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# CONTEXTUALIZING INEQUITIES IN COVID VACCINATION TRENDS AMONG PROJECT REFOCUS PILOT SITES: RACISM-RELATED DETERMINANTS OF HEALTH

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**Introduction:** Coronavirus disease (COVID) dashboards rarely provide insights about the racialized contexts in which vaccination inequities occur.

**Objective:** The purpose of this study was to use the emerging Project REFOCUS dashboard to contextualize COVID vaccination patterns among 6 diverse communities.

**Methods:** We queried the dashboard to generate descriptive statistics on vaccination trends and racism-related contextual factors among the 6 Project REFOCUS pilot sites (Albany, Georgia, Bronx, New York, Detroit, Michigan, Helena-West Helena, Arkansas, San Antonio, Texas, and Wake County, North Carolina).

**Results:** Vaccination rates, demographic indicators, and contextual factors differed across sites. As of October 17, 2022, the proportion of people who had received at least 1 COVID vaccine dose ranged from 58.4% (Wayne County, Michigan) to 95.0% (Wake County, North Carolina). The pilot sites with the greatest percentage of Black residents (Dougherty County, Georgia, Wayne County, Michigan, and Phillips County, Arkansas) had lower proportions of fully vaccinated people. Wayne County, Michigan, had the highest level of residential segregation between Black and White residents (78.5%) and non-White and White residents (68.8%), whereas Phillips County, Arkansas, had the highest overall mortgage denial rates (38.9%). Both counties represent settings where over 75.0% of residents report Black race and over 30.0% of the population live in poverty.

**Discussion:** The dashboard integrates racism-related factors with COVID vaccination visualizations and provides a fuller picture of the context in which COVID trends are occurring.

**Conclusions:** Community organizers, researchers, policymakers, and practitioners can track racism-related factors and other social determinants of health as part of the

contexts in which COVID-related inequities occur. *Ethn Dis.* 2024;34(1):1–7; doi:10.18865/ed.34.1.1

**Keywords:** Racism; Structural Determinism; Stigma; Social Determinants of Health; COVID; SARS-CoV-2

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## BACKGROUND

Increasingly, public health agencies, elected officials, and community advocates promote coronavirus disease (COVID) vaccination to mitigate COVID inequities; however, these efforts are unlikely to be effective if they ignore the social and political contexts in which diverse populations live. Although racism and other contextual factors contribute to COVID inequities,<sup>1</sup> surveillance data on vaccination trends typically focus only on epidemiologic patterns (eg, the percentage of people who have received 2 doses of

the vaccine). Missing from these dashboards are potentially useful data on the racism-related social and political contexts of COVID inequities. Moreover, despite approaches that use COVID surveillance and data on social and structural factors to estimate trends across population subgroups and to instigate action from diverse stakeholders,<sup>2–4</sup> racism remains underexplored as the central driver of structural inequities and inequities in COVID outcomes.

To address this gap, we are developing the Project REFOCUS dashboard,<sup>5</sup> which tracks state-level COVID outcomes (ie, cases, deaths, and hospitalizations) and mitigation efforts (ie, testing and vaccinations) alongside indicators of racism, social stigma, and select social (eg, evictions) and policy (eg, state COVID measures) determinants of health. The dashboard will be piloted in 6 diverse communities to enhance its utility at the local level: Albany, Georgia, Bronx, New York, Detroit, Michigan, Helena-West Helena, Arkansas, San Antonio, Texas, and Wake County, North Carolina. These sites may already have their own COVID dashboards; however, few such dashboards include data on the racism-related, social, economic, and political context in which COVID inequities and mitigation efforts occur. This lack of data (especially at the local level) and the variations in existing data across the United

States make it challenging to compare different geographic areas. The Project REFOCUS dashboard tracks trends in COVID outcomes and inequities and presents the racism, stigma, and social determinants of health-related context of those trends.

