

Racial Inequities in COVID-19 Hospitalizations During the Omicron Wave in NYC

Executive summary

The mission of the NYC Department of Health and Mental Hygiene is to protect and promote the health of all New Yorkers. During the COVID-19 pandemic, we have been particularly focused on understanding and addressing racial inequities that have led to particularly high rates of death and suffering in certain groups, such as Black New Yorkers. This builds on our broader approach to dismantling structural racism (the system of structures, institutions and policies that work together to advantage White people and disadvantage people of color) and the ways it leads to poor health.¹

We recently put out a report on the omicron surge.² As part of this work, we identified a concerning trend: During the omicron surge, the COVID-19 hospitalization rate was more than two times greater among Black New Yorkers compared to White New Yorkers. Understanding why the dramatic inequities experienced by Black New Yorkers throughout the COVID-19 pandemic became worse during this most recent surge requires a deeper analysis and cannot be explained by simple factors. This white paper traces the cascade of factors that ultimately result in these inequities and lays out a roadmap for action.

While we focus here specifically on anti-Black structural racism, we acknowledge that many other intersectional forms of oppression — for example, ageism, sexism, homophobia, xenophobia and transphobia — compound the inequities we describe here. Additionally, we acknowledge that there have been substantial misclassifications of ethnicity, particularly among Hispanic and Latino/a populations, which may obscure some of the differences.³ We felt it was essential to explore the high rate of hospitalization of Black New Yorkers in greater depth and in close proximity to the omicron wave.

Key analyses and observations

- Anti-Black structural racism drives health inequities (differences in health outcomes among groups that are rooted in social and structural injustices that are avoidable and unfair) through a cascade of factors (Figure 1) and has manifestations warranting dedicated analysis and response. We explore the ways in which structural racism may have contributed to a COVID-19 hospitalization rate more than two times greater among Black New Yorkers compared to White New Yorkers (Figure 7).
- We must first consider the factors that have led to increased rates of Sars-CoV-2 Infection, such as access to safe community and work environments. Since the start of the pandemic, Black and Latino/a New Yorkers, and those in high poverty neighborhoods have been less able to work from home (Figure 2). This has led to increased COVID-19 exposure among these groups but does not fully explain the worsening inequities seen during omicron.
- We must next consider the factors that have led to increased rates of COVID-19 progression once infected. COVID-19 vaccines play a central role in preventing infection and particularly in preventing serious illness. We observed delays in primary series vaccination among Black New Yorkers (Figure 3) and lower rates of booster doses among eligible Black New Yorkers by winter 2021 when the omicron surge began (Figure 4).

- In addition, we observed longer delays to diagnosis among Black New Yorkers and residents of the least privileged census tracts even before the omicron surge (Figure 6). These extended times from COVID-19 symptom onset to diagnosis are driven in part by structural barriers such as decreased access to COVID-19 testing or time off work to seek testing, and likely contribute to delays in seeking and accessing care.
- We must next consider the factors that have led to increased rates of hospitalization. Inequities in access to effective outpatient COVID-19 treatment can lead to missed opportunities to prevent severe COVID-19 infection and hospitalization. Before omicron, national data showed that Black Americans were less likely than White Americans to receive life-saving COVID-19 treatments such as monoclonal antibodies (Figure 6).
- In NYC during the omicron surge, COVID-19 hospitalizations were disproportionately higher among Black New Yorkers (Figure 7) and in neighborhoods with a high percentage of Black residents (Figure 8).
- Finally, we must consider the factors that can lead to increased rates of morbidity and mortality. Even before the pandemic, anti-Black structural racism led to a four-year lower life expectancy among Black New Yorkers (Figure 9). This trend is due to a host of social, structural, and downstream factors. These in turn lead to higher rates of chronic disease from diabetes to cardiovascular disease and cancer, decreased access to health care and under-resourced safety net hospitals, and other inequities. These same factors put Black New Yorkers at greater risk of severe COVID-19 illness and unfair outcomes once experiencing severe infection.
- The Health Department prioritizes racial equity data analyses such as these to identify and address the issues creating health inequities. Low data quality on the race, ethnicity, and economic status of New Yorkers and missingness of data hampers our ability to describe and understand the specific elements of structural racism that need to be addressed to eliminate racial inequities, particularly in the health care setting.

While the drivers of health inequities are complex and rooted in centuries of structural racism and disinvestment, the Health Department is committed to identifying solutions to protect and promote health today while also building long-term strategies to address structural factors. This work must be done in collaboration with the health care community, community-based organizations, and our partner city agencies.

To date, the City's targeted Vaccine Equity Strategy,⁴ which prioritized marginalized communities, helped close the racial gap in COVID-19 vaccination rates in combination with New York City's vaccine policies (Figure 10). While more work is needed, this demonstrates the success and importance of community- and equity-based approaches.

We call on our partners to take additional concrete actions under a shared vision of reducing racial health inequities in the COVID-19 pandemic and beyond. These actions encompass investment in priority neighborhoods; improved access to care, including vaccination and COVID-19 treatments; and community engagement with cultural humility.

1. Anti-Black structural racism drives COVID-19 inequities.

To effectively address these worsening racial health inequities, we must investigate and dismantle the structural racism which leads to harmful policies, programs and systems that impact health. Structural racism, specifically anti-Black racism, can be defined as “racial bias across institutions and society” and has taken an extraordinary toll on the health of Black New Yorkers over the past several centuries and decades, and during the last two years of the COVID-19 pandemic.⁵ In recognition of this, on October 18, 2021, the NYC Board of Health passed a resolution declaring racism a public health crisis and laid out a plan of action that the NYC Health Department is now proactively operationalizing.⁶

Building off the work of the Health Department’s Race to Justice Initiative, we propose using the framework of a “COVID-19 prevention cascade” to map out the drivers of racial inequities and provide a roadmap for tackling COVID-19 racial health inequities in our city and beyond.

