Identifying Disparities in the COVID-19 Pandemic: The Quest for Data

Sarah A. Struthers and Sarah F. Sanghavi

The coronavirus disease 2019 (COVID-19) pandemic has resulted in wide-reaching and devastating effects on human health and the global economy. Emerging public health data reveal differential impacts of SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) infection, with socially disadvantaged populations bearing the greatest burden of risk for transmission, morbidity, and mortality. However, in more than half the US cases, relevant race and ethnicity data are missing, exposing major gaps in our federal public health surveillance system.\(^1\)\(^2\) Even less is known about the association between socioeconomic status (SES) and COVID-19, information required to contextualize identified racial and ethnic disparities.

Inconsistent collection and reporting requirements at the local and state level have subsequently prompted legislation in Congress urging the Centers for Disease Control and Prevention to ensure that disaggregated data are collected and reported on a daily basis.\(^3\) Only recently have there been more comprehensive albeit still incomplete demographic data become available, showing that age-adjusted infection rates for Blacks and Latino Americans are nearly 3 times those for White Americans, with deaths nearly twice as high.\(^1\) These same groups are also more likely to experience a greater burden of chronic health conditions, including end-stage kidney disease (ESKD). The congregate setting of in-center hemodialysis may further heighten their risk for infection and adverse outcomes during a pandemic.\(^4\)\(^5\)

The ongoing challenge of obtaining complete, accurate, and timely data pertaining to the COVID-19 pandemic highlights the important contributions made by researchers to the surveillance process. In this issue of Kidney Medicine, Bhayani et al\(^6\) use multiple public health databases to examine the association between SARS-CoV-2 infection and COVID-19 death rates with demographics, poverty status, and in-center hemodialysis in the Chicago metropolitan area.\(^6\) Using electronic records from the Illinois Department of Public Health, the authors collected data for all SARS-CoV-2 positive test results and COVID-19–associated deaths among residents living within the 163 zip codes that comprise Cook County, IL. These data were subsequently merged with zip code–level information from the US Census Bureau, including race, ethnicity, income, and household poverty status as defined by the Federal Poverty threshold. The number of in-center hemodialysis stations per zip code was obtained from the Centers for Medicare & Medicaid Services and used as a proxy to compare the prevalence of ESKD among zip codes.

The authors found a positive correlation between both the SARS-CoV-2 positive test rate and positive test results per capita with percentages of residents reporting Black race, Hispanic ethnicity, and households living below the federal poverty threshold within a zip code. COVID-19–associated deaths per capita similarly correlated with percentages of residents reporting Black race and households living below the federal poverty threshold within a zip code, but not with Hispanic ethnicity. The positive SARS-CoV-2 test rate and positive tests per capita correlated significantly with the number of dialysis stations for a given zip code, but not with dialysis stations per capita.

These results from this ecological analysis highlight that communities of color and of lower SES are particularly vulnerable to the adverse effects of SARS-CoV-2 infection. Cook County, IL, is the second most populous county in the United States, following Los Angeles, with more than 5 million residents, including 24% who self-identify as Black and 25% of Hispanic ethnicity.\(^7\) The county’s wide availability of SARS-CoV-2 testing improved the likelihood of capturing even mild infections, further strengthening the findings in this study. This work is consistent with national reports from other urban centers and is a valuable addition to a growing body of evidence illuminating health disparities in the COVID-19 pandemic.

By design, this ecological analysis does not capture patient-level data. The authors’ use of dialysis stations per capita as a proxy for ESKD prevalence is innovative and when validated against US Renal Data Systems data could be a useful tool in providing timely point prevalence estimates. Although the data do not clearly show higher case rates in the ESKD population receiving in-center dialysis, the association between positive test results and the number of dialysis stations per zip code suggest that increased population density may be a risk factor for infection. The risk for contracting SARS-CoV-2 infection among dialysis patients is an area that deserves further attention because previous epidemiologic studies of dialysis patients with COVID-19 were limited to outbreaks within centers in China or during the exponential phase of the pandemic in Italy.\(^8\)\(^–\)\(^10\)

The driving forces behind the disproportionate impact of COVID-19 upon Black and Latino Americans are rooted...
in structural racism and wealth inequality. America's social, economic, and political institutions have historically limited access to resources and opportunities for racial and ethnic minorities. Today, communities of color continue to experience a greater burden of poverty than White communities, negatively influencing access to safe and stable housing, quality education, work opportunities, equitable health care, and criminal justice. Rates of SARS-CoV-2 infection are higher in areas of concentrated poverty due to multiple factors that increase the risk for exposure. Increased housing density, often with multiple generations crowded together under 1 roof, limits the ability to physically distance and may lead to family clusters of COVID-19. People of color are also overrepresented in service industries, now deemed essential forms of work, precluding the ability to work remotely. These industries are also less likely to provide paid sick leave or health insurance.

In addition to increasing the risk for exposure, poverty influences COVID-19 outcomes through an increased burden of chronic disease and lack of access to health services. Poverty has long been recognized as an important social determinant of health and is associated with increased risk for many chronic diseases. The literature in our own field of nephrology shows significantly higher rates of chronic kidney disease and progression to ESKD among people of color, as well as those with low SES. Given the overlapping social and demographic risk factors for kidney disease and COVID-19, it is easy to see how in-center patients with ESKD may be especially vulnerable.

The devastation caused by COVID-19 has increased awareness about how deeply ingrained racial and economic inequities influence health outcomes in the United States. Any attempts to alter these outcomes must begin with calling on the federal government to invest in public health infrastructure and research to better quantify racial and economic disparities. This includes refining the collection and provision of disaggregated data for race, ethnicity, and SES with regard to infection rates, hospitalizations, and deaths from COVID-19. After all, “data is the only way that we can see the virus.” This information is critical to both identifying vulnerable populations and ensuring equitable response efforts, from communication campaigns to location of testing sites to improved access to health services and economic relief. Ultimately, resolving these inequities will require significant structural change. The pandemic has uncovered pre-existing cracks in the foundation of our health care system and beyond. These cracks are now expanding under its weight. The time to rebuild is now; the safety and health of all Americans depend on it.

ARTICLE INFORMATION
Authors’ Full Names and Academic Degrees: Sarah A. Struthers, MD, and Sarah F. Sanghavi, MD.

Authors’ Affiliations: Louisiana State University School of Medicine, New Orleans, LA (SAS); and VA Puget Sound Health Care System, Seattle, WA (SFS).

Address for Correspondence: Sarah A. Struthers, MD, Louisiana State University School of Medicine, 1542 Tulane Ave, Rm 442, New Orleans, LA 70112. E-mail: sestruth@lsuhsc.edu

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