The purpose of this brief report is to use a novel dashboard to contextualize COVID vaccination trends among Project REFOCUS pilot sites relative to racism and other social determinants of health. Guided by the Public Health Critical Race Praxis principle of structural determinism, which posits that “macro-level forces. . .[drive] and [sustain] inequities across time and contexts,”<sup>6</sup> this framing underscores the need to systematically track factors embedded in the social contexts where inequities in COVID outcomes occur.

## METHODS

### Sample

We generated profiles of the 6 pilot communities: Albany, Georgia, Bronx, New York, Detroit, Michigan, Helena-West Helena, Arkansas, San Antonio, Texas, and Wake County, North Carolina, which vary by geography (eg, US region and urbanicity) and demographic factors (eg, race and ethnicity and the share of residents speaking a language other than English at home). Each profile captured the proportion of the vaccinated population in the county, racism-related contextual factors (eg, residential segregation), information about federal COVID investments, COVID-related state policies, and state- and local-level declarations of racism as a public health crisis.

### Data

Community profiles were generated based on queries of the Project REFOCUS dashboard, which integrates data from multiple sources (eg, Centers for Disease Control and Prevention [CDC]). Although the dashboard aggregates data to the

state level, this analysis relies on indicators available at the county level. Each profile includes information on COVID vaccination rates, as of October 17, 2022, which were obtained from the CDC COVID Data Tracker. US Census data, racism-related indicators, and information on other social determinants of health were used to contextualize differences in the proportion of the vaccinated population across each pilot site.

Residential segregation (ie, the dissimilarity index) was retrieved from the 2021 County Health Rankings, a resource that consolidates data from multiple health, demographic, social, and economic data sources. Information about home mortgage discrimination was retrieved from the 2020 Home Mortgage Disclosure Act data available from the Federal Financial Institutions Examination Council.<sup>7</sup> These data include information about the loan (eg, loan amount, purpose, and decision) and applicant (eg, applicant race, ethnicity, and sex). Loan-level data from the Home Mortgage Disclosure Act database were used to calculate the county-level mortgage denial rates for each pilot site. Two environmental justice indicators (particulate matter 2.5 and ozone) were obtained from EJSCREEN (version 2.1),<sup>8</sup> a US Environmental Protection Agency (EPA) resource for the geospatial assessment of environmental injustices.

COVID state policy measures were retrieved from the National Academy for State Health Policy (last updated, March 8, 2022)<sup>9</sup> and the Boston University-led COVID-19 US State Policies (last updated, March 30, 2022)<sup>10</sup> datasets. Retrieval of these data for the dashboard began in September 2021. The State Health Policy dataset provides information about state’s COVID-19 related funding, contact tracing, and plans to address equity. The COVID-19 policies dataset includes race/ethnicity reporting, evictions and utilities

shutoff moratoriums, and Supplemental Nutrition Assistance Program (SNAP) waiver indicators. Information about places that have declared racism a public health crisis was obtained from the American Public Health Association’s (APHA) Racism Declarations Map and reflects data as of July 19, 2022.<sup>11</sup>

### Measures

Two indicators were used to capture COVID vaccination rates: the proportion of residents in the county that had received at least 1 COVID vaccine dose and the share of residents in the county that were fully vaccinated, which is defined as receipt of the second dose in a 2-dose vaccine series or receiving a single-dose COVID-19 vaccine, as defined by the CDC.<sup>12</sup> The County Health Rankings dissimilarity indices provide information about 1 dimension of residential segregation. The dissimilarity index measures the unevenness in the distribution of (1) Black to White residents or (2) non-White to White residents in each county. Dissimilarity ranges from 0 to 100 and, based on previous research,<sup>13</sup> was categorized as low (0 to 30), moderate (30 to 60) and high (>60). Higher dissimilarity values suggest greater residential segregation.

We calculated mortgage denial rates for the 5 racial and ethnic categories specified by the Office of Management and Budget.<sup>14</sup> Consistent with previous studies, we excluded incomplete and withdrawn loan applications and applications for nonowner-occupied units (properties for business purposes), multifamily units, and home improvement and refinancing (eg, loans not for the purchase of a home).<sup>15-17</sup> Each community profile includes 2 indicators from the EPA EJSCREEN: environmental justice indexes for particulate matter 2.5 and ozone levels. Each value is presented as a percentile ranging from 0 to 100. The scores denote how select areas compare with the nation. If the value for

the county is 80, then only 20.0% of counties in the United States have higher levels of the environmental hazard than the county under study.

