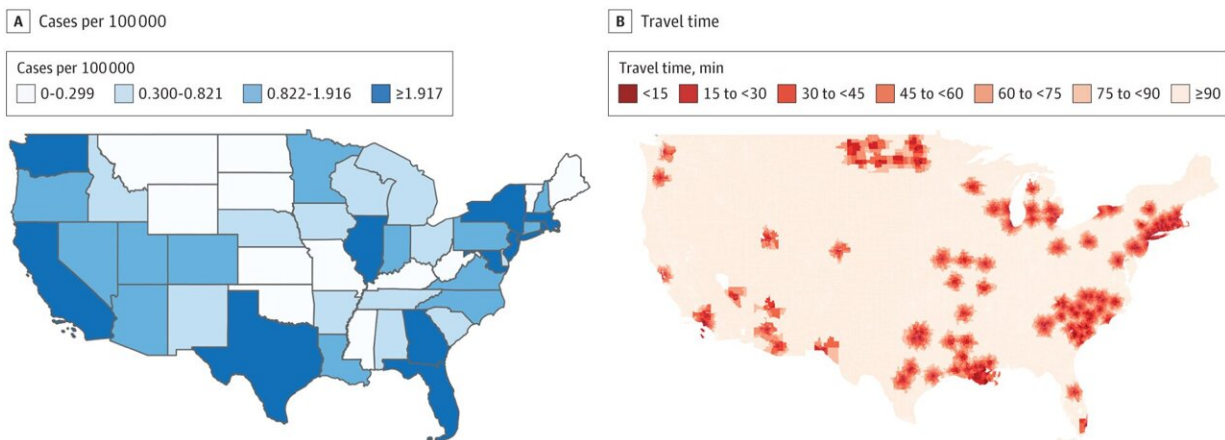


Early in mpox outbreak, access to vaccines was unequal across racial groups

April 10 2023, by Mallory Locklear



State Prevalence Rate and Minimum Travel Time to Mpox Vaccination Site as of August 2022. Maps show US cases of mpox by state per 100 000 (A) and travel time to a destination site (B). Credit: *JAMA Network Open* (2023). DOI: 10.1001/jamanetworkopen.2023.7873

In August 2022, U.S. health officials declared mpox (formerly known as monkeypox) a public health emergency. At that time, however, the national supply of the approved preventative treatment—the smallpox/mpox vaccine Jynneos—was severely constrained, making distribution a challenge.

In a new study, Yale researchers assessed the distribution of Jynneos during the first days after the emergency declaration, identifying regions

where initial coverage was particularly lacking and populations that had less access to [vaccine doses](#).

They found that vaccine distribution was generally in proportion to cases at the peak of the outbreak, but that access was unequal across racial groups, with Black and Hispanic individuals having to travel significantly longer for doses.

The findings, the researchers say, will be important for guiding the response to future outbreaks of new diseases—or to a potential resurgence in mpox cases.

The study was published April 10 in *JAMA Network Open*.

Mpox is a [rare disease](#) caused by infection with the mpox virus. Infections often initially present as a nonspecific flu-like illness, including fever, headache, and malaise. And while infections usually occur in Central and West Africa, mpox cases last year were reported in countries where they are rarely seen, including across the United States.

In the U.S., mpox cases peaked on Aug. 5, 2022, with a seven-day average of 459 cases per day.

"Looking at our vaccine supply versus vaccination need in August 2022, our first question as public health practitioners was how we could distribute the limited vaccines we had most effectively," said Peter Kahn, a pulmonary and critical care fellow at Yale School of Medicine and lead author of the study. "The goal was to get vaccines to where the mpox cases were as quickly and effectively as possible."

Due to the limited supply, the U.S. Centers for Disease Control and Prevention (CDC) allocated vaccine doses to states' departments of public health. But that centralized distribution fueled concerns about

equitable distribution, said Kahn.

To assess vaccine access, Kahn and his colleagues first identified how and where states were distributing vaccines. They found that by Aug. 5, 26 U.S. states and Washington, D.C. had set up 247 vaccination sites, with the remaining states distributing vaccines on a case-by-case basis.

Using data from the CDC and the U.S. Department of Health and Human Services, the researchers then analyzed initial vaccine distribution rates and found that the number of doses shipped strongly correlated with the number of mpox cases per state.

The researchers also examined how long people had to drive to reach the nearest vaccination site; they found that in the early days of the public health emergency, 17% of the population lived within 15 minutes of a vaccination site, 18% lived 15 to 30 minutes from a site, and 47% lived over an hour from their nearest vaccination site.

"This approach to computing nationwide drive times, in this case hundreds of millions of routes, has become suddenly feasible on relatively modest systems and is an incredibly powerful method for understanding highly granular transportation access strengths and challenges," said Walter Mathis, assistant professor of psychiatry at Yale School of Medicine and senior author of the study.

The initial distribution, Kahn said, was successful in some ways and less so in others.

"The correlation between [vaccine distribution](#) and cases suggests the public health infrastructure that responded to mpox was responsive and efficient," said Kahn. "But this rapid response exposed cracks in our health care delivery system; early access was not equal, with Black and Hispanic individuals lacking access."

Specifically, the study revealed that while 46.5% of white people in the U.S. lived within 30 minutes of a vaccination site, only 16.3% and 24% of Black and Hispanic people did, respectively. According to health data, mpox has affected more Black and Hispanic people than white people in the U.S. (representing 30.9% and 28.2% of cases versus 27.4% of cases, respectively, as of March 29).

"These findings suggest there are areas requiring significant improvement in our health care delivery systems," Kahn said. "We may need to think creatively and differently about the infrastructures we use to deliver much-needed vaccines."

In the months following the [public health emergency](#) declaration, different distribution approaches were tested, some proving quite successful, said Kahn. For example, the Georgia Department of Public Health, with support from community-based organizations, administered more than 4,000 doses of the vaccine at events associated with the Black gay pride festival in Atlanta. Research found that the percentage of vaccinated individuals in Georgia who were Black increased by seven percentage points following the festival.

"The takeaway is that proactively going out and meeting folks where they are is an effective way to deliver public health. Especially when considering groups who have in the past been marginalized," said Kahn. "Ensuring equitable access to health care is key."

Vaccine access improved in the months following the emergency declaration and as of March 7, 2023, over 1.2 million doses have been administered in the United States. Since February, public health officials report that the seven-day average has been four reported cases of mpox per day or less. However, CDC projections released in late March predict a resurgence.

"With the possibility of future outbreaks of mpox and other preventable illnesses around the corner, vaccines remain a key tool in our [public health](#) arsenal," said Kahn. "Figuring out the best way to reach the greatest number of people equitably and quickly is crucial to delivering these lifesaving vaccines effectively."

More information: Peter A. Kahn et al, Availability and Accessibility of Live Nonreplicating Smallpox/Mpox Vaccine, *JAMA Network Open* (2023). [DOI: 10.1001/jamanetworkopen.2023.7873](https://doi.org/10.1001/jamanetworkopen.2023.7873)

Provided by Yale University

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