

Model suggests increased use of Paxlovid could cut hospitalizations, deaths and costs

February 23 2024



Epidemiology researchers have found that if just 20% of symptomatic COVID cases was treated with Paxlovid, it would reduce deaths, hospitalizations and costs. Credit: University of Texas at Austin

Increased use of Paxlovid, the antiviral drug used to treat COVID-19,

could prevent hundreds of thousands of hospitalizations and save tens of billions of dollars a year, according to a new epidemiological model published by researchers at The University of Texas at Austin. In fact, epidemiologists found that treating even 20% of symptomatic cases would save lives and improve public health.

A 2023 National Institutes of Health study found that only about 15% of high-risk patients take Paxlovid when infected with COVID-19. Using a multiscale mathematical model based on conditions seen over 300 days beginning in January 2022, the researchers found that using Paxlovid on 20% of symptomatic COVID-19 patients during the omicron wave would have resulted in up to 850,000 fewer hospitalizations and saved up to \$170 billion.

Even with lower transmission levels of the virus, the researchers estimate that an expanded use of Paxlovid could save approximately 30,000 lives during an outbreak.

The findings appear in the February issue of [Emerging Infectious Diseases](#).

"This model shows us there are real benefits to using Paxlovid, not just for the patients receiving treatment, but for the people around them," said Lauren Ancel Meyers, UT professor of integrative biology and statistics and data sciences, director of the Center for Pandemic Decision Science and corresponding author of the paper.

"Not only does this drug help keep [high-risk patients](#) out of the hospital, but it can substantially decrease the chance that a treated patient will infect other people."

The team of researchers assumed patients would take Paxlovid within five days of symptom onset, which is recommended, and estimated

different outcomes based on different potential levels of viral transmission, which can vary in communities and with the variant of the virus. If each symptomatic person was assumed to go on to infect about one other person, giving Paxlovid to even one out of every five of all symptomatic patients could result in 280,000 fewer hospitalizations and save nearly \$57 billion.

If the virus were to lead the average symptomatic patients to go on to infect closer to three people, as some research has found with the omicron variant, using Paxlovid in 20% of patients would be predicted to result in 850,000 fewer hospitalizations and save more than \$170 billion.

"We conducted this analysis to help doctors and policymakers make good decisions about using Paxlovid to combat future waves of COVID," Meyers said.

"A lot of our work is aimed at improving global preparedness for future pandemics. These kinds of models can help to ensure that the U.S. has enough antivirals stockpiled and to design playbooks for using vaccine, drugs and other measures in the heat of threat to slow viral spread and save as many lives as possible."

More information: Yuan Bai et al, Public Health Impact of Paxlovid as Treatment for COVID-19, United States, *Emerging Infectious Diseases* (2024). [DOI: 10.3201/eid3002.230835](https://doi.org/10.3201/eid3002.230835)

Provided by University of Texas at Austin

Citation: Model suggests increased use of Paxlovid could cut hospitalizations, deaths and costs (2024, February 23) retrieved 27 April 2024 from

<https://medicalxpress.com/news/2024-02-paxlovid-hospitalizations-deaths.html>

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