

EDITORIAL

# To Solve Racial and Ethnic Disparities in COVID-19 Outcomes, Look Upstream for Solutions

Yvonne Commodore-Mensah<sup>1</sup>, PhD, MHS, RN; Deidra C. Crews<sup>2</sup>, MD, ScM

**A**s of April 30, 2021, almost 33 million people in the United States had been diagnosed with coronavirus disease 2019 (COVID-19), and almost 580 000 had lost their lives.<sup>1</sup> The actual human, economic, and social toll of the COVID-19 pandemic on families, communities, and the nation is incalculable. Although there were initial reports of disparities in transmission rates along race and class, the data are too incomplete to thoroughly understand the burden of the pandemic on specific racial and ethnic groups. Of note, the federal government did not require laboratories to report the race and ethnicity of people tested for COVID-19 until August 1, 2020.<sup>2</sup>

---

**Article, see p 2332**

---

Registries were established to understand the pandemic's impact and to address the gaps in national data. The American Heart Association (AHA) COVID-19 Cardiovascular Disease (CVD) Registry was developed for hospitals and health systems to collect standardized data on the disease, treatments, and CVD risk factors and the outcomes associated with COVID-19. In this issue of *Circulation*, Rodriguez et al<sup>3</sup> examined racial and ethnic disparities in presentation and outcomes among adults hospitalized with COVID-19 in the AHA COVID-19 CVD Registry. Their analysis was limited to the first 7868 patients hospitalized at 88 hospitals in the United

States between January 17, 2020 and July 22, 2020. The primary outcome of interest was in-hospital mortality, and other outcomes included major adverse cardiovascular events, including death, myocardial infarction, stroke, heart failure, and COVID-19 cardiorespiratory severity. A striking 65% of patients were either Hispanic (33.0%), non-Hispanic Black (25.5%), or Asian/Pacific Islander (6.3%), whereas the rest were non-Hispanic White. There were key sociodemographic differences between the racial and ethnic groups. First, non-Hispanic Black, Hispanic, and Asian/Pacific Islander patients were significantly younger than non-Hispanic White patients. Compared with only 2.5% of non-Hispanic White patients who were self-pay/uninsured, non-Hispanic Black (4.5%), Hispanic (12.8%), and Asian (5%) patients were more likely to be uninsured. Non-Hispanic Black patients also had the highest prehospitalization prevalence of hypertension (69.9%), diabetes (45.2%), obesity (49.3%), and advanced chronic kidney disease (19.2% with estimated glomerular filtration rate <30 mL/min or treated with dialysis).

Rodriguez et al<sup>3</sup> noted an overall mortality rate of 18.4%. Although >53% of deaths occurred in non-Hispanic Black and Hispanic patients, there were no significant differences in mortality comparing non-Hispanic Black (odds ratio, 0.93 [95% CI, 0.76–1.14]), Hispanic (odds ratio, 0.90 [95% CI, 0.73–1.11]), and Asian/Pacific Islander (odds ratio, 1.31 [95% CI, 0.96–1.80]) with non-Hispanic White patients in analyses adjusting for sociodemographic and clinical characteristics, and

**Key Words:** Editorials ■ cardiovascular diseases ■ COVID-19 ■ ethnology ■ health status disparities ■ race factors ■ social determinants of health

---

The opinions expressed in this article are not necessarily those of the editors or of the American Heart Association.

Correspondence to: Yvonne Commodore-Mensah, PhD, MHS, RN, Johns Hopkins School of Nursing, Johns Hopkins Bloomberg School of Public Health, 525 N Wolfe St, Baltimore, MD 21205. Email [ycommod1@jhu.edu](mailto:ycommod1@jhu.edu)

This manuscript was sent to Dr Erin Michos, Guest Editor, for review by expert referees, editorial decision, and final disposition. For Sources of Funding and Disclosures, see page 2345.

© 2021 American Heart Association, Inc.

*Circulation* is available at [www.ahajournals.org/journal/circ](http://www.ahajournals.org/journal/circ)

clustering by hospitals. Asian/Pacific Islander patients had the worst COVID-19 cardiorespiratory severity status at hospitalization (adjusted odds ratio, 1.48 [95% CI, 1.16–1.90]) compared with non-Hispanic White patients. The results for major adverse cardiovascular events were similar to the primary outcome, with no differences by race or ethnicity. Of note, non-Hispanic Black patients (6.1%) were the least likely to receive remdesivir, a US Food and Drug Administration–approved therapy for COVID-19, compared with non-Hispanic White (8%), Hispanic (9.5%), and Asian/Pacific Islander patients (9.2%).

