

Adapt the frequency of COVID-19 testing depending on transmission rate and community immunity, study finds

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Infectious disease researchers at The University of Texas at Austin have developed a new model that tailors rapid testing recommendations to new variants and likely immunity levels in a community. Credit: The University of Texas at Austin

Expanding rapid testing stands out as an affordable way to help mitigate

risks associated with COVID-19 and emerging variants. Infectious disease researchers at The University of Texas at Austin have developed a new model that tailors testing recommendations to new variants and likely immunity levels in a community, offering a new strategy as public health leaders seek a way out of a pandemic that has so far thwarted the best efforts to end its spread. It is the first study to identify optimal levels of testing in a partially immunized population.

Analysis from the UT Covid-19 Modeling Consortium, published in *The Lancet Regional Health—Americas*, describes cost-effective testing for people without symptoms and recommends isolation strategies to help policymakers safeguard against COVID-19 resurgences linked to new variants. A prior study from the team published in *The Lancet Public Health* provided optimal testing strategies for a fully unvaccinated population.

"As COVID-19 continues to evolve and cause waves of infections worldwide, rapid testing is an economic strategy for slowing spread and saving lives. Our study helps decision makers determine whether and how often to test," said Lauren Ancel Meyers, director of the consortium and a professor of integrative biology and statistics and data sciences at UT Austin. "Frequent testing is recommended when the virus is spreading rapidly in a population with low levels of immunity."

The consortium developed a multiscale model that uses how much the virus is circulating in a [local population](#), how much of the population is immunized against COVID-19, and other factors to determine how often people without symptoms should be tested in order to help reduce the spread of the virus.

The study recommends a staged strategy that tracks the changing risks as new variants emerge and subside. If a rapidly spreading [variant](#) emerges in a partially immunized population, the researchers recommend testing

everyone at least once per week combined with a 10-day isolation of people who [test](#) positive and their households. As the level of immunity increases in a population, testing can be rolled back to once per month and eventually suspended. For example, for a variant as infectious and immune-evasive as omicron, daily testing is advised until 70% of the population is immunized against the variant, followed by monthly testing until 80% are immunized.

The U.S. may face future waves of transmission caused by vaccine-evasive variants. The study suggests that proactive testing will remain a cost-effective strategy for reducing risks and avoiding burdensome restrictions as new threats arise. The recommended testing strategies balance the costs associated with administering tests and missing school or work during isolation with the benefits of preventing COVID-19 hospitalizations and deaths.

"As COVID-19 continues to evolve, so does our arsenal of effective countermeasures. Our research shows that mass use of rapid tests coupled with voluntary isolation and household quarantine can be both life saving and cost saving, if tailored to local risks," Meyers said. "Now is the time to prepare for yet unknown COVID-19 variants and future pandemics. Proactive testing and isolation can be key to keeping schools and businesses open while preventing overwhelming surges in our hospitals."

More information: Zhanwei Du et al, Cost-effective proactive testing strategies during COVID-19 mass vaccination: A modelling study, *The Lancet Regional Health - Americas* (2022). [DOI: 10.1016/j.lana.2021.100182](https://doi.org/10.1016/j.lana.2021.100182)

Zhanwei Du et al, Comparative cost-effectiveness of SARS-CoV-2 testing strategies in the USA: a modelling study, *The Lancet Public Health* (2021). [DOI: 10.1016/S2468-2667\(21\)00002-5](https://doi.org/10.1016/S2468-2667(21)00002-5)

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