More equitable vaccine coverage could have prevented over 250 COVID-19 deaths in Chicago

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A new study by researchers at the University of Chicago Medicine has found that 255 COVID-19-related deaths could have been prevented

during the Alpha and Delta waves had vaccine coverage been more equitable across 52 of Chicago's zip codes.

William Parker, MD, Assistant Professor of Medicine as well as Public Health Sciences at the University of Chicago, conducts research on the allocation of health resources. He became interested in studying vaccine coverage in Chicago after witnessing the initial COVID-19 vaccine rollout. "I felt it was important to rigorously quantify the consequences of inequity in vaccine coverage," Parker said.

In the study, published May 27, 2022 in *JAMA Network Open*, researchers analyzed data from the Chicago Department of Public Health, looking at COVID-19 deaths and vaccination rates by zip code during the Alpha wave from March to June 2021 and the Delta wave from August to November 2021. During both waves, 68 COVID-related deaths occurred in the most-vaccinated zip codes, while 342 deaths occurred in the least-vaccinated zip codes.

Up to 27% of residents in the least-vaccinated areas received the first dose of the vaccine at the beginning of the Alpha wave, compared to up to 49%of residents in the most-vaccinated areas. Statistical modeling revealed that there would have been a 75% reduction in the number of deaths during both waves if the least-vaccinated zip codes had followed a similar trend as the most-vaccinated zip codes.

Demographically, 80% of the residents in the least-vaccinated zip codes identify as Black, while nearly 70% of residents in the most-vaccinated zip codes are White. Discrepancies in rates of health insurance coverage and median household income also were found.

The low number of deaths in the more affluent areas emphasizes the powerful effect of vaccination. "That was very striking. These areas that got high vaccine coverage made the pandemic cease to be," said Parker.

The results are an indication that vaccines save lives, he said, and formal documentation of such scientific evidence is important.

"Our study doesn't tell us why there were disparities in vaccine coverage; it only shows the consequences," said Parker, senior author on the study. These findings were bolstered by data collected through a collaborative effort between the news outlet WBEZ and a team of journalists from Columbia University's Brown Institute for Media Innovation and the nonprofit MuckRock. The team found the initial vaccine rollout did not give priority to some underserved communities, pointing toward disparities in vaccine coverage.

This study highlights the need for a more effective approach to the distribution of health care resources, including vaccine allocation. "We need to proactively develop a better bioethical framework and resource allocation plan for the next crisis, otherwise history will continue to repeat itself," Parker said.

More information: Sharon Zeng et al, Association of Zip Code Vaccination Rate With COVID-19 Mortality in Chicago, Illinois, *JAMA Network Open* (2022). DOI: 10.1001/jamanetworkopen.2022.14753

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