | Port Richmond | 24 | 45.4 | 40 | 28.0 | 64 | 32.7 |
| 502 | Stapleton - St. George | 36 | 47.6 | 46 | 22.9 | 82 | 29.7 |
| 503 | Willowbrook | 11 | 23.2 | -- | -- | -- | -- |
| 504 | South Beach - Tottenville | 21 | 20.9 | 20 | 6.7 | 41 | 10.3 |

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

-- Data suppressed due to small number of events.

Table 2. Asthma-related emergency department visits in New York City by United Hospital Fund neighborhood,^ 2014

Source: New York Statewide Planning and Cooperative System, 2014; NYC DOHMH population estimates, modified from US Census Bureau interpolated intercensal population estimates, 2000-2015.

| UHF | Neighborhood | Ages 0-4 years | | Ages 5-17 years | | Ages 0-17 years | |
|-----|--------------------------------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | Count | Rate per 10,000 | Count | Rate per 10,000 | Count | Rate per 10,000 |
| 101 | Kingsbridge - Riverdale | 137 | 217.6 | 267 | 215.9 | 404 | 216.5 |
| 102 | Northeast Bronx | 653 | 547.8 | 1175 | 371.2 | 1828 | 419.5 |
| 103 | Fordham - Bronx Park | 1561 | 738.1 | 2185 | 460.6 | 3746 | 546.2 |
| 104 | Pelham - Throgs Neck | 1070 | 504.8 | 1642 | 314.3 | 2712 | 369.3 |
| 105 | Crotona - Tremont | 1454 | 789.0 | 1964 | 457.6 | 3418 | 557.1 |
| 106 | High Bridge - Morrisania | 1594 | 867.5 | 2136 | 495.2 | 3730 | 606.4 |
| 107 | Hunts Point - Mott Haven | 1024 | 844.4 | 1481 | 515.2 | 2505 | 612.9 |
| 201 | Greenpoint | 111 | 95.9 | 167 | 83.8 | 278 | 88.2 |
| 202 | Downtown - Heights - Slope | 297 | 164.8 | 392 | 154.5 | 689 | 158.8 |
| 203 | Bedford Stuyvesant - Crown Heights | 1225 | 532.7 | 2076 | 410.2 | 3301 | 448.5 |
| 204 | East New York | 776 | 511.2 | 1371 | 373.3 | 2147 | 413.6 |
| 205 | Sunset Park | 113 | 97.1 | 213 | 105.5 | 326 | 102.4 |
| 206 | Borough Park | 211 | 59.2 | 286 | 42.1 | 497 | 48.0 |
| 207 | East Flatbush - Flatbush | 711 | 352.9 | 1155 | 250.6 | 1866 | 281.7 |
| 208 | Canarsie - Flatlands | 322 | 264.7 | 556 | 174.4 | 878 | 199.3 |
| 209 | Bensonhurst - Bay Ridge | 88 | 61.3 | 114 | 38.3 | 202 | 45.7 |
| 210 | Coney Island - Sheepshead Bay | 198 | 103.2 | 347 | 81.3 | 545 | 88.1 |
| 211 | Williamsburg - Bushwick | 844 | 494.8 | 1457 | 387.5 | 2301 | 421.0 |
| 301 | Washington Heights - Inwood | 571 | 372.7 | 873 | 267.6 | 1444 | 301.2 |
| 302 | Central Harlem - Morningside Heights | 671 | 650.7 | 1266 | 565.2 | 1937 | 592.1 |
| 303 | East Harlem | 544 | 730.6 | 970 | 571.7 | 1514 | 620.1 |
| 304 | Upper West Side | 206 | 164.2 | 334 | 160.1 | 540 | 161.6 |
| 305 | Upper East Side | 65 | 53.8 | 121 | 59.1 | 186 | 57.1 |
| 306 | Chelsea - Clinton | 63 | 113.3 | 107 | 140.6 | 170 | 129.0 |
| 307 | Gramercy Park - Murray Hill | 56 | 114.0 | 80 | 136.3 | 136 | 126.1 |
| 308 | Greenwich Village - Soho | 26 | 71.0 | 20 | 35.5 | 46 | 49.5 |
| 309 | Union Square - Lower East Side | 267 | 329.7 | 411 | 243.4 | 678 | 271.4 |
| 310 | Lower Manhattan | 26 | 67.9 | 68 | 167.2 | 94 | 119.1 |
| 401 | Long Island City - Astoria | 114 | 95.4 | 284 | 120.4 | 398 | 112.0 |
| 402 | West Queens | 547 | 153.4 | 836 | 119.3 | 1383 | 130.8 |
| 403 | Flushing - Clearview | 164 | 113.0 | 254 | 79.4 | 418 | 89.9 |
| 404 | Bayside - Little Neck | 18 | 39.6 | 44 | 34.8 | 62 | 36.1 |
| 405 | Ridgewood - Forest Hills | 243 | 151.2 | 335 | 104.0 | 578 | 119.7 |
| 406 | Fresh Meadows | 90 | 126.4 | 154 | 107.6 | 244 | 113.9 |
| 407 | Southwest Queens | 477 | 267.3 | 676 | 152.4 | 1153 | 185.3 |
| 408 | Jamaica | 762 | 404.3 | 902 | 197.4 | 1664 | 257.8 |
| 409 | Southeast Queens | 262 | 240.4 | 349 | 118.8 | 611 | 151.7 |
| 410 | Rockaway | 174 | 186.1 | 362 | 172.9 | 536 | 177.0 |
| 501 | Port Richmond | 137 | 259.2 | 309 | 216.3 | 446 | 227.9 |
| 502 | Stapleton - St. George | 152 | 201.0 | 320 | 159.3 | 472 | 170.7 |
| 503 | Willowbrook | 38 | 80.3 | 71 | 55.0 | 109 | 61.8 |
| 504 | South Beach - Tottenville | 66 | 65.7 | 152 | 51.0 | 218 | 54.7 |

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