Despite vaccine shortages, many younger people in New York City accessed vaccines ahead of schedule, particularly in high-income areas,
according to new research at Columbia University Mailman School of Public Health.

Low-income areas with high proportions of older people demonstrated lower coverage rates than wealthier areas in the first three months of vaccine rollout, and higher mortality over the year. The findings are published in the *Journal of Urban Health*.

"A vaccine program that prioritized those at greatest risk of COVID-19-associated morbidity and mortality would have prevented more deaths than the strategy that was implemented," said Nina Schwalbe, adjunct professor of population and family health at Columbia Mailman School.

"When rolling out a new vaccine, policymakers must account for local conditions of high-risk population groups. If New York had focused limited vaccine supply on low-income areas with high proportions of residents 65 or older, overall mortality might have been lower."

The researchers describe the rollout plan and the timetable for the various groups and when they received their vaccinations. Beginning on December 14, 2020 New York administered its first vaccines to high-risk hospital workers, leading to all adults 70 years and older (on January 4, 2021), 60 and older (10 March 2021); 50 and older (23 March) and all adults 30 years and older (on March 30 2021).

During this period, the New York State Department of Health in collaboration with the New York City Department of Health and Mental Hygiene delivered vaccines primarily through fixed-point mass vaccination sites.

The researchers analyzed linked Census Bureau data and New York City Health administrative data aggregated at the level of modified zip code
tabulation areas (MODZCTA). Race, income, and age data by MODZCTA were obtained from the US Census Bureau. Calculations were based on COVID-19 mortality rates per 100,000 population in each MODZCTA from December 1, 2020 to December 31, 2021.

"In New York, as elsewhere, the probability of dying from COVID-19 was not equally distributed across the population. The single greatest risk factor for COVID-19-related mortality was older age; low-income households were also particularly vulnerable," noted Schwalbe.

By the last week of March, the mean vaccination rate for 65+ ranged from 53 percent in the poorest quintile to 75 percent in the wealthiest. The maximum coverage was 99 percent among those 65+ in the wealthiest area versus 68 percent in the poorest. One year later when vaccines were widely available, 65+ residents had median vaccination coverage exceeding 87 percent, including in the lowest wealth area.

"Our analysis explores whether New York widened vaccination eligibility too quickly in the face of vaccine shortages rather than focusing first on those at higher risk, begging the question of whether older New Yorkers living in low-income communities would have been better served in the face of COVID-19 vaccine shortages if distribution had been targeted toward them," noted Schwalbe.

At a time when vaccine supply was still limited, many lower-risk, younger people accessed vaccines ahead of schedule, particularly in high-income suggesting "misallocation" of doses that could have been provided to older people, who had higher case fatality rates, according to Schwalbe and colleagues, which could have been corrected by authorities through more stringent enforcement of state mandated guidelines on distribution criteria.

"While it is plausible that access for younger people was granted to those
in scheduled professions or having underlying health risks, this is unlikely to account for the magnitude of difference between low and high-income zip codes," noted Schwalbe.

"Our analysis provides clear evidence of why U.S. policymakers must target their distribution approach to providing access to lifesaving technologies in short supply, focusing first on those most at risk of severe morbidity and mortality."

Co-authors are Marta C Nunes, Medical Research Council, University of the Witwatersrand, Johannesburg, and Center of Excellence in Respiratory Pathogens, Hospices Civils de Lyon, and Centre International de Recherche en Infectiologie, Université Claude Bernard Lyon 1, Inserm; Clare Cutland, University of the Witwatersrand; and Brian Wahl, Johns Hopkins Bloomberg School of Public Health; and Daniel Reidpath, Queen Margaret University, Edinburgh and Monash University.


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