

With delta variant dominance, simulator predicts surge in COVID-19 deaths in most of US

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Investigators who previously developed the [COVID-19 Simulator](#)—which models the trajectory of COVID-19 in the U.S. at the state and national levels—have applied the tool to analyze potential scenarios in

which the COVID-19 delta variant becomes dominant in every state. The analysis, which is published on the preprint server medRxiv, reveals that the combination of high transmissibility of the delta variant, low vaccination coverage in several regions, and more relaxed attitudes toward social distancing will likely lead to a surge in COVID-19–related deaths in at least 40 states.

The simulator also predicts that in several states, daily COVID-19–related deaths could exceed the peak daily deaths that occurred in early 2021 if current social distancing behaviors and vaccination rates remain unchanged.

An additional 157,000 COVID-19–related deaths could occur across the United States between August 1 and December 31, 2021. The [model projects](#) approximately 20,700 COVID-19–related deaths in Texas, 16,000 in California, 12,400 in Florida, 12,000 in North Carolina, and 9,300 in Georgia during this period. In contrast, the projected number of COVID-19–related deaths would remain below 200 in New Jersey, Massachusetts, Connecticut, Vermont and Rhode Island.

The team's projections are updated weekly by incorporating vaccination rates and social distancing measures in each state, and the latest results can be found at the COVID-19 Simulator website.

"These projections should serve as a warning sign, especially in states that could have higher daily COVID-19 deaths than their previous peaks," says lead author Jagpreet Chhatwal, Ph.D., associate director of Massachusetts General Hospital's Institute for Technology Assessment and an assistant professor at Harvard Medical School. "We also hope that our projections can help policymakers bring back mask mandates and further advocate for COVID-19 vaccines."

Senior author Benjamin P. Linas, MD, MPH, a professor of medicine at

Boston University School of Medicine, adds that although it was hoped that the pandemic was waning, additional action is needed. "If you are not vaccinated, you are at high risk because of the delta variant. August 2021 is potentially more dangerous to you than August 2020," he says. "If you are vaccinated, you are much safer, but you should still care about this ongoing transmission because it creates the circumstances that generate new variants. If we want to end this pandemic, then all Americans need to be vaccinated and at least right now, we should be masking when in public indoor spaces."

Co-author Jade Yingying Xiao, a Ph.D. student at Georgia Tech, notes that if recent estimates of the reproduction number of the delta [variant](#) are correct, then the team's model implies current levels of social distancing are reducing transmission by 30 percent to 40 percent. "We can easily foresee this number dropping as we move ahead into the fall months with schools and colleges reopening," she says.

More information: Jagpreet Chhatwal et al, Changing Dynamics of COVID-19 in the U.S. with the Emergence of the Delta Variant: Projections of the COVID-19 Simulator, (2021). [DOI: 10.1101/2021.08.11.21261845](#)

Provided by Massachusetts General Hospital

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