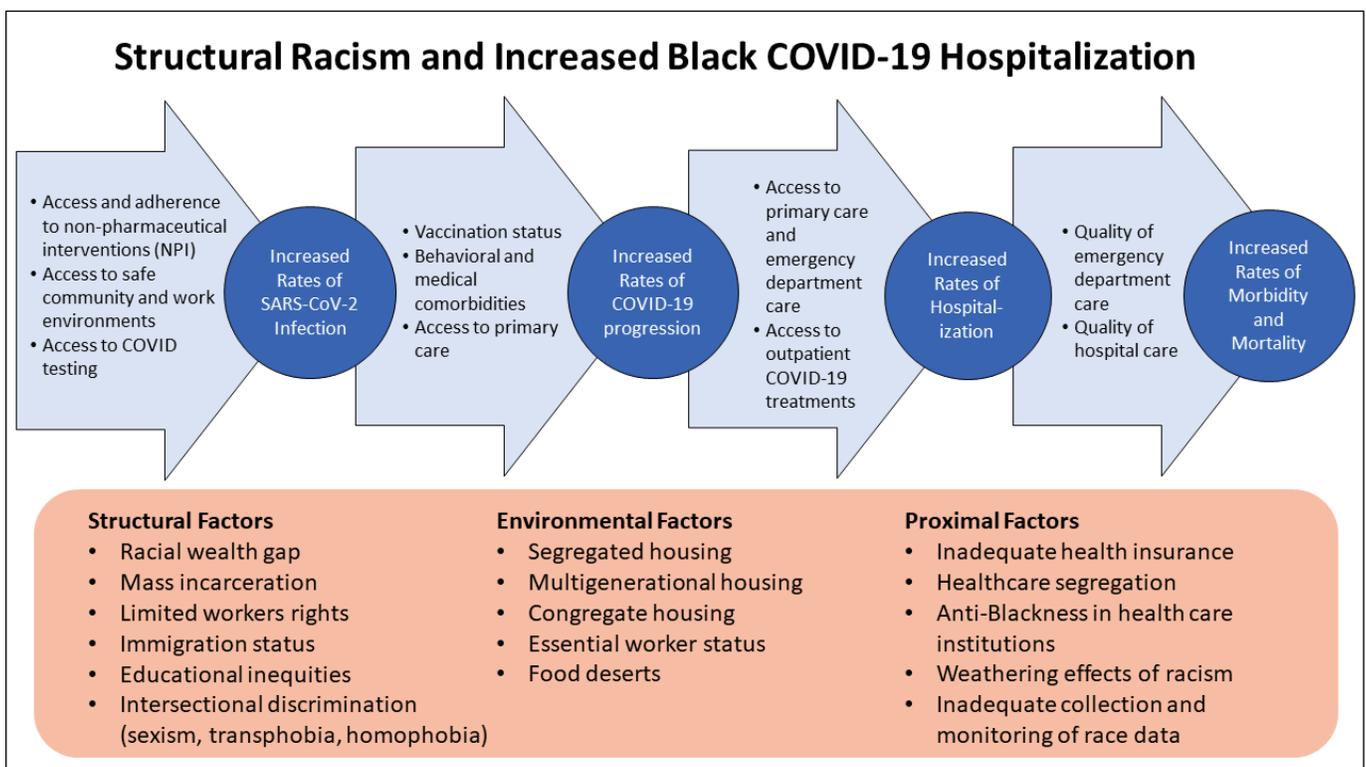
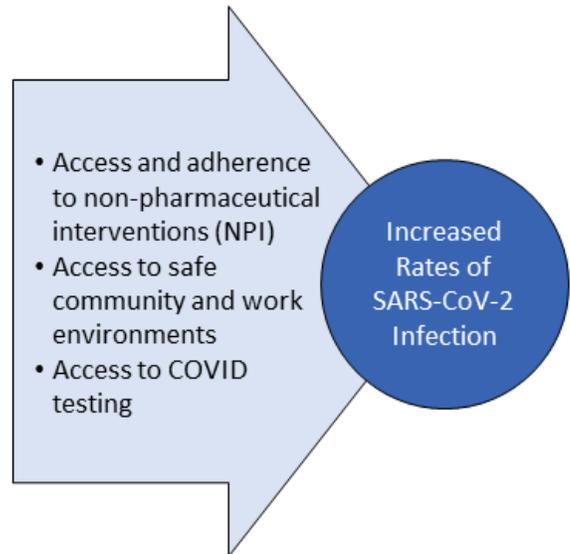


Figure 1. Structural racism cascade of injustice leads to increased COVID-19 hospitalizations among Black people.

2. Since the start of the pandemic, Black and Latino New Yorkers, and those in high poverty neighborhoods have been less likely to work from home.

Starting at the most upstream point in the COVID-19 cascade model requires looking at risk factors for COVID-19 exposure. Early in the pandemic the Health Department led efforts to quantify risk of COVID-19 exposure by race, ethnicity and income level.⁷ Black and Latino New Yorkers, and those in high-poverty neighborhoods, were more likely to experience financial hardship and not have access to work-from-home arrangements. Residence in multi-generational homes without adequate space for quarantine and isolation also contributed to inequities in exposure.⁸



These structural factors led to greater exposure to the virus and higher rates of infection in these communities and neighborhoods. We emphasize, however, that we do not yet have data on exposures related to omicron. Additionally, exposures will not fully explain why the Black hospitalization inequity increased more than all other races/ethnicities during the omicron wave. The highest case rates during Omicron were seen among Latino New Yorkers who also saw higher rates of hospitalization although not at the rates experienced by Black New Yorkers, suggesting that additional factors were at play.

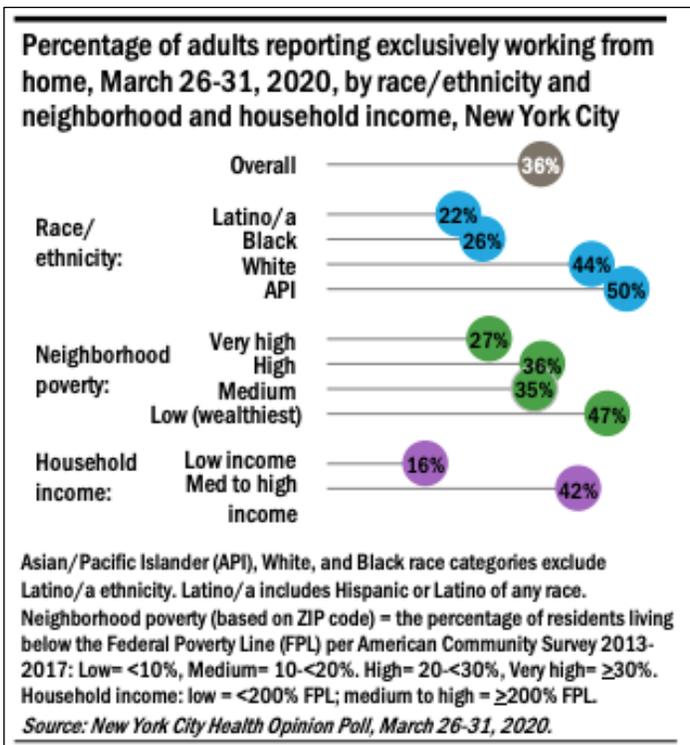


Figure 2. Demographics of adults exclusively working from home and using public transportation.

3. Inequities in COVID-19 primary vaccination series and additional doses may have made Black New Yorkers more vulnerable to COVID-19 during the omicron surge.

In addition to higher risk of exposure, Black New Yorkers were also more susceptible to omicron due to inequities in vaccination coverage during the winter surge. Throughout the NYC vaccination campaign we have observed delays in primary series vaccination among Black New Yorkers (Figure 3). We also observed lower rates of additional or booster doses among Black New Yorkers by winter 2021 (Figure 4) in part because fewer had completed their primary vaccination to be eligible for an additional dose.

