

New online COVID-19 model reveals how modifying social-distancing measures will affect states

April 27 2020, by Mike Morrison



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A new [online tool](#), COVID-19 Simulator, developed by researchers at Massachusetts General Hospital (MGH) and Georgia Tech can help

policy makers see how lifting or extending different social-distancing measures at various times can impact each state in terms of COVID-19 cases, hospitalizations, and deaths. The tool uses most recent data for each state and infectious disease modeling, as recommended by expert epidemiologists.

The tool offers different scenarios for the following interventions with varying lengths: lifting restrictions, extending a stay-at-home order (where people are advised to stay at home except for essential needs), and implementing a lockdown (as observed in countries like China, Italy, and India)—with consequences such as the rate of new cases, potential strain on the healthcare system, and projected deaths for each intervention.

A state-level analysis provides a view of trends in one state under different intervention policies; a state-by-state comparison provides a view of trends for multiple states at the same time, under different intervention policies; and a national-level analysis provides a view of trends for the United States as a whole under different intervention policies.

Results indicate that lifting restrictions too soon can result in a second wave of infections and deaths. Georgia is planning to open some businesses on April 27th. The tool shows that COVID-19 is not yet contained in Georgia and even lifting restrictions gradually over the next month can result in over 23,000 deaths. Keeping current restrictions in place until July can contain the epidemic and could result in about 2,000 deaths. On the other hand, instead of a 12-week long stay-at-home order that can have an impact on the economy, a more restrictive lockdown of the state for 4 weeks will have the best outcome in terms of saving lives and can prepare Georgia to open business as soon as May 25th.

"Policy makers need to make decisions quickly—our analysis shows that

even a week's time can have a huge impact on the future trajectory of COVID-19. We developed the COVID-19 Simulator to inform such key decisions under this highly uncertain environment," said lead investigator Jagpreet Chhatwal, Ph.D., a Senior Scientist at the MGH Institute for Technology Assessment and an Assistant Professor at Harvard Medical School.

The tool's creators noted that because there are several unknowns about COVID-19, developing a prediction model is not easy. "COVID-19 Simulator innovatively combines epidemiological and statistical modeling to utilize best evidence as they arise, and we plan to continue to advance our approach as we learn more about the disease," said Turgay Ayer, Ph.D., the George Family Foundation Early Career Professor in H. Milton Stewart School of Industrial and Systems Engineering and the Director of Business Intelligence and Healthcare Analytics at the Center for Health and Humanitarian Systems at Georgia Institute of Technology.

Provided by Massachusetts General Hospital

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