Study finds disparities in United States COVID-19 vaccine distribution

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When reports showed that COVID-19 vaccination rates were lower among racial/ethnic minority groups, most discussions focused on mistrust and misinformation among these populations or their reduced access to health care facilities. But new research from University of California San Diego and collaborating institutions has identified an additional barrier to equity: whether or not each health care facility

actually received and administered vaccines.

In a study published July 28, 2022 in *PLOS Medicine*, researchers demonstrated that health care facilities serving underrepresented, rural and hardest-hit communities were less likely to administer COVID-19 vaccines in the early phase of the vaccine rollout.

Led by Inmaculada Hernandez, PharmD, Ph.D., associate professor of clinical pharmacy at Skaggs School of Pharmacy and Pharmaceutical Sciences at University of California San Diego, the study is the first to quantify disparities in the early distribution of COVID-19 vaccines to health care facilities across the country.

Previous studies of vaccine accessibility have not distinguished whether lower access in underserved neighborhoods was a product of the lower concentration of health care facilities in these areas or of inequities in the distribution of COVID-19 vaccines to each health care facility.

To answer this question, Hernandez and colleagues tested whether the likelihood of an eligible health care facility administering COVID-19 vaccines varied based on the racial/ethnic composition and urbanicity of the local county. The team focused on the initial phase of vaccine rollout, using data from May 2021 when states were officially required to make vaccines available to the public.

At that time, 61 percent of eligible health care facilities and 76 percent of eligible pharmacies across the U.S. provided COVID-19 vaccinations. When researchers began comparing these rates with the socioeconomic features of the county in which each facility was located, several patterns emerged.

Facilities in counties with high proportions of Black people were less likely to serve as COVID-19 vaccine administration locations than were

facilities in counties with low proportions of Black people. This was particularly the case in metropolitan areas, where facilities in urban counties with large Black populations had 32 percent lower odds of administering vaccines than facilities in urban counties with small Black populations.

Facilities in rural counties and in counties hardest hit by COVID-19 were also associated with decreased odds of serving as a COVID-19 vaccine administration location. In rural counties with high proportions of Hispanic people, facilities had 26 percent lower odds of administering vaccines than facilities in rural counties with low proportions of Hispanic people.

"Both the national policy and public opinion agreed that vaccine distribution should prioritize disadvantaged communities and those hit hardest by COVID-19, but the data shows that is not what happened," said Hernandez.

Further research is necessary to identify the reasons why vaccines were not equitably distributed to all health care facilities and how the involvement of these facilities evolved across subsequent phases of vaccine distribution, the authors said.

"To achieve health equity in future public health programs, including the distribution of booster shots, it is crucial that public health authorities review these early COVID-19 distribution plans to understand how and why this happened," said senior author Jingchuan (Serena) Guo, MD, Ph.D., assistant professor at University of Florida.

Co-authors include Shangbin Tang and Nico Gabriel at UC San Diego, Sean Dickson at West Health Policy Center and Lucas A. Berenbrok at University of Pittsburgh.

More information: Inmaculada Hernandez et al, Disparities in distribution of COVID-19 vaccines across US counties: A geographic information system–based cross-sectional study, *PLOS Medicine* (2022). DOI: 10.1371/journal.pmed.1004069