

Asthma and Housing Quality in New York City

Asthma is a chronic disease that affects more than one million New Yorkers.^{1,2} Asthma attacks can result in missed school and work. Poor quality housing with persistent problems like cracks, holes, and water leaks can lead to pest infestations and mold. These conditions contribute to the development or worsening of asthma symptoms. Pollutants from unventilated gas stoves — particularly when used for heating homes — can also worsen symptoms.

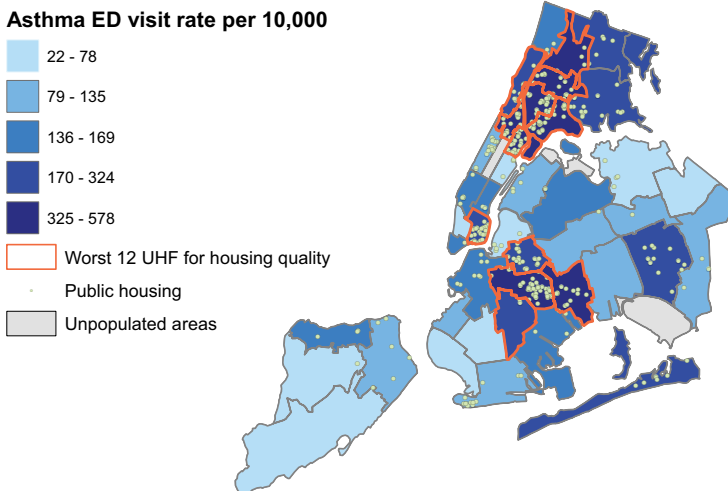
Historic and ongoing structural racism in the economy, particularly in the housing market, including systemic barriers to homeownership and disinvestment in

primarily Black and Latino/a communities, have contributed to persistent racial and ethnic disparities in both health and housing quality.^{3,4}

This report examines the relationship between housing quality and asthma. Page 3 discusses the work of the New York City Department of Health and Mental Hygiene’s (NYC DOHMH) Healthy Homes Program, which is aimed at reducing home health hazards for people with asthma. This report also provides recommendations for improving housing conditions, removing home asthma triggers, and increasing access to quality housing.

Neighborhoods with the worst housing quality have high rates of asthma-related emergency department visits

United Hospital Fund (UHF) neighborhoods* with the worst housing quality and asthma-related emergency department (ED) visits among children ages 5 to 17 years, New York City



- Nearly 700,000 NYC children from 1.2 million homes lived with at least one maintenance problem in 2017.^A
- The 12 neighborhoods with the highest prevalence of homes with maintenance problems were also among those with the highest rates of pediatric asthma-related ED visits.^{A,B}
- While these neighborhoods contain a large concentration of public housing, they continue to rank among the worst for housing quality even when public housing is excluded.
- These neighborhoods are largely concentrated in the Bronx, Central Brooklyn, and Northern Manhattan.

* UHF geography classifies NYC into 42 neighborhoods made up of contiguous ZIP codes that approximate Community Planning districts. For more information visit nyc.gov and search for "United Hospital Fund."

Sources: SPARCS 2016; NYC DOHMH population estimates updated 2016; NYC Housing and Vacancy Survey 2017

To read about the Health Department’s Asthma Counselor program available to children in East Harlem, visit nyc.gov/health and search for “EHACE”. For more information about disparities in asthma outcomes in NYC, see new [Epi Data Brief](#).

Housing-related asthma triggers are more common in rental housing

Housing quality indicators by housing type, New York City

| | All housing citywide % | Owner-occupied % | Other private rental % | Public/Section 8 % |
|----------------------------|------------------------|------------------|------------------------|--------------------|
| Maintenance problem | | | | |
| Any maintenance problem | 44% | 30% | 46% | 70% |
| Cracks/holes | 12% | 5% | 14% | 26% |
| Water leak | 13% | 8% | 14% | 27% |
| Supplemental heat | 13% | 7% | 14% | 26% |
| Pests/mold | | | | |
| Mice/rats | 19% | 10% | 21% | 37% |
| Cockroaches* | 24% | 11% | 26% | 53% |
| Mold** | 10% | 4% | 11% | 20% |

*Cockroach percentages reflect daily presence of any cockroaches.
 **Mold was assessed using a question about "musty or moldy smells."

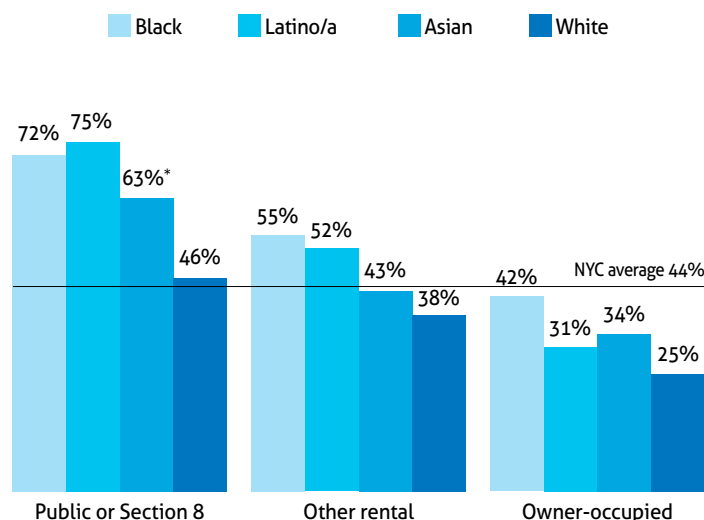
Source: NYC Housing and Vacancy Survey, 2014 (Mold) and 2017 (all other measures)