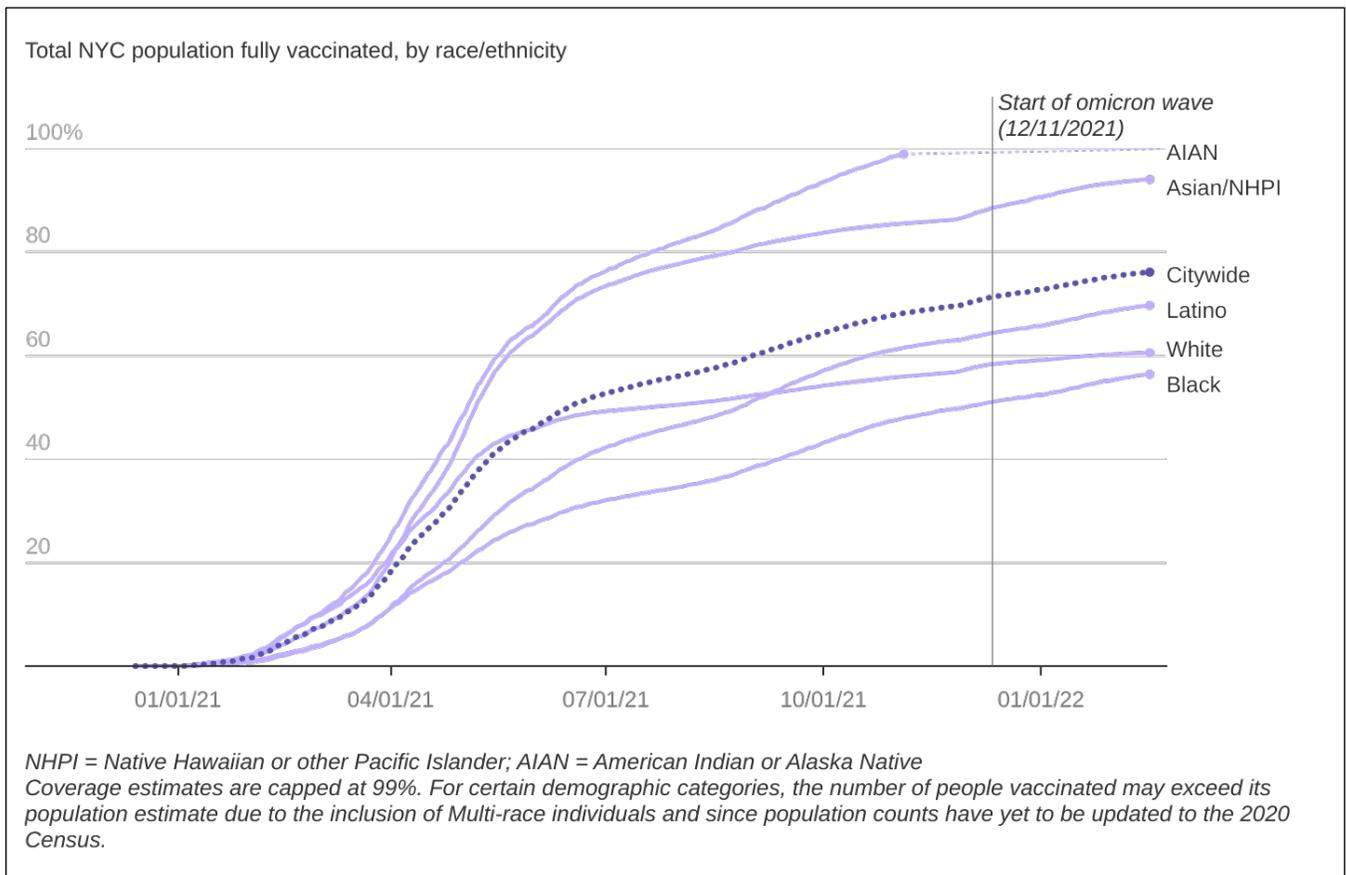
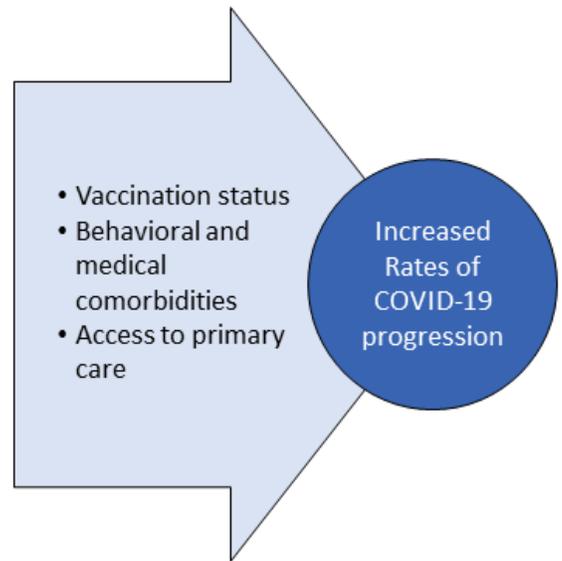


Figure 3. NYC rates of primary COVID-19 vaccine series coverage by race/ethnicity by time of omicron wave (December 2021).

