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Correspondence

COVID Highlights Another Crisis: Lack of Black Physicians and Scientists

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The crisis of the COVID-19 pandemic has prompted widespread alarm about deficiencies and disparities in the health care system in the United States.¹ Despite having the world's most expensive medical care, outcomes are woefully poor and lifespan and overall health appear to be declining. Tens of millions of uninsured or underinsured Americans mean large swaths of the country fail to receive even the most routine preventive health maintenance, leading to an overwhelming burden of chronic disease and lost productivity. We need to recognize that the US health care system is deeply flawed. The old bromide "never let a crisis go to waste" has never been so apt. The COVID pandemic is threatening to place US health care on life support, with our only hope of recovery being a major commitment to overhaul and repair our frailties and inequalities.

The stark realities of health inequality have been thrust under a glaring spotlight by the disproportionately higher COVID case rates and fatalities in communities of color. Black, Latinx, and Native populations are being hardest hit because they suffer more of the social determinants that predict poor health outcomes in the current COVID crisis. Bearing the brunt of poverty and overcrowded living conditions provides little opportunity for social distancing.² The shocking over-abundance of morbidity and mortality in minority communities highlights the deep

socioeconomic and cultural divides in this country. The root causes transcend poor access to health care and limited resources of hospitals that serve the socioeconomically disadvantaged.^{3,4} With Black and Latinx patients filling hospital beds in New York City, New Orleans, and other major cities, a less appreciated crisis is apparent in the demographics of the physician work force that serves them. While Blacks make up 13% of the US population,⁵ they comprise only 4% of U.S. doctors and less than 7% of medical students. Black doctors are more likely to practice in underserved communities, and patients of color have better outcomes when served by doctors who look like them (<https://www.nytimes.com/2020/01/13/upshot/race-and-medicine-the-harm-that-comes-from-mistrust.html>). Research on unconscious bias has revealed that the majority of white physicians harbor bias against Blacks.⁶ These biases can lead to poor physician communication and poor clinical outcomes. There is evidence in the COVID-19 pandemic that unconscious bias by white physicians may be contributing substantially to the disparities seen in clinical outcomes by Blacks.⁷ In the current crisis, the absence of Black physicians has likely led to more deaths and disability that will persist long after the pandemic recedes.

The low number of Black physicians is itself a crisis.⁸ The even more stark absence of scientists and researchers

of color who are equipped to launch a scholarly assault begs the question of whether U.S. health care can effectively address the social determinants that create the health outcome disparities of the COVID crisis. The absence of Blacks in medicine means a dearth of practitioners who understand their patients' needs and who inspire trust in communities subject to historic deficiencies in health care services and quality. It also means a deficiency in the hidden curriculum where students in close proximity share their different life experiences, thereby enhancing the academic milieu. In medical education today, social science is just as important as basic science. The absence of Black faculty members in departments of biostatistics, epidemiology, and microbiology and in schools of medicine and public health means our health care system will never be adequately prepared for the next pandemic. Who will analyze the COVID crisis across demographic

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groups and suggest remedies for the future?

The COVID-19 crisis has increased the need for engineers equipped to develop user-centered solutions spanning all aspects of the pandemic, from testing to PPE to digital technology. Blacks make up a mere 5% of the science and engineering workforce and are largely missing among academic leaders in science, engineering and medicine (<https://www.nist.gov/speech-testimony/african-american-technological-contributions-past-present-and-future>). Like those pursuing medicine, Blacks pursuing engineering are often driven by a desire to contribute to their community and thus are well positioned to help reduce disparities and improve health outcomes.

The crisis of underrepresentation of Blacks in medicine and all STEM fields (science, technology, engineering, and mathematics) reflects a long-standing disparity in access to and quality of education and is only likely to be exacerbated further by the COVID pandemic. With schools closed and students left to self-educate at home, the digital divide between rich and poor leave many students in minority communities without computers, with poor internet bandwidth, and without quiet, private, safe learning environments. The COVID pandemic will only further amplify the educational disparities that are likely to perpetuate socioeconomic inequality.

In an attempt to address these long-standing and widespread disparities, the US National Academies of Science, Engineering, and Medicine have convened a round table of leading physicians, scientists, and engineers aimed at studying the underlying root causes of the under-representation of Blacks in medicine and other STEM fields. We are organized into action groups probing systemic change to overcome psychological and social barriers to success, racism and bias, kindergarten to graduate education, mentorship and advising, finance and economics, and public engagement. The National Academies' round table seeks to define strategies to increase representation. Enhancing diversity, inclusion, and racial equity in such a vital sector of society as health care will promote improvements in all aspects of health care delivery and promises to pave the way for more balanced, effective, and just responses to public health crises in the future.

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DECLARATION OF INTERESTS

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1. James, S.A. (2017). The strangest of all encounters: racial and ethnic discrimination in US health care. *Cad. Saude Publica* 8 (33, Suppl 1), e00104416, <https://doi.org/10.1590/0102-311X00104416>.
2. Laurencin, C.T., and McClinton, A. (2020). The COVID-19 Pandemic: a Call to Action to Identify and Address Racial and Ethnic Disparities. *J. Racial Ethn. Health Disparities* 7, 398–402.
3. Copeland, V.C. (2005). African Americans: disparities in health care access and utilization. *Health Soc. Work* 30, 265–270.
4. Millett, G.A., Jones, A.T., Benkeser, D., Baral, S., Mercer, L., Beyrer, C., Honermann, B., Lankiewicz, E., Mena, L., Crowley, J.S., et al. (2020). Assessing Differential Impacts of COVID-19 on Black Communities. *Ann. Epidemiol.* <https://doi.org/10.1016/j.annepidem.2020.05.003>.
5. Garg, S., Kim, L., Whitaker, M., O'Halloran, A., Cummings, C., Holstein, R., Prill, M., Chai, S.J., Kirley, P.D., Alden, N.B., et al. (2020). Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019- COVID-NET, 14 States, March 1-30, 2020. *MMWR Morb. Mortal. Wkly. Rep.* 69, 458–464.
6. Maina, I.W., Belton, T.D., Ginzberg, S., Singh, A., and Johnson, T.J. (2018). A decade of studying implicit racial/ethnic bias in healthcare providers using the implicit association test. *Soc. Sci. Med.* 199, 219–229.
7. Milam, A.J., Furr-Holden, D., Edwards-Johnson, J., Webb, B., Patton, J.W., Ezekwemba, N.C., Porter, L., Davis, T., Chukwurah, M., Webb, A.J., et al. (2020). Are Clinicians Contributing to Excess African American COVID-19 Deaths? Unbeknownst to Them, They May Be. *Health Equity* 4, 139–141.
8. National Academies of Sciences, Engineering, and Medicine (2018). *An American Crisis: The Growing Absence of Black Men in Medicine and Science: Proceedings of a Joint Workshop* (Washington, DC: The National Academies Press). <https://doi.org/10.17226/25130>.