A new way to accurately estimate COVID-19 death toll

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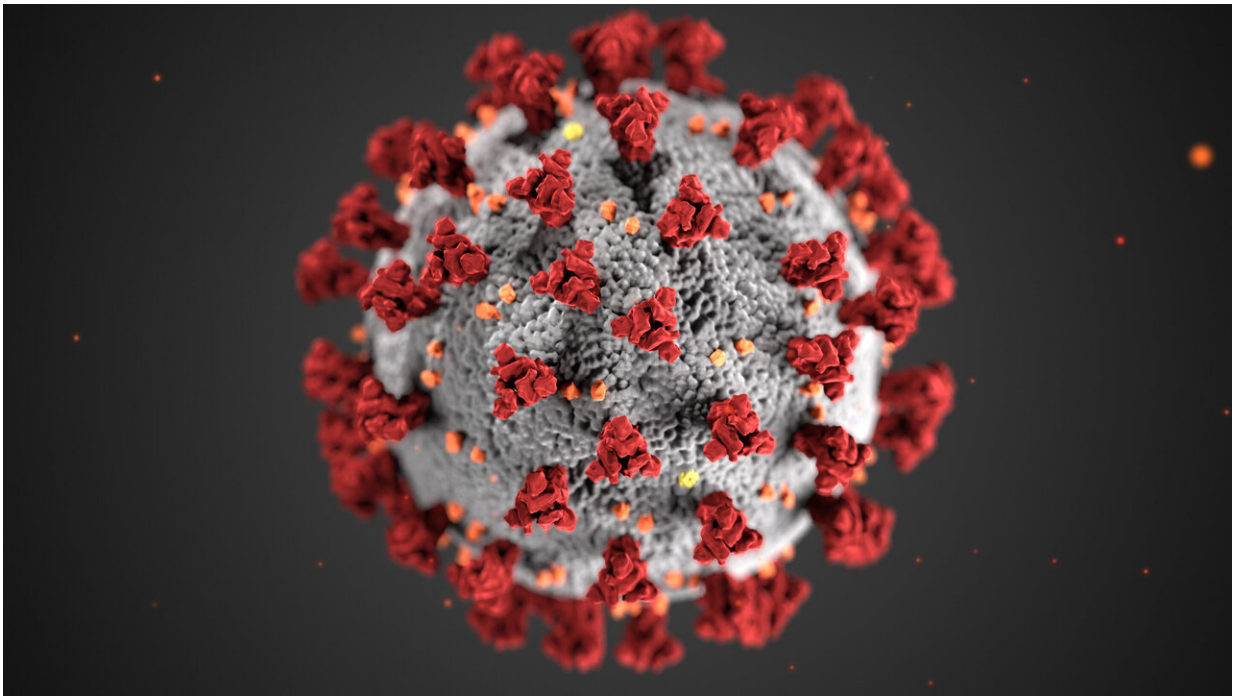

This illustration shows a coronavirus. A novel coronavirus, SARS-CoV-2, causes coronavirus disease 2019 (COVID-19). Credit: U.S. Centers for Disease Control and Prevention