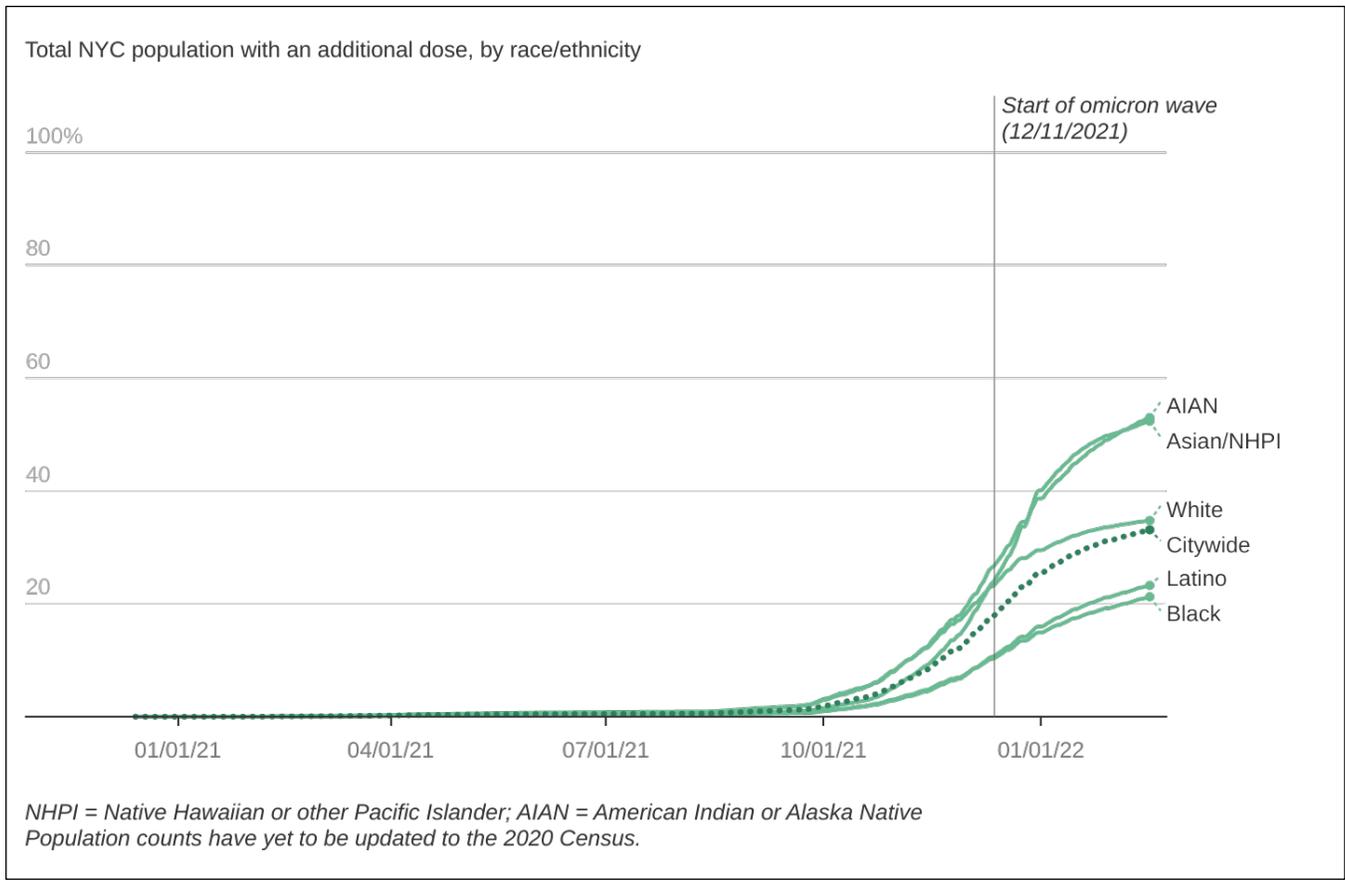


Figure 4. NYC rates of additional dose COVID-19 vaccine coverage by race/ethnicity by time of omicron wave (December 2021).

4. Longer delays in diagnosis of COVID-19 infection have been observed among residents of the least privileged census tracts and among Black New Yorkers.

Appropriate isolation and early treatment of COVID-19 infection to avoid progression require timely diagnosis and access to care. While specific data are not available for the omicron wave, we observed extended diagnostic delays among Black New Yorkers and residents of the least privileged census tracts for patients whose symptoms began during October 1, 2020 to October 31, 2021 (figure 5). For 1 out of 4 Black New Yorkers and residents of the least privileged census tracts, it took 5 or more days to get diagnosed. In comparison, 1 out of 4 other New Yorkers took 4 or more days to get diagnosed. These extended times from COVID-19 symptom onset to diagnosis are driven in part by structural barriers such as decreased access to COVID-19 testing or time off work to seek testing. Diagnostic delays likely contribute to delays in seeking and accessing treatment, from primary care to help manage symptoms in the community to antiviral therapies to prevent progression of disease. In NYC, our Test and Trace initiative has aimed to decrease these inequitable delays in diagnosis by increasing COVID-19 testing resources in low-income neighborhoods.⁹

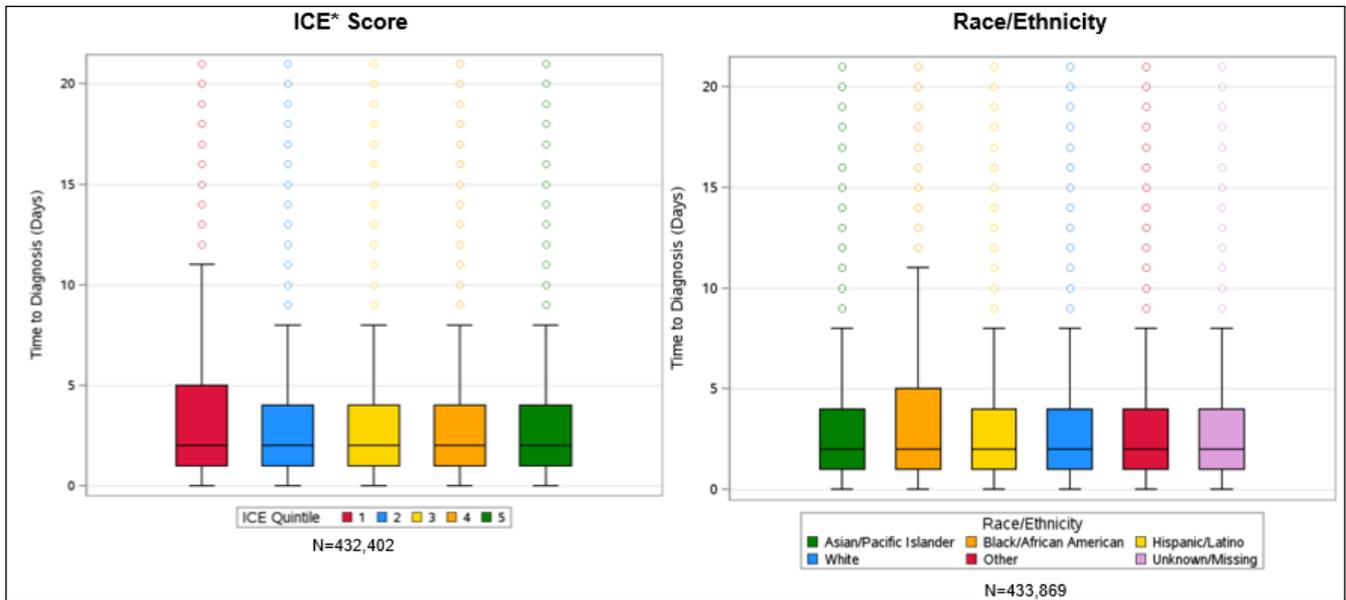
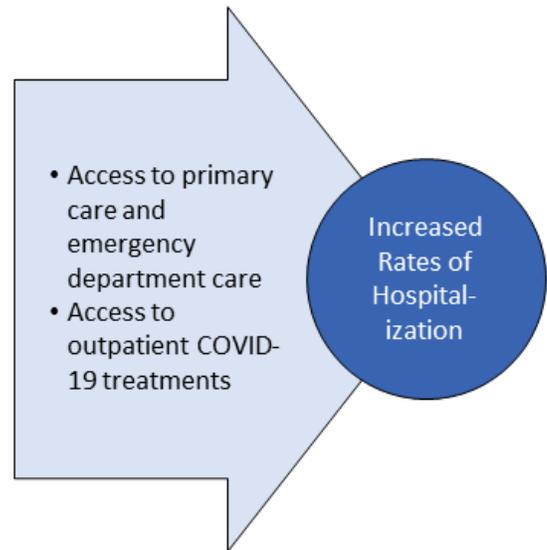


Figure 5. Days from onset of COVID-19 symptoms to diagnosis by ICE score and by race/ethnicity among patients with symptom onset dates during October 1, 2020 to October 31, 2021.

Note: ICE (Index of Concentration at the Extremes) quintiles are ordered from least privileged (1) to most privileged (5).

