

New study underscores the role of race and poverty in COVID-19

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A new analysis by researchers at Massachusetts General Hospital (MGH) offers a novel perspective on the disproportionate impact that COVID-19 has had on people of color, low-income populations, and

other structurally disadvantaged groups. Their findings, published in a research letter to the *Journal of General Internal Medicine*, emphasize the urgency of addressing inequities that have been exposed by the coronavirus pandemic.

"At Mass General, we are deeply interested in uncovering disparities and then fixing them," says cardiologist Jason H. Wasfy, MD, MPhil, lead author of the research letter, director of Outcomes Research at the MGH Heart Center and a medical director of the Massachusetts General Physicians Organization (MGPO). In pursuit of that mission, Wasfy and several MGH colleagues decided to analyze the socioeconomic and demographic characteristics of patients tested for COVID-19 at 14 sites within the Mass General Brigham system from the earliest days of the pandemic until mid-December 2020. Those sites include not only hospitals also but community health centers and urgent care clinics. Combining the results of both inpatient and outpatient testing for COVID-19 distinguished this analysis from most earlier inquiries, which primarily focused on inpatient testing. "That made our sample more representative," says Wasfy. "It's a more valid way of looking at the total effect of COVID-19 on all patients."

Another factor that distinguishes this analysis is its sheer size: It is based on test results from 394,536 patients. Electronic health records were used to compile data regarding each patient's gender, race and insurance status, as well as where they lived (indicated by ZIP code). Publicly available data for information such as median household income and employment status was then compiled for each ZIP code.

The MGH team's analysis found that 29,977 patients (7.6% of those tested) had positive results for COVID-19. Males (8.2%) were slightly more likely than females (7.2%) to test positive. Stark contrasts emerged when Wasfy and his colleagues broke down positive cases by race and socioeconomic factors. For example:

- The study found that 5.6% of white patients tested positive, compared to 17.2% of Hispanic patients and 11.9% of Black patients.
- Using ZIP codes, they found that patients from communities where the median annual household income was \$70,000 or less were nearly three times more likely to test positive for COVID-19 than patients from communities where median households were greater than \$100,000 per year (13.3% compared to 4.7%).
- Medicaid patients had more positive tests (14.2%) than those with commercial insurance (6.8%).
- People who lived in areas where unemployment was higher than 5% were nearly twice as likely to have COVID-19 than those from communities with unemployment of 3.5% or less (10.7% compared to 5.8%).
- On the other hand, in ZIP codes populated by a significant portion of people with jobs in the service sector—who couldn't stay home and work remotely during the pandemic—were more than three times as likely to contract COVID-19 than others from communities with relatively fewer [service-sector](#) employees (13.4% compared to 4.2%).

"Although our study is innovative in using patient-level data to assess the association between positive COVID tests and socioeconomic and demographic characteristics of individual patients, the results confirm that structural constructs in our society persevere and contribute to health outcomes inequities," says Marcela del Carmen, MD, who is interim president of the MGPO and senior author of the paper.

Wasfy echoes that sentiment, noting that [social phenomena](#)—not biology—have a large influence on who becomes infected with the coronavirus. "Societal disadvantages that were baked in before the pandemic led the pandemic to take a tremendously different toll on

specific groups of patients," he says, noting that these factors (often called social determinants of health) influence the risk for other conditions, such as heart disease and type 2 diabetes. "Our results show how profoundly systemic, structural aspects of society are revealed by assessing the spread of disease."

Wasfy is an assistant professor of Medicine at Harvard Medical School (HMS). Del Carmen is a professor of obstetrics, gynecology, and reproductive biology at HMS.

More information: Jason H. Wasfy et al, Socioeconomic and Demographic Characteristics of Both Inpatients and Outpatients with Positive Testing for SARS-CoV-2, *Journal of General Internal Medicine* (2021). [DOI: 10.1007/s11606-021-06919-x](https://doi.org/10.1007/s11606-021-06919-x)

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