There were 4 state health policy measures. The amount of American Rescue Plan funds refers to the total amount of funding (in dollars) the state in which each pilot site exists received (scaled to 100,000 population). Whether the state was conducting contact tracing, had funding for contact tracing, and had an equity action plan as of October 2022 were each assessed as yes or no.

There were 4 indicators of states' COVID policies. A binary yes or no response was used to denote whether states reported race/ethnicity for COVID-19 testing, cases, hospitalizations, deaths, and vaccinations; implemented eviction and utilities shutoff moratoriums; or received a SNAP COVID-19 waiver. Declarations that racism is a public health issue grew considerably in light of stark racial and ethnic inequities in the COVID pandemic. Since 2020, the American Public Health Association has been tracking statements made by legislatures and other entities. Drawing on this resource, we extracted information on the type of declaring entities and whether at least 1 of them outlined specific actions to be taken in response to this recognition. We operationalized a state-level entity as any governmental body operating within the pilot site's state and a local entity as any organization within the city or county of the pilot site. Indicators were assessed as yes or no.

## Analysis

Rates, frequencies, and crude values were obtained for each indicator, and comparative tables were used to assess measures across pilot sites. Analyses were conducted with Microsoft Excel. The calculations of mortgage denial rates were performed in STATA version 17.0.

## COMMUNITY PROFILES

Table 1 presents profiles of selected COVID, racism, and social determinants of health indicators for the 6 pilot communities. All data were retrieved between 2019 and 2022.

### Albany, Georgia

Albany (population size 69,048) is located in Dougherty County, Georgia. A large share of residents are Black (74.6%), and over one-quarter of the population (28.5%) lives in poverty. As of October 17, 2022, 58.6% of Dougherty County residents had received at least 1 COVID vaccine dose, and 50.5% of them were fully vaccinated. However, the proportion of fully vaccinated residents was lower than that of other pilot sites.

In 2019, segregation between Black and White residents and non-White and White residents in the County was moderate, and Black to White dissimilarity (46.8%) was slightly higher than non-White to White dissimilarity (45.5%). Across all pilot sites, Albany, Georgia, had the second highest mortgage denial rate at 23.1% (of 950 applications). In 2020, the mortgage denial rate was highest for Native Hawaiian and Other Pacific Islander applicants ( $n = 2$ ) at 50.0% and Black applicants ( $n = 416$ ) at 36.1%.

Georgia received \$4,853,535,460 from the Coronavirus State Fiscal Recovery Funds (SFRF), devised an equity plan, and continues to contact trace. The state health department reports race/ethnicity for cases, hospitalizations, deaths, and vaccinations, which enables tracking of COVID inequities. At the height of the pandemic, Georgia received a SNAP COVID-19 waiver, which aimed to ease the burden on eligible program participants during the pandemic, but did not institute moratoriums for evictions and utilities. Albany was the

only site for which there were no state or local declarations of racism as a public health problem.

### Detroit, Michigan

Detroit (population size 632,464) is located in Wayne County, Michigan. Most Detroit residents (77.9%) report Black race, and nearly one-third (31.8%) of the city's residents live in poverty. By October 17, 2022, about 58.4% of county residents had received at least 1 COVID vaccine dose, and more than half (55.2%) were fully vaccinated.

Compared with other pilot sites, Wayne County, Michigan, had the highest levels of residential segregation. In 2019, segregation between Black and White residents (78.5%) and non-White and White residents (68.8%) in the county was high; Black to White dissimilarity was nearly 10 points higher than non-White to White dissimilarity. In 2020, the overall mortgage denial rate was 11.9% (of 23,861 applications) and was higher for Black applicants ( $n = 3826$ ) at 21.7% than for people of all other racial/ethnic backgrounds.