5. Nationally, Black Americans are less likely to receive monoclonal antibodies to treat COVID-19 than White Americans.

Inequities in access to effective outpatient COVID-19 treatment can lead to missed opportunities to prevent severe COVID-19 infection and hospitalization. The Centers for Disease Control and Prevention (CDC) reported that Black Americans have been 22% less likely than White Americans to receive monoclonal antibody treatment for COVID-19 (Figure 6)¹⁰ which pre-omicron was shown to decrease risk of hospitalization by up to 85%.¹¹ Notable disparities were seen between Hispanic and non-Hispanic populations as well.



Improved and equitable access to monoclonal antibodies and antiviral agents, such as Paxlovid, must be ensured to disrupt racial inequities in COVID-19 hospitalization. This vision has guided New York City’s approach to equitable Paxlovid access through a centralized system that removes barriers to care.¹²

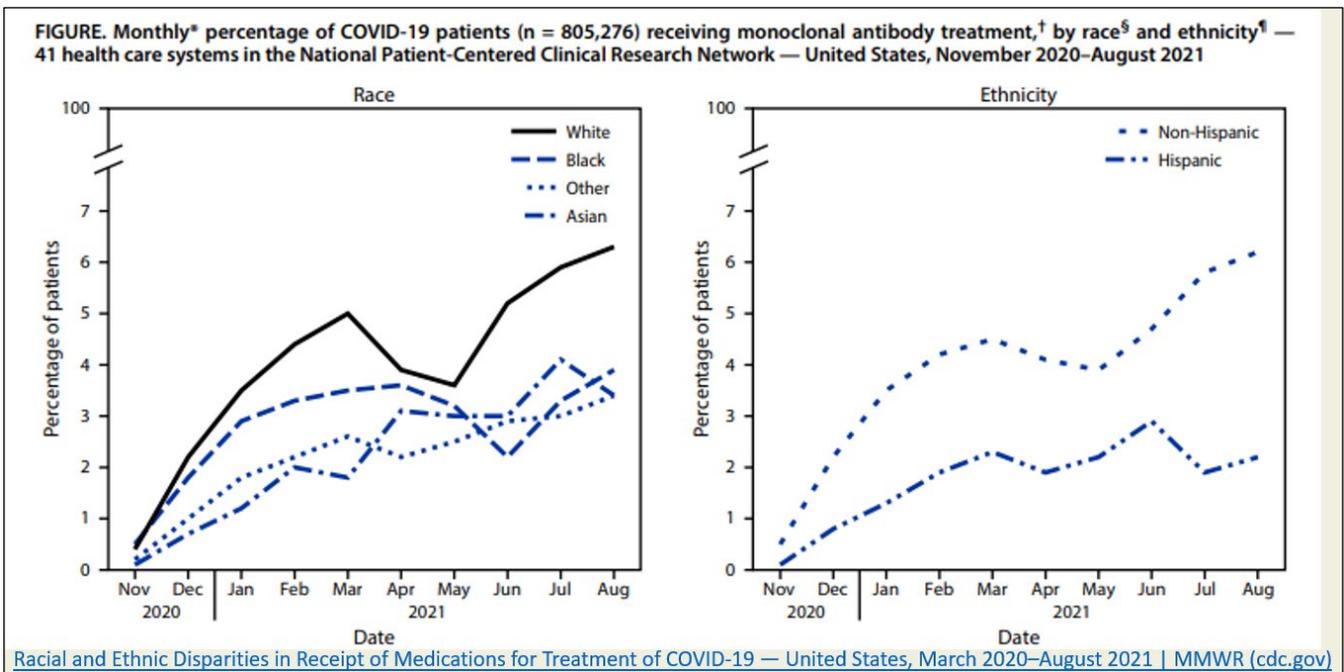


Figure 6. National racial inequities in monoclonal antibody treatment.

6. During the omicron wave, the COVID-19 hospitalization rate was more than two times greater among Black New Yorkers compared to White New Yorkers.

The age standardized hospitalization rate due to COVID-19 was more than two times greater among Black New Yorkers than among White New Yorkers during the omicron wave in December 2021 and January 2022 in New York City (Figure 7). This inequity is worse than inequities seen in prior waves. As a later step in the cascade of COVID-19 exposure, infection and illness, this finding represents the impact of multiple points of failure in our system to adequately safeguard the health of Black New Yorkers. It mirrors extensive national evidence documenting racial inequities in COVID-19 outcomes affecting Black persons across the United States.¹³

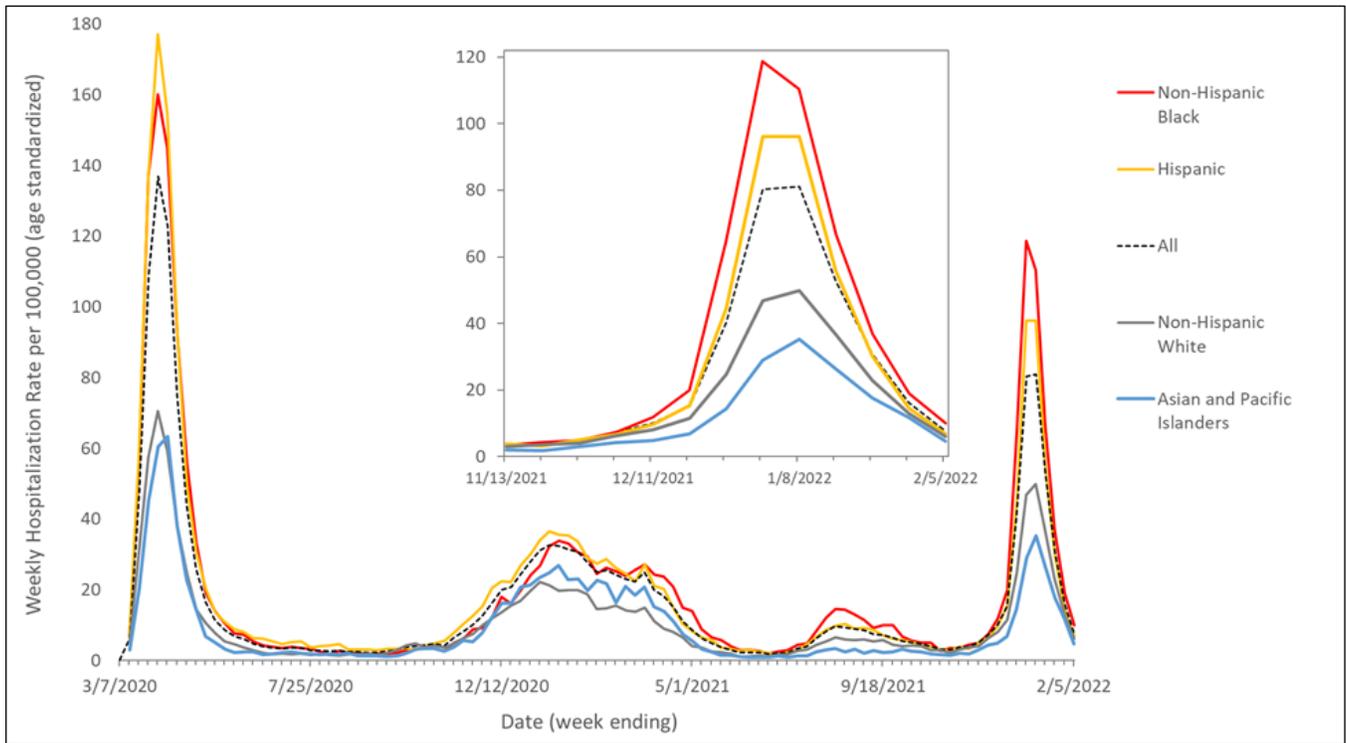


Figure 7. Weekly age-standardized COVID-19 hospitalization rate in New York City by race/ethnicity, week ending March 7, 2020 to February 5, 2022.¹⁴

7. During the omicron wave COVID-19 hospitalizations were disproportionately higher in neighborhoods with a high percentage of Black residents.