- In 2017, housing maintenance problems were more common in rental homes — particularly in public housing or homes participating in Section 8 — than in owner-occupied homes.^A Seventy percent of homes in public or Section 8 housing had at least one maintenance problem compared with 30% in owner-occupied housing.
- Leaks, cracks or holes in walls or floors and using supplemental heat were two to three times more common in rental homes than owner-occupied homes, and three to five times more common in public or Section 8 housing than in owner-occupied homes.
- Pests (e.g., cockroaches, mice and rats) are known asthma triggers. Pests were more than twice as common in rental homes, and almost four to five times more common in public or Section 8 housing than in owner-occupied homes. Mold was less common than pests, but followed a similar pattern.

Black and Latino/a New Yorkers have limited access to quality housing and higher rates of asthma compared with Asian and White New Yorkers

- In 2017, Black and Latino families in public or Section 8 housing were more likely to have maintenance problems than White families. Among families who owned their homes, this racial inequity persisted, but was reduced.^A
- White families in public housing tend to reside in neighborhoods that have fewer housing problems overall. For example, only 29% to 33% of all housing in Bay Ridge, Borough Park, and Bensonhurst in Brooklyn had maintenance problems, compared with 44% citywide. In these neighborhoods more than four out of five (83%*) families in public/Section 8 housing were White, compared with only 11%* of families in public/Section 8 housing overall. Citywide, more than 80% of families in public/Section 8 housing in 2017 were Black or Latino/a.^A
- In 2017, adult asthma prevalence rates showed similar racial inequities in public/Section 8 housing (Black: 26%, Latino: 25%, White: 11%*) that remain but were lower among families who owned their homes (Black: 15%, Latino: 15%, White: 9%).^C

Percentage of homes with maintenance problems by housing type and race/ethnicity, New York City, 2017



Latino/a includes Hispanic or Latino/a people of any race. White, Black, and Asian race categories exclude Latino/a ethnicity.

Source: NYC Housing and Vacancy Survey 2017

* Estimate should be interpreted with caution. Estimate's Relative Standard Error (a measure of estimate precision) is greater than 30%, or the 95% Confidence Interval half-width is greater than 10 or the sample size is too small, making the estimate potentially unreliable.

New York City's home-based intervention programs reduce asthma symptoms[^]

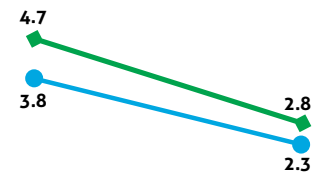
The Health Department's Healthy Homes Program (HHP) has provided free home environmental assessments to children with asthma since 2015. The availability of these assessments has been expanded under Local Law 55 of 2018 to include people of all ages with asthma.

- From June 2016 through December 2019, nearly 900 people received free home assessments.^D
- Fifty-six percent of those receiving free home assessments lived with a household member who also had asthma.
- Of the 173 homes that received an initial and follow up visit, more than three-quarters had improved pest conditions after three to six months.
- Among the 103 people evaluated for daytime asthma symptoms, daytime symptoms were reduced by nearly 40%, from an average of 3.8 days with symptoms in the past month to 2.3 days after three to six months.
- Among the 97 people evaluated for nighttime asthma symptoms, nighttime symptoms were reduced by 40%, from an average of 4.7 nights with symptoms in the past month to 2.8 nights after three to six months.

Reduction in asthma symptoms among Healthy Homes Program participants, New York City

Average number of days/nights with asthma symptoms in past month

● Daytime ● Nighttime



Initial visit

3 to 6 month follow-up visit

Source: NYC Healthy Homes Program, 2017-2019

[^]These findings are for clients referred to the Health Department's interventions for their moderate to severe asthma symptoms. While their decrease in symptoms could be due to something other than the intervention they all received, research^{5,6} has shown that removing pest and mold allergens improves asthma symptoms, supporting the City's asthma and housing regulations and programs.

NYC's **Local Law 55 of 2018**, effective 2019, requires landlords of private buildings with three or more apartments — or buildings of any type or size where a tenant has asthma — to identify and safely remove indoor allergens such as pests or mold, and repair the building conditions that may cause them. The law allows for free home assessments for people with diagnosed persistent moderate or severe asthma and pests or mold in the home. HHP assesses homes for pests, mold and conditions that result in pests and mold (water leaks, holes and other points of entry). If a problem is found, the landlord is ordered to fix it. Healthcare providers are encouraged to send a patient referral to the Health Department so their asthma patients can receive this service (see last page for instructions).

