Study identifies racial and ethnic disparities in hospital mortality for COVID and non-COVID patients alike

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During the COVID-19 pandemic, Hispanic Medicare patients hospitalized with COVID-19 were more likely to die than non-Hispanic white Medicare beneficiaries, according to a study led by researchers

from the Department of Health Care Policy in the Blavatnik Institute at Harvard Medical School.

The analysis also found that existing pre-pandemic racial and ethnic disparities in hospital mortality widened during the pandemic—an exacerbation that was fueled by a widening gap between deaths of Black and white people, the researchers said.

The study, done in collaboration with Avant-garde Health and the University of Arkansas for Medical Sciences, is published Dec. 23 in *JAMA Health Forum*.

Although this is by no means the first study to unmask critical health care inequities during the pandemic, it is believed to be one of the most comprehensive to date. The analysis measures racial and ethnic disparities in death and other hospital-based outcomes for both COVID-19 and non-COVID-19 patients based on an examination of complete hospitalization data for Medicare beneficiaries nationwide.

Because the challenges posed by COVID-19 hospitalizations may have had spillover effects on non-COVID-19 hospitalizations, it was important to examine outcomes in people hospitalized for both COVID and non-COVID, the researchers said. Even during the height of the pandemic, more than 85 percent of hospitalizations were for people who were not infected with SARS-CoV-2, so this study provides a much fuller view of the racial and ethnic disparities sparked by the pandemic, building on studies that have measured outcomes solely in COVID cases, the researchers said.

The findings are far from surprising, the researchers said, but they underscore once more the profound health inequities in U.S. health care and should be viewed as an urgent call to action to address the structural inequalities and individual biases that drive disparities from both inside

and outside of the health care system.

"Our study shows that Medicare patients' racial or ethnic background is correlated with their risk of death after they were admitted to hospitals during the pandemic, whether they came into the hospital for COVID-19 or another reason" said study lead author Zirui Song, HMS associate professor of health care policy and a general internist at Massachusetts General Hospital. "As the pandemic continues to evolve, it's important to understand the different ways COVID is affecting health outcomes in communities of color so providers and the policy community can find ways to improve care for those who are most disadvantaged."

Since the beginning of the pandemic, people of color have had a disproportionately higher risk for exposure to the virus and borne a markedly higher burden for more severe illness and worse outcomes, including hospitalization and death.

These risks stem from several factors. For example, people of color are more likely to work jobs with high rates of infection exposure, to live in more densely populated, multigenerational homes that heighten transmission risk among household members, and to have comorbidities—cardiovascular illness, diabetes, obesity, asthma—that drive the risk for more severe illness after infection. These groups also tend to have worse access to health care. Because such social determinants of health are correlated with race and ethnicity, the researchers did not adjust their findings for socioeconomic status.

For the current study, the researchers analyzed mortality rates and other hospitalization outcomes such as discharges to hospice and discharges to post-acute care for Medicare patients admitted to a hospital between January 2019 and February 2021. The study focused on traditional Medicare beneficiaries and did not include people participating in a Medicare Advantage plan.

The team examined the data to answer two basic questions: First, were there any differences in hospitalization outcomes among people on Medicare with COVID-19? Second, what happened to people hospitalized for conditions other than COVID-19 during the pandemic?

Among those hospitalized with COVID-19, there was no statistically significant mortality difference between Black patients and white patients. However, deaths were 3.5 percentage points higher among Hispanic patients and patients from other racial and ethnic groups, compared with their white counterparts.

Many hospitals and health systems have been stretched to capacity during the pandemic. Yet through the many COVID-19 surges during the months of the study, the researchers noted, more than 85 percent of hospital admissions in Medicare nationwide were still for conditions other than COVID-19. Were the stresses on the health care system felt equally across medical conditions and across racial and ethnic groups?

Because there were already disparities in outcomes between white people and people of color before the pandemic, the researchers compared the disparities before the pandemic with the disparities during the pandemic, using what's known as a difference-in-differences analysis to see how the existing disparities changed under the stresses of the pandemic.

Among individuals hospitalized for conditions other than COVID-19, Black patients experienced greater increases in mortality rates, 0.48 percentage points higher, compared with white patients. This represents a 17.5 percent increase in mortality among Black patients, compared with their pre-pandemic baseline. Hispanic and other minority patients without COVID-19 did not experience statistically significant changes in in-hospital mortality, compared with white patients, but Hispanic patients did experience a greater increase in 30-day mortality and in a

broader definition of mortality that included discharges to hospice, than did white patients.

One possible factor for the differences between mortality of Black and white people for non-COVID hospitalizations suggested by the data is this: for white individuals, the mix of people admitted to the hospital got healthier during the pandemic, perhaps because sicker, higher-risk white people had more resources to stay home, wait out surges in the pandemic, or receive care as outpatients, such as through telehealth, with support systems in place at home.

Non-white hospitalized patients, likely having fewer such support systems, got, on average, sicker compared with white hospitalized patients, which may explain, at least in part, the relative increase in mortality rates among non-white groups.

The findings could also be related to evolving disparities in access to hospitals, getting admitted, or quality of care during the pandemic, the researchers said. Moreover, structural racism, which could partly explain why hospitals serving more disadvantaged patients, who tend to be people of color, might have had fewer resources than hospitals with mostly white patients, and changes in conscious or unconscious bias in health care delivery during the pandemic could have also played a role, Song said.

The findings that emerge from this work are nuanced and complex, the researchers said. Medicare claims data and hospital medical records can't explain all of the cultural, historical, economic, and social factors that contribute to health disparities for people with COVID. And they can't pinpoint why non-white patients were more likely to die after being hospitalized for COVID or why the preexisting disparities among people hospitalized for non-COVID conditions worsened during the pandemic.

"One thing is clear," Song said. "We have much work to do to make sure that everyone who comes into U.S. hospitals receives the best care possible and has an equitable chance to live a healthy life following hospitalization."

Co-investigators included Lindsey Patterson at HMS, Xiaoran Zhang and Derek Haas at Avant-garde Health, and C. Lowry Barnes at University of Arkansas for Medical Sciences.

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