The geographic distribution of cases supports the Health Department’s place-based approach to COVID-19 response, focusing efforts and resources on the communities and neighborhoods most impacted by the pandemic and at risk of further unfair and disproportionate harm. Our work is guided by the City’s Taskforce for Racial Inclusion and Equity (TRIE) initiative* — a data-driven approach to prioritize the neighborhoods hardest hit by COVID-19 and facing the greatest resource and structural inequities. The Health Department has prioritized interventions serving these TRIE neighborhoods, which make up 50% of NYC.¹⁵

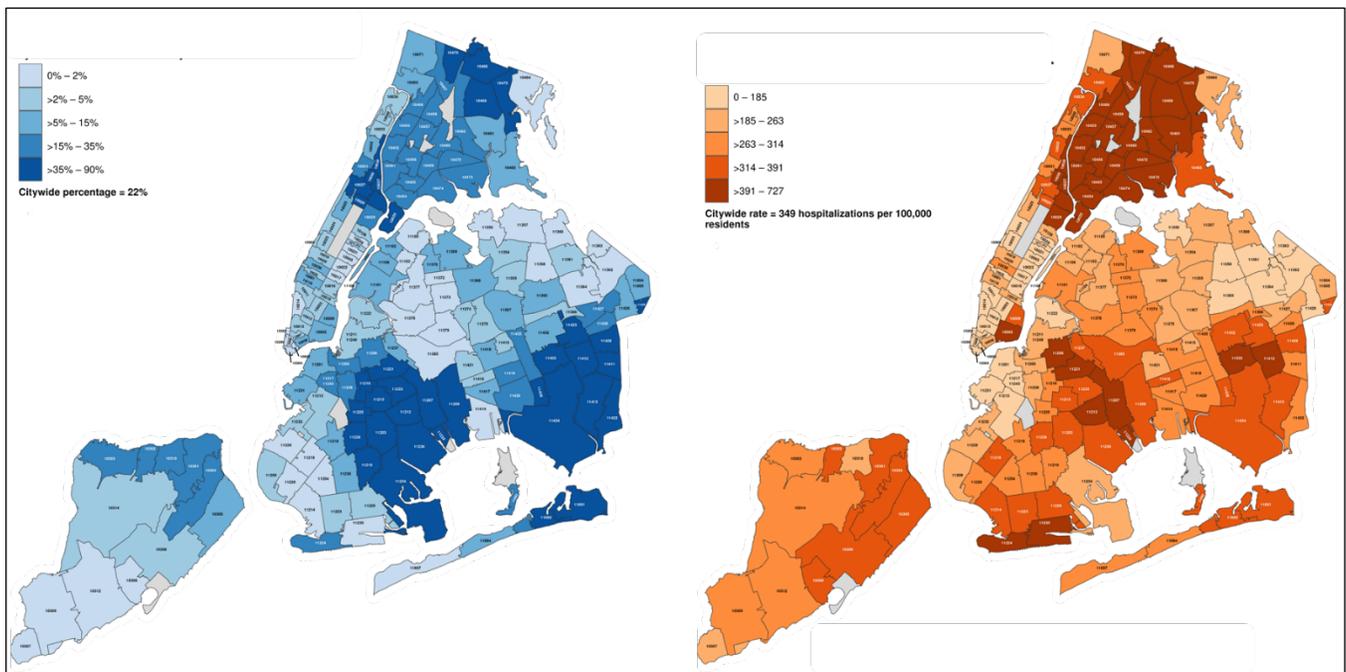
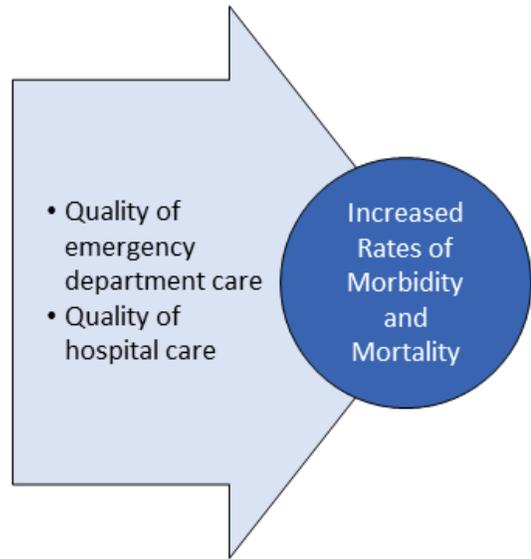


Figure 8. Percentage of Black residents by modified ZCTA in New York City (left) and rate of COVID-19 hospitalizations per 100,000 residents by modified ZCTA for admissions occurring during December 11, 2021 through February 4, 2022 (right).

* For a list of TRIE neighborhoods, visit www1.nyc.gov/site/trie/about/neighborhoods.page.

8. Even before the COVID-19 pandemic, anti-Black structural racism led to four years less life expectancy among Black New Yorkers.

A host of factors contribute to this decreased life expectancy (Figure 9) including social factors such as inadequate housing, limited education opportunities, food deserts, and low-wage jobs which have been described in previous Health Department publications¹⁶; structural factors such as the racial wealth gap, mass incarceration, and limited workers’ rights; and downstream factors such as individual experiences of discrimination and decreased access to health care.