Michigan received \$6,540,417,626.70 from the SFRF and outlined how funds would be used to address inequities in COVID outcomes. The state allocated federal funding to COVID-19 testing and contact tracing; however, it ended state-wide contact tracing on July 1, 2022. Michigan received a SNAP COVID-19 waiver and established an eviction moratorium but did not institute a pause on disconnections for non-payment of utility fees. The state health department reports race/ethnicity data for cases, deaths, and vaccinations, which facilitates tracking COVID inequities. Governor Gretchen Whitmer, the Wayne County Commission, and the Detroit City Council have declared racism a public health crisis.

### Helena-West Helena, Arkansas

Helena-West Helena (population size 9,149) is located in Phillips County,

**Table 1. Social, economic, and political determinants of COVID vaccination among Project REFOCUS pilot sites**

Variables	Albany, Georgia	Detroit, Michigan	Helena-West Helena, Arkansas	Bronx, New York	San Antonio, Texas	Wake County, North Carolina
	Dougherty County	Wayne County	Phillips County	Bronx County	Bexar County	Wake County
	%	%	%	%	%	%
<b>COVID vaccination<sup>a</sup></b>						
Fully vaccinated	50.5	55.2	51.5	77.1	71.5	79.4
At least 1 dose	58.6	58.4	61.2	90.0	86.0	95.0
<b>Racism indicators</b>						
Residential segregation <sup>b</sup>						
Black/White	46.8 (mod)	78.5 (high)	34.7 (mod)	45.5 (mod)	43.3 (mod)	43.6 (mod)
Non-White/White	45.5 (mod)	68.8 (high)	34.4 (mod)	37.5 (mod)	26.0 (low)	37.1 (mod)
Mortgage denial rate (2020) <sup>a</sup>						
All	23.1	11.9	38.9	15.2	11.1	6.7
AIAN <sup>c</sup>	0.0	21.1	–	30.0	15.0	11.3
Asian	14.3	10.2	–	17.1	11.5	8.0
Black or African American	36.1	21.7	39.5	18.1	15.5	17.0
NHOPI <sup>d</sup>	50.0	12.5	–	38.5	12.0	9.1
White	15.1	10.2	40.5	14.6	11.7	5.0
Hispanic or Latino	16.7	14.3	100.0	17.9	16.4	11.0
Physical environment <sup>e</sup>						
EJ index for PM <sup>f</sup> 2.5	74.0	84.0	81.0	92.0	85.0	56.0
EJ index for ozone	35.0	84.0	72.0	87.0	60.0	60.0
<b>State health policy<sup>g</sup></b>						
American Rescue Plan Funds at the state level (\$/100,000 pop.)	\$48,535.4	\$65,404.2	\$15,731.2	\$127,449.8	\$158,143.9	\$54,393.1
Active contact tracing	Yes	No	No	No	No	Yes
Funding for contact tracing	Yes	Yes	Yes	Yes	Yes	Yes
State action on equity	Yes	Yes	No	Yes	Yes	Yes
<b>COVID policy</b>						
Race ethnicity reporting						
Testing	No	No	No	No	No	No
Cases	Yes	Yes	Yes	No	Yes	Yes
Hospitalizations	Yes	No	No	No	No	Yes
Deaths	Yes	Yes	Yes	Yes	Yes	Yes
Vaccinations	Yes	Yes	Yes	Yes	Yes	Yes
Eviction moratorium	No	Yes	No	Yes	Yes	Yes
Utilities moratorium	No	No	Yes	Yes	No	Yes
SNAP waiver	Yes	Yes	Yes	Yes	Yes	Yes
<b>Racism is a public health crisis</b>						
Declaring entity						
State level	No	Yes	Yes	Yes	No	No
Local level	No	Yes	No	Yes	Yes	Yes
<b>Demographic characteristics<sup>h</sup></b>						
Population size	69,048	632,464	9149	1,424,948	1,451,853	1,150,204
White (not Hispanic or Latino) (%)	20.3	10.1	19.8	9.0	23.1	58.8
Black (%)	74.6	77.9	77.6	43.8	6.5	21.0
Hispanic or Latino (%)	2.4	7.8	1.5	56.4	65.7	10.5
Foreign born (%)	1.5	5.7	0.5	34.2	14.2	13.5
Living in poverty (%)	28.5	31.8	43.0	26.4	17.6	9.4
English not spoken at home (%)	3.8	10.8	1.0	58.2	41.7	17.5

<sup>a</sup> Values denote a percent.<sup>b</sup> Values range from 0 to 100. The County Health Rankings used census data (2016 to 2020). Mod, moderate.<sup>c</sup> AIAN, American Indian and Alaska Native.<sup>d</sup> NHOPI, Native Hawaiian and Other Pacific Islander.<sup>e</sup> State percentile.<sup>f</sup> PM, particulate matter; EJ, Environmental Justice.<sup>g</sup> "Yes" indicates that the criteria were met.<sup>h</sup> Presents city-level data, as of July 2021 (county-level data are shown for Wake County, North Carolina).

Arkansas. Most Helena-West Helena residents (77.6%) report Black race, and over 43.0% of the city's population live in poverty. More than 60 percent (61.2%) of the county population received at least 1 COVID vaccine dose, and over half (51.5%) are fully vaccinated.

In 2019, segregation between Black and White residents (34.7%) and non-White and White residents (34.4%) in Phillips County was moderate. In 2020, a crucial phase of the pandemic, Phillips County, Arkansas, had the highest overall mortgage denial rates (38.9%) of any pilot site; it was highest for Latino applicants at 100.0% but varied little for White (40.5%) and Black (39.5%) applicants.

Arkansas received \$1,573,121,580 from the SFRF and was the only state (among pilot sites) that did not establish an equity plan. Universal contact tracing in Arkansas ended on January 17, 2022. The state health department reports race/ethnicity for cases, deaths, and vaccinations, which is useful for tracking COVID inequities. Arkansas received a SNAP COVID-19 waiver and established a utilities shutoff moratorium but did not provide residents a reprieve from evictions. The Arkansas Public Health Association has declared racism a public health crisis.

### **Bronx, New York**

Bronx County, New York (population size 1,424,948), is home to mostly Latino (56.4%), Black (43.8%), and immigrant (34.2%) residents. About 26.4% of residents live in poverty, and in most homes (58.2%), English is not the primary spoken language. About 90.0% of Bronx, New York, residents received at least 1 COVID vaccine dose, and more than 75.0% of residents are fully vaccinated (77.1%).

In 2019, residential segregation between Black and White residents (45.5%) was 8 points higher than non-White and White residents (37.5%). In

2020, the mortgage denial rate was 15.2% (of 3623 applications) and was highest for Native Hawaiian and Other Pacific Islander applicants ( $n = 13$ ) at 38.5%. Compared with all other pilot sites, Bronx had the highest concentration of particulate matter 2.5 and ozone, environmental toxins that are associated with poor health outcomes.<sup>18</sup>

New York received \$12,744,981,589 from the SFRF, established an equity plan, and as of April 28, 2022, had ended universal contact tracing. The state health department reports race/ethnicity for deaths and vaccinations, enabling the state to track COVID inequities. New York received SNAP COVID-19 waivers and instituted evictions and utilities moratoriums to provide relief to residents. Governor Kathy Hochul, the New York City Board of Health, and the New York City Health Department have declared racism a public health crisis.

### **San Antonio, Texas**

San Antonio (population size 1,451,853) is located in Bexar County, Texas. Nearly two-thirds (65.7%) of residents report Latino ethnicity, and about 41.7% of San Antonio residents do not speak English at home. As of October 17, 2022, 86.0% of Bexar County residents had received at least 1 COVID vaccine dose, and 71.5% were fully vaccinated.

In 1999, levels of Black to White segregation in Bexar County, Texas, were (43.3%) 17.3 points higher than non-White to White segregation (26.0%). Although the overall mortgage denial rate in 2020 was 11.1% (of 51,511 applicants), it was highest for Latino applicants (16.4%,  $n = 18,928$ ).

Texas received \$15,814,388,615 from the SFRF and established an equity plan. Although state-sponsored contact tracing ended on September 1, 2021, local health departments are permitted to continue it at their discretion. The state health department reports race/ethnicity for cases,

deaths, and vaccinations, which helps to monitor COVID inequities. Texas received a SNAP COVID-19 waiver and instituted an eviction moratorium but did not pause utility shutoffs. The San Antonio City Council has declared racism a public health crisis.

### **Wake County, North Carolina**

The majority of Wake County, North Carolina, residents (population size 1,150,204) report Non-Hispanic White race (58.8%). Across all pilot sites, Wake County, North Carolina, had the largest shares of residents who had received 1 vaccine dose (95.0%) and people who were fully vaccinated (79.4%).

In 2019, segregation between Black and White residents (43.6%) was 6 points higher than segregation between non-White and White residents (37.1%). In 2020, Wake County, North Carolina, had the lowest overall mortgage denial rate (6.7%,  $n = 31,184$ ) of all pilot sites. However, the rate of mortgage denial for Black applicants (17.0%,  $n = 3034$ ) was 10.3 percentage points higher than the county's overall mortgage denial rate and was the highest across all race/ethnic groups.

North Carolina received \$5,439,309,692.20 from the SFRF, established an equity plan, and continues to conduct contact tracing. With respect to COVID policies, the state health department reports race/ethnicity for cases, hospitalizations, deaths, and vaccinations. North Carolina received a SNAP COVID-19 waiver and put in place evictions and utilities moratoriums. The Wake County Board of Supervisors has declared racism a public health crisis.

## **THE DIVERSE CONTEXTS OF COVID VACCINATION TRENDS**

The goal of this paper was to contextualize COVID vaccination trends

among 6 diverse communities and highlight the utility of the Project REFOCUS dashboard for doing so. We identified 3 noteworthy insights: (1) helpful comparisons of COVID, racism, stigma, and social determinants of health data are possible with the dashboard, which extends what most COVID dashboards presently provide; (2) although dashboards help to visualize patterns, in general, they do not permit causal claims based solely on the visualizations; and (3) incorporating data on racism-related determinants and COVID outcomes can inform explanations for COVID trends.

The dashboard allows comparisons of the racism-related determinants of COVID inequities, which can help public health professionals and elected officials see how disparate COVID trends may reflect contextual differences between places. For example, Wake County, North Carolina, had the largest non-Hispanic White population and the greatest share of vaccinated people. Whereas areas with large Black populations (Dougherty County, Georgia, Wayne County, Michigan, and Phillips County, Arkansas) generally had lower proportions of people receiving the vaccine.

At least 3 racism-related indicators are useful for explaining this finding. Residential segregation between Black and White residents and non-White and White residents was particularly high in Wayne County, Michigan, which suggests that segregation in the county impacts a large share of Black people and other non-Black people of color. Emerging research has linked racial residential segregation to inequities in COVID outcomes.<sup>19,20</sup> Segregation that is imposed on Black populations and other non-Black people of color is likely deleterious not only to health but to efforts to encourage vaccine uptake.

The lower levels of segregation between non-White and White residents in Bexar County, where San Antonio is located, may simply

reflect that Latino residents represent the county's largest population. Other research has connected Latino residential clustering to ethnic enclaves, which offers both health benefits (eg, social support) and myriad challenges (eg, reduced access to care).<sup>20</sup> For example, although residents may be more likely to access COVID-related resources in these enclaves, if they are available in their native language, the community may simultaneously be impacted by structural factors, such as the concentration of economic disadvantage.<sup>20</sup>

No site had mortgage denial rates that were lower than those of Wake County, North Carolina. Mortgage denial was especially high in Phillips County, Arkansas, where 77.6% of the population reports Black race, and 43.0% of residents live in poverty. In addition, the Bronx had the highest concentration of environmental toxins and is populated mainly by Latino, Black, and immigrant residents.