Definitions: **Asthma** prevalence is defined by asking "have you ever been told by a doctor, nurse or other health professional that you had asthma?" **Maintenance problem** includes any reported cracks or holes in interior walls, breakdown of heat for six or more hours or use of additional heat sources in the past winter, water leaks in the past 12 months, broken plaster or peeling paint on ceiling or inside walls, toilet breakdown for six or more hours in the past three months, or presence of rodents in building in the past 90 days as reported in the NYC Housing and Vacancy Survey. **Supplemental heat** is defined as having to use "additional sources of heat because your regular system did not provide enough heat. Additional sources may be the kitchen stove, a fireplace, or a portable heater." In NYC, **public housing** is managed by the New York City Housing Authority (NYCHA). **Section 8** is the housing choice voucher program that provides rental subsidies to low and moderate-income families in participating private housing. **Other private rental** housing includes market rate and rent controlled or rent stabilized rental housing, but not Section 8 housing.

Data Sources: ^A **New York City Housing and Vacancy Survey (HVS)** is an in-person survey sponsored by the New York City Department of Housing Preservation and Development and conducted every three years. The 2017 HVS is based on a sample of housing units from the 2010 US Census plus units that have been added to the housing supply since then. Sample size of occupied units was approximately 13,000 in 2017.

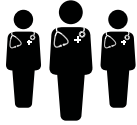
^B **Statewide Planning and Research Cooperative System (SPARCS) 2016** is an administrative database of all hospital discharges reported by New York State (NYS) hospitals to the NYS Department of Health. Data are extracted based on the International Classification of Diseases - 10th Revision Code (ICD-10CM) J45. Rates were calculated using New York City Health Department intercensal population estimates, modified from US Census Bureau intercensal population estimates, 2010-2015, vintage 2015. Updated August 2016.

^C **Community Health Survey (CHS) 2017** is conducted annually by the Health Department with approximately 10,000 noninstitutionalized adults ages 18 and older. Estimates are age-adjusted to the US 2000 standard population. The CHS has included adults with landline phones since 2002 and, starting in 2009, has included adults who can be reached by cell phone. For more survey details, visit nyc.gov/health/survey.

^D **NYC Healthy Homes Program** initial home assessments are conducted upon referral by a provider, and a follow-up visit is also conducted to ensure work has been properly completed. The program collects data on environmental conditions and asthma symptoms for the referred person and up to three other people with asthma in the household. Due to a change in wording of the questions about symptoms starting in October 2017, the symptom analysis shown is only for people who received a follow-up visit from October 2017 through December 2019 and reported any symptoms in the four weeks prior to the initial visit (Day: N=103; Night: N=97).

For more New York City health data and publications, visit nyc.gov/health/data

Recommendations



Health care providers and community health workers should:

- Talk to patients about **environmental triggers** in the home and include a home environmental **checklist** as part of all well-child visits and asthma-related home visits.
- Teach parents and caregivers of children with asthma how to properly administer medication.
- Provide a signed **Medication Administration Form (MAF)** for school-age children with uncontrolled asthma and adherence problems so they can receive controller medication in school.
- Refer eligible asthma patients for a free environmental home assessment using the **Citywide Immunization Registry (CIR)** or by faxing a **referral form**, or calling 646-632-6085 to have Health Department staff help you submit the form.
- Encourage patients and families to report housing maintenance problems (e.g., pests, mold, water leaks, holes, cracks) to their landlord. Tenants with asthma have the legal right to report unhealthy housing conditions by calling **311** if their landlord does not fix the problem.



Building owners and landlords should:

- **Keep buildings pest- and mold-free** by fixing leaks, improving garbage management, and sealing cracks and holes.
- Hire a reputable and licensed pest management professional and work with them to **identify and fix building conditions** that lead to pests. Require the use of reduced-risk pesticides (e.g., baits, gels) when managing pests.
- Use best practices that can improve residents' health when developing or updating buildings. If you receive NYC Housing Preservation and Development (HPD) funding, **register for the Healthy Homes NYC training**.
- Visit **HPD's Home Repair Loans** web page for information about financial assistance options.
- Make housing smoke free. Visit nyc.gov/health and search "smoke-free housing."



Parents and caregivers of children with asthma and adults with asthma should:

- Have a plan to control asthma and visit a health care provider regularly even if the person with asthma is feeling well. A health care provider can order in-school controller medication to help children control their asthma. For more information, visit nyc.gov/health and search for "asthma control."
- Immediately report home maintenance issues to landlords. Call 311 if the issues are not fixed.
- Ask a health care provider for a **free environmental home assessment** referral if there are pests (e.g., rodents, cockroaches) or mold in the home.
- Connect with a local community organization for additional support, such as social and legal resources or services. Call 311 to ask for the nearest housing advocacy or community justice center.



Policymakers and community advocates should

- Promote managed care reimbursement for asthma home-based services as part of healthcare delivery among Medicaid and other health insurers.
- Incentivize landlords to provide affordable and healthy housing units, particularly in the Bronx, Northern Manhattan and Central Brooklyn to reduce disparities in these areas.
- Support funding for affordable housing initiatives to rehabilitate old housing, including public housing.

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