Both directly and indirectly, these factors also contribute to higher rates of chronic disease (e.g., diabetes, obesity, hypertension, etc.) among Black New Yorkers,^{17,18} which in turn increase the risk of progression to severe COVID-19 infection among Black New Yorkers who are infected and risk of hospitalization compared to other populations. Structural racism has also contributed to unequal access to high quality hospital care, with safety net hospitals in low-income neighborhoods of color experiencing greater workforce shortages during the omicron surge and having markedly less capital available to them.^{19,20}

The impact of these pervasive structural disparities on COVID-19 outcomes calls for a redoubling of public health efforts to address social determinants of health and end racial inequities across society, including through new initiatives such as the groundbreaking NYC Public Health Corps²¹ and NYC Health Department Inaugural Chief Medical Officer Strategic Plan.²²

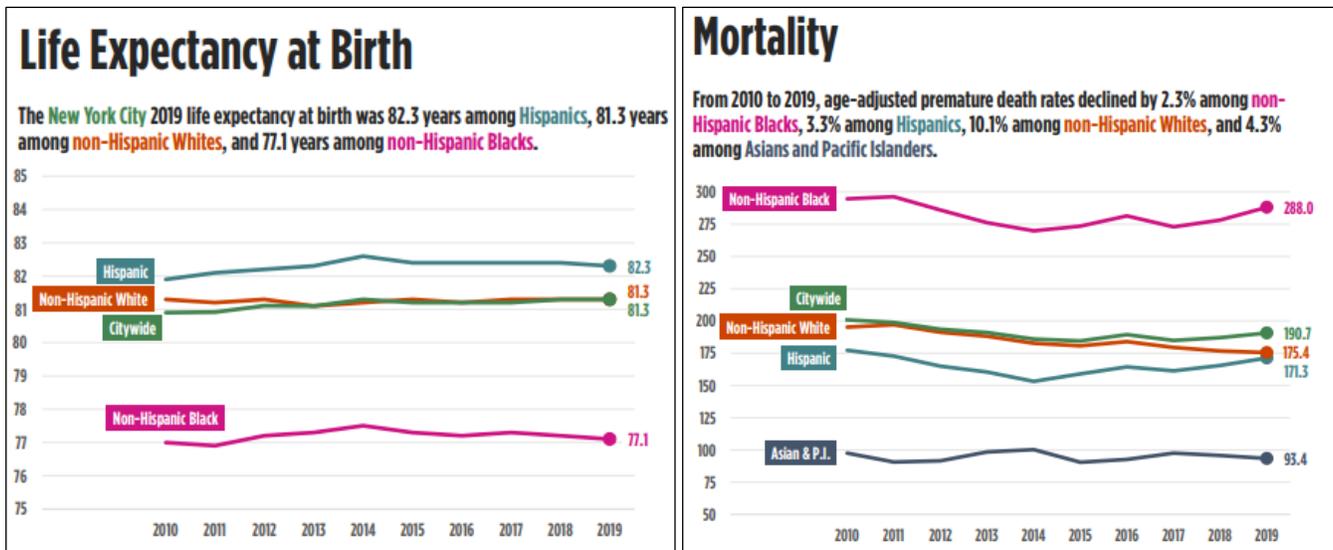


Figure 9. Life expectancy and mortality among racial/ethnic categories in New York City.²³

9. Limitations in demographic data collection within health care delivery systems hampers our ability to address anti-Black racism driving inequities, particularly in the health care setting.

While the analyses above are essential to guiding anti-racism efforts, they are limited by available demographic data and require directly addressing in all public health surveillance and improvement programming from collection to analysis. The inadequate and inconsistent collection of race/ethnicity data within health care is a well-documented phenomenon, demonstrated for example by the extreme non-concordance of race/ethnicity in statewide data sets and Medicaid.^{24,25} Our analysis here is incomplete given extensive inaccuracies and missingness intrinsic in the data. Future analysis and response will require concerted and comprehensive efforts to improve our data systems.

Progress must be made in the collection and alignment of demographic data to provide the richness and detail required to systematically assess and address structural racism's impacts on COVID-19 inequities during omicron wave. One target, previously set by the federal government under Meaningful Use (Stage 2 in 2014, for use of Electronic Health Records in improving health care quality), has been "more than 80% of all unique patients seen by providers in NYC have demographics recorded as structured data" (preferred language, gender, race, ethnicity, date of birth).²⁶

The Health Department has supported local efforts to improve demographic data, whether through technical assistance on Meaningful Use requirements for community providers, active outreach to providers with high absence of race and ethnicity data and changes to how the data was captured, or our Health Alert call for improved race, ethnicity, and gender data collection from COVID-19 vaccine providers.²⁷ Such improvements are critical for tracking and addressing anti-Black racism and intersectional forces, including xenophobia, sexism and transphobia.

10. Targeted community engagement strategies contributed to closing the racial equity gaps in COVID-19 vaccination rates over time.

Intervening in the COVID-19 cascade to address inequities in COVID-19 infection rates, progression of disease, hospitalization, and morbidity/mortality requires deep and sustained investment in community-based strategies. When the Health Department initially identified inequities in vaccination rates by race, ethnicity and income, as well as by neighborhood, we implemented a Vaccine Equity Strategy.⁴

Through tailored engagement, community partnership and resource investment in the TRIE neighborhoods, combined with vaccination incentives and mandates, we achieved significant progress in narrowing these equity gaps. Seventy-three out of the 74 ZIP codes that make up the TRIE neighborhoods[†] achieved 70% vaccination coverage for the full primary series by February 2022, compared to 14 out of 74 in July 2021.