The AHA COVID-19 CVD Registry is the only national registry to date that characterizes the clinical complexities of COVID-19 and its impact on cardiovascular and stroke care and outcomes across US hospitals. The study by Rodriguez et al<sup>3</sup> is consistent with previous reports of disparities in health care access,<sup>4</sup> underlying CVD risk factors,<sup>5</sup> and overrepresentation of people of color in COVID-19 hospitalizations.<sup>6</sup> The study advances understanding of these disparities by providing a detailed, disaggregated analysis of clinical outcomes related to COVID-19 infection. However, the findings must be considered in the context of some limitations. First, only hospitalized patients were captured. Thus, the study did not provide a picture of COVID-19 mortality outside the hospital setting, which could have differentially impacted socially disadvantaged individuals who may lack health insurance coverage or face other barriers to seeking care. Although most COVID-19–related deaths (65%) occur in health care settings, 5.5% of deaths have occurred in homes.<sup>7</sup> Because these AHA COVID-19 CVD Registry data represent outcomes for younger, hospitalized non-Hispanic Black and Hispanic patients (with a 9- and 12-year age gap, respectively, compared with non-Hispanic White patients), it is unclear whether out-of-hospital mortality is similar across race and ethnicity. Second, the health care institutions that voluntarily participated in this registry were primarily located in urban areas in the northeastern and southern United States. Therefore, they may not reflect clinical outcomes in smaller institutions in rural communities that faced unique resource challenges during the pandemic. Third, key individual-level sociodemographic data were not available through the registry. The authors extracted median household income, employment, and education status from the American Community Survey based on patient zip code, which may not have reflected patients' individual-level socioeconomic status.

The racial and ethnic disparities in hospitalizations observed by Rodriguez et al<sup>3</sup> are similar to national reports. Age-adjusted hospitalization estimates from the Centers for Disease Control and Prevention have reported that non-Hispanic Black and Hispanic persons, respectively, are 2.8 and 3.0 times more likely to be hospitalized with COVID-19 infection than non-Hispanic

White persons.<sup>6</sup> Furthermore, American Indian or Alaska Native persons are 3.5 times more likely to be hospitalized than non-Hispanic White persons. Age-adjusted mortality rates paint a similar picture. Although the study noted no disparities in the primary outcome of in-hospital mortality, this implies that when people of color are admitted primarily to academic medical centers that prioritize quality improvement and research, their outcomes are similar to non-Hispanic White patients. Yet, the overrepresentation of non-Hispanic Black and Hispanic persons among those hospitalized for COVID-19 points to more pervasive social injustices that predate the COVID-19 pandemic but have been increasingly recognized in recent months.

Structural racism, which refers to societal structures and policies that reduce access of the socially stigmatized to desirable opportunities and resources in society,<sup>8</sup> is a major cause of disparities in health insurance rates, CVD risk factors, and overrepresentation of non-Hispanic Black and Hispanic individuals in COVID-19 hospitalizations. The recent AHA Presidential Advisory, which identified structural racism as the fundamental driver of health disparities,<sup>9</sup> is a timely acknowledgment that the solutions to eliminate disparities in COVID-19 hospitalizations mainly reside outside the walls of health care institutions. The higher COVID-19 transmission rates among non-Hispanic Black and Hispanic persons are attributed in part to their being more likely to be employed in low-wage, public-facing jobs in the food service, transportation, and infrastructure industries, where personal protective equipment may be inadequate, and teleworking is not an option.<sup>10</sup> Also, housing disparities, which were well-documented before the COVID-19 pandemic, have contributed to higher infection rates. People of color are more likely to reside in multigenerational homes,<sup>11</sup> making it challenging to adhere to physical distancing guidelines or self-isolate when a household member has COVID-19 infection.<sup>12</sup> Structural and interpersonal racism can also influence care-seeking for COVID-19 infection. Stigma and xenophobia toward Asian populations and other people of color have led some individuals to delay or avoid seeking care and present to hospitals with more severe COVID-19 symptoms. Discriminatory references to the Chinese Virus or Asian Virus have incited violent attacks against Asians.<sup>13</sup> For undocumented persons, fear of deportation may result in delays in testing or seeking treatment for COVID-19.

The significant decline in mortality rates from COVID-19<sup>6</sup> may be attributed to better therapeutic agents, lower patient volumes, and improved clinical experience with treating hospitalized patients. Although the availability of 3 vaccines under emergency use authorization in the United States (Pfizer-BioNTech, Moderna, and Johnson & Johnson/Janssen) has also contributed to the significant decline in COVID-19 cases, the recent spread of severe acute respiratory syndrome coronavirus 2

(SARS-CoV-2) variants threatens the progress so far.<sup>14</sup> Ongoing vaccination programs should prioritize groups who are socially disadvantaged, including people of color, who are at the highest risk for hospitalization for COVID-19. Until social structures that produce disparities in affordable housing, education, employment, and access to health care are dismantled, people of color will continue to be disproportionately impacted by the COVID-19 pandemic. Because the social structures of US society have contributed to the overrepresentation of people of color among hospitalizations for COVID-19, these same structures should be reconstructed so that these communities have access to free vaccines and, when indicated, receive emerging therapeutics. This should be a cause for which health care providers, who often come face to face with the downstream effects of structural racism through their patients' experiences, are willing to advocate.<sup>15</sup>

## ARTICLE INFORMATION

### Affiliations

Johns Hopkins School of Nursing, Baltimore, MD (Y.C.-M.). Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD (Y.C.-M.). Johns Hopkins Center for Health Equity (Y.C.-M., D.C.C.) and Welch Center for Prevention, Epidemiology, and Clinical Research (Y.C.-M., D.C.C.), Johns Hopkins Medical Institutions, Baltimore, MD. Division of Nephrology, Department of Medicine, Johns Hopkins University School of Medicine, Baltimore, MD (D.C.C.).