A strength of the dashboard is the integration of racism-related measures with COVID trends. Although it is extrapolative to draw causal connections with the dashboard alone, such information may prove valuable when explaining trends in COVID outcomes. The dashboard enables meaningful comparisons across places and is designed to be a practical tool. Community members, public health officials, researchers, and media stakeholders may seek information on the links between racism-related indicators and COVID outcomes to guide their work. These groups may also be acutely aware of how localized historical and contemporary factors, including racism, shape local patterns of COVID inequities. Pilot testing the dashboard with community sites and discussing how they intend to use the tool will help to enhance dashboard utility for all users.

This paper should be read in light of its limitations. First, we provide only descriptive data and do not attempt to estimate associations with specific

COVID outcomes. Second, we rely on data as they appear in the original sources; therefore, they reflect the same errors inherent in these datasets. Data are not consistently available at all geographic levels (eg, county, census tract). Although the absence of data at the state level may be remedied if data are available at lower geographies (eg, all counties in a state), the lack of data at the local level may hamper evidence-based COVID mitigation efforts.

Third, although we include information on state-level COVID-related policies, our analyses only provide a cross-sectional snapshot of them. COVID-related state policies changed throughout the pandemic, and the current analyses do not capture the changes in these regulations. Fourth, there are limitations with some of our selected indicators. The calculation of home mortgage denial rates relies on the Office of Management and Budget's race and ethnicity reporting standards,<sup>14</sup> which, although useful for standardizing data collection, does not fully capture the unique ethnic and racial characteristics of some regions.<sup>21</sup> Furthermore, the mortgage denial rate does not account for population size, and the number of applicants was low among some racial and ethnic groups. The dissimilarity index is the dominant measure of residential segregation in the health literature and publicly available datasets, yet the mechanisms connecting dissimilarity to health outcomes remain unclear.<sup>22</sup> Future studies may explore additional measures of residential segregation, like the Index of Concentration at the Extremes, and their association with COVID inequities. These measures may be useful for assessing neighborhood-level segregation rather than segregation at larger geographic scales (eg, counties).

Despite its limitations, this study demonstrates the feasibility of using the dashboard to illuminate the socioeconomic and political contexts of COVID vaccination trends among

these 6 diverse communities. The continued development of the dashboard will integrate diverse social, economic, and policy measures and provide a way to track co-occurring racism-related inequities at specific points in time.

Researchers should consider assessing these racism-related contextual factors when tracking COVID trends and inequities. With this information, decisionmakers may have a fuller picture of the context in which local COVID vaccination mitigation activities will need to occur. Such information may aid practitioners in developing interventions that better align with the needs of their diverse communities. Policy-makers' understanding of the root causes of COVID inequities may yield more appropriate and robust measures to address the short- and long-term impacts of the COVID pandemic. Community advocates can begin to incorporate COVID indicators alongside measures of social injustice in their desire to humanize their respective communities.

## Conclusion

Although epidemiologic surveillance data provide critical information about the spread of COVID and mitigation efforts, these details alone do not reveal the root causes of COVID-related inequities. The contextual information the Project REFOCUS dashboard provides can help in identifying structural barriers to COVID mitigation and interventions. Future directions include evaluating the extent to which the dashboard informs the strategies of health departments and other stakeholders.

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## CONFLICT OF INTEREST

No conflicts of interest reported by authors.

## AUTHOR CONTRIBUTIONS

Research concept and design: Nwankwo, Le, Bradford, Ford; Acquisition of data: Nwankwo, Le, Bradford, Ford; Data analysis and interpretation: Nwankwo, Le, Bradford, Trujillo, Fletcher, Ford; Manuscript draft: Nwankwo, Le, Bradford, Trujillo, Fletcher, Ford; Statistical expertise: Nwankwo, Le, Bradford, Ford; Acquisition of funding: Ford; Administrative, technical or material support: Le, Trujillo, Fletcher, Ford; Supervision: Ford

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