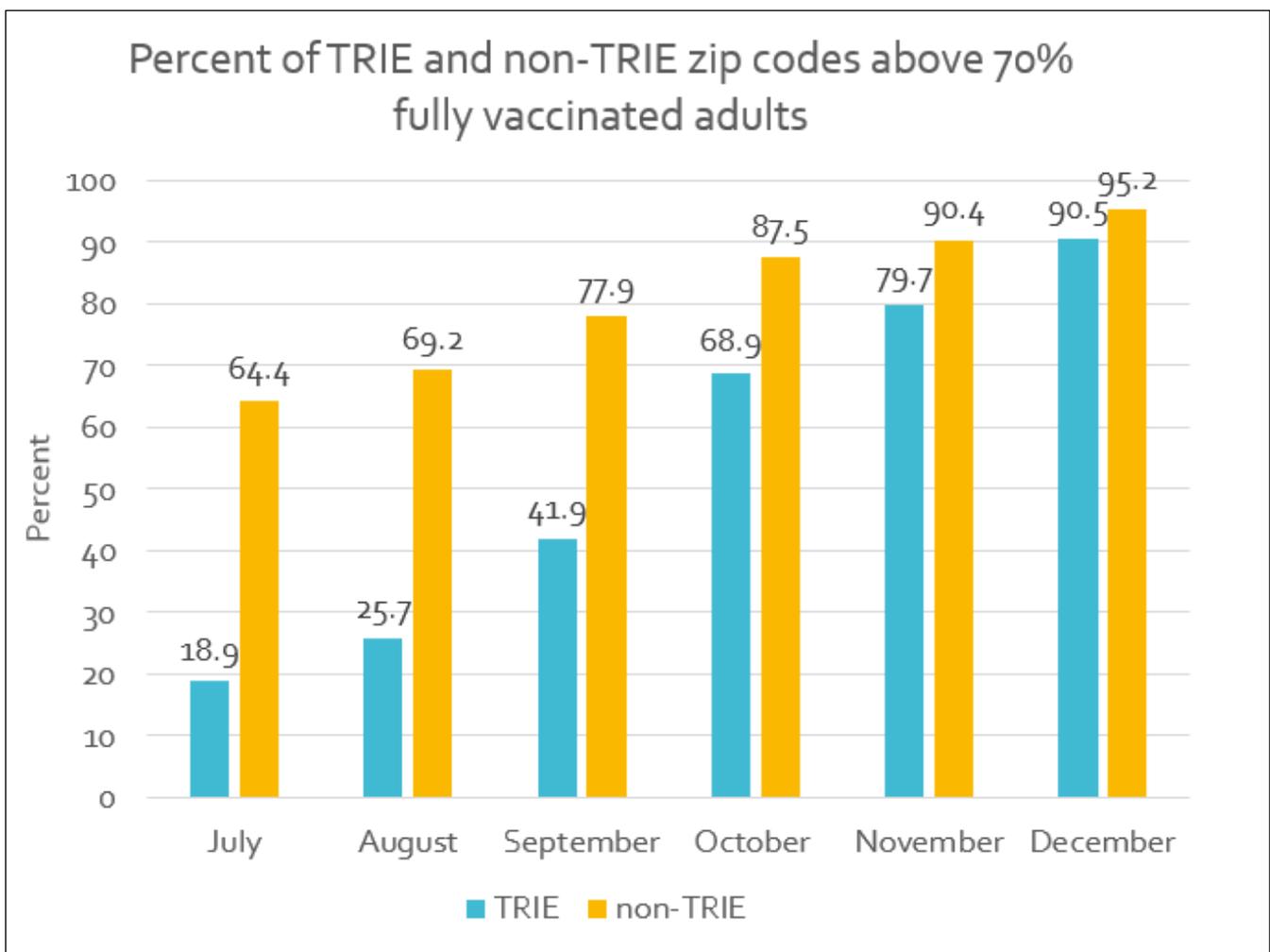


Figure 10. Improvements in initial COVID-19 vaccination series in Taskforce on Racial Inclusion and Equity (TRIE) neighborhoods.

[†] For a list of TRIE neighborhoods, visit www1.nyc.gov/site/trie/about/neighborhoods.page.

Race and place matter to health equity: The path forward

These findings highlight the cascade of inequities that likely contributed to a two-fold higher COVID-19 hospitalization rate among Black New Yorkers compared to White New Yorkers during this latest omicron wave. In reviewing the complexities at the root of racial inequities, our analysis identifies crucial opportunities for intervention at all stages — from downstream health care quality to upstream environmental and structural factors. This analysis further supports the Health Department’s approach to advancing public health equity through an anti-racism, place-based approach. Our analysis also underscores the work we in public health must undertake to build and earn trust among communities and individuals affected by structural racism, acknowledging that lack of trust itself is rooted in discrimination and disinvestment over the last four centuries.

For ongoing COVID-19 response and recovery, the Health Department has outlined critical strategies to address structural inequities along the COVID-19 cascade that directly impact health outcomes.

1. Decrease risk of COVID-19 infection, progression and hospitalization.
 - a. **Reducing COVID-19 risk:** Invest in community-based and faith-based organization to distribute masks²⁸ and exposure risk mitigation measures in priority neighborhoods.
 - b. **COVID-19 test kit access:** Invest in community partnerships to distribute home test kits for assessing COVID-19 status and receiving timely care and treatment, and taking isolation measures.
 - c. **COVID-19 vaccine equity⁴:** Ensure reliable vaccination, treatment and education services are available, with a goal of achieving more than 70% vaccination by age, race and place (neighborhood).
 - d. **Antiviral equity strategy:** Partner with health systems to ensure equitable access to monoclonal antibodies, antivirals, and inpatient COVID-19 treatments.²⁹
2. Address structural racism through policy by understanding and identifying opportunities for action.
 - a. **Racial wealth gap:** Research on health impacts of the racial wealth gap and partnership with NY Federal Reserve Bank.
 - b. **Health care segregation and limited access to care:** Research health care segregation, structural racism in health care systems payments, and addressing racism within health care institutions to advance equity-informed financing of safety net hospitals in context of COVID-19 recovery.
 - c. **Improving primary care integration for an equitable COVID-19 recovery.** Continue to strengthen primary care systems to effectively meet the primary care needs of persons with chronic diseases and marginalized identities, and those living in neighborhoods with disproportionate rates of COVID-19.
 - d. **Demographic data:** Expand work partnering with providers, hospitals and Regional Health Information Organizations (RHIOs) to improve demographic data collection at the point of care to 80% target set for race, ethnicity and gender by Meaningful Use.

Call to action for our partners: Health plans, clinical providers and community-based organizations (CBOs).

1. Invest proactively in improving race/ethnicity data collection at the point of care to achieve >80% accurate entries across demographic categories.³⁰
2. Support community-led education and engagement as well as clinical provider engagement to increase uptake of antivirals and monoclonal antibodies for Black people and other groups at risk of severe COVID-19 because of social and structural factors like structural racism.
3. Integrate COVID-19 vaccination (primary series and booster) into routine inpatient and outpatient health care delivery operations to increase access.
4. Continue community engagement efforts in the language preferred by the community to encourage COVID-19 mitigation strategies and distribute masks and home test kits in priority neighborhoods.
5. Incorporate policies that interrupt the effects of structural racism into strategic plans, programming, hiring and leadership systems, such as eliminating race correction in clinical algorithms.³¹
6. Embed cultural humility in messaging, addressing the various barriers to health facing people.³²

Data sources and technical notes

Case and hospitalization data are drawn from reporting to the NYC Health Department. NYC COVID-19 data include people who live in NYC. Any person with a residence outside of NYC is not included. Confirmed COVID-19 cases include persons classified as a confirmed COVID-19 case who tested positive with a molecular test. Probable COVID-19 cases include persons with no positive molecular test on record who test positive with an antigen test, have symptoms and an exposure to a confirmed COVID-19 case, or died and their cause of death is listed as COVID-19 or similar. The Health Department imports information on hospitalization status from a number of sources, including regional health information organizations, NYC public hospitals, non-public hospital systems, remote access to electronic health record systems, the Health Department's electronic death registry system, and the Health Department's syndromic surveillance database that tracks daily hospital admissions from all 53 emergency departments across NYC. People who were hospitalized more than one time are only counted once. NYC Health Department population estimates are modified from the US Census Bureau interpolated intercensal population estimates, 2000-2019, and last updated in September 2020.

Data on people vaccinated come from the Citywide Immunization Registry (CIR). The registry captures all NYC residents vaccinated for COVID-19 in NYC, as well as those who received immunizations in New York State, New Jersey or elsewhere and reported to the CIR by their provider. The percent of NYC residents vaccinated is calculated against the total population estimate for a specific geographic area or demographic category.

Vaccination status is classified into the following categories:

- **At least one dose:** People who have received either the first dose of the Pfizer or Moderna primary vaccine series or the one dose of the Johnson & Johnson primary vaccine series.
- **Fully vaccinated:** People who have received either both doses of the Pfizer or Moderna primary vaccine series or the one dose of the Johnson & Johnson primary vaccine series.
- **Additional dose:** People who have received at least one additional dose of any FDA-approved COVID-19 vaccine after being fully vaccinated. This includes booster doses available for fully vaccinated people 12 and older, as well as third doses available for fully vaccinated people 5 years or older who have a weakened immune system.

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