### Sources of Funding

None.

### Disclosures

None.

## REFERENCES

- Dong E, Du H, Gardner L. An interactive web-based dashboard to track COVID-19 in real time. *Lancet Infect Dis*. 2020;20:533–534. doi: 10.1016/S1473-3099(20)30120-1
- US Department of Health and Human Services (HHS). COVID-19 pandemic response, laboratory data reporting: CARES Act Section 18115. Accessed November 30, 2020. <https://www.hhs.gov/sites/default/files/covid-19-laboratory-data-reporting-guidance.pdf>
- Rodriguez F, Solomon N, de Lemos JA, Das SR, Morrow DA, Bradley SM, Elkind MSV, Williams JH 4th, Holmes D, Matsouka RA, et al. Racial and ethnic differences in presentation and outcomes for patients hospitalized with COVID-19: findings from the American Heart Association's COVID-19 Cardiovascular Disease Registry. *Circulation*. 2021;143:2332–2342. doi: 10.1161/CIRCULATIONAHA.120.052278
- Chen J, Vargas-Bustamante A, Mortensen K, Ortega AN. Racial and ethnic disparities in health care access and utilization under the Affordable Care Act. *Med Care*. 2016;54:140–146. doi: 10.1097/MLR.0000000000000467
- Cunningham TJ, Croft JB, Liu Y, Lu H, Eke PI, Giles WH. Vital signs: racial disparities in age-specific mortality among Blacks or African Americans – United States, 1999–2015. *MMWR Morb Mortal Wkly Rep*. 2017;66:444–456. doi: 10.15585/mmwr.mm6617e1
- Centers for Disease Control and Prevention (CDC). Risk for COVID-19 infection, hospitalization, and death by race/ethnicity. Accessed April 30, 2021. <https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html>
- Centers for Disease Control and Prevention (CDC). Weekly updates by select demographic and geographic characteristics: provisional death counts for coronavirus disease 2019 (COVID-19). Accessed November 30, 2020. [https://www.cdc.gov/nchs/nvss/vsrr/covid\\_weekly/index.htm#PlaceDeath](https://www.cdc.gov/nchs/nvss/vsrr/covid_weekly/index.htm#PlaceDeath)
- Williams DR, Lawrence JA, Davis BA. Racism and health: evidence and needed research. *Annu Rev Public Health*. 2019;40:105–125. doi: 10.1146/annurev-publhealth-040218-043750
- Churchwell K, Elkind MSV, Benjamin RM, Carson AP, Chang EK, Lawrence W, Mills A, Odom TM, Rodriguez CJ, Rodriguez F, et al; American Heart Association. Call to action: structural racism as a fundamental driver of health disparities: a presidential advisory from the American Heart Association. *Circulation*. 2020;142:e454–e468. doi: 10.1161/CIR.0000000000000936
- US Bureau of Labor Statistics. Labor force characteristics by race and ethnicity, 2018. October 2019. Accessed November 30, 2020. <https://www.bls.gov/opub/reports/race-and-ethnicity/2018/home.htm>
- Pew Research Center. A record 64 million Americans live in multigenerational households. April 5, 2018. Accessed December 1, 2020. <https://www.pewresearch.org/fact-tank/2018/04/05/a-record-64-million-americans-live-in-multigenerational-households/>
- Williams DR, Cooper LA. COVID-19 and health equity—a new kind of “herd immunity.” *JAMA*. 2020;323:2478–2480. doi: 10.1001/jama.2020.8051
- Ruiz NG, Horowitz JN, Tamir C. Many Black and Asian Americans say they have experienced discrimination amid the COVID-19 outbreak. July 1, 2020. Accessed November 29, 2020. <https://www.pewsocialtrends.org/2020/07/01/many-black-and-asian-americans-say-they-have-experienced-discrimination-amid-the-covid-19-outbreak/>
- Borchering RK, Viboud C, Howerton E, Smith CP, Truelove S, Runge MC, Reich NG, Contamin L, Levander J, Salerno J, et al. Modeling of future COVID-19 cases, hospitalizations, and deaths, by vaccination rates and nonpharmaceutical intervention scenarios – United States, April–September 2021. *MMWR Morb Mortal Wkly Rep*. 2021;70:719–724. doi: 10.15585/mmwr.mm7019e3
- Cooper LA, Crews DC. COVID-19, racism, and the pursuit of health care and research worthy of trust. *J Clin Invest*. 2020;130:5033–5035. doi: 10.1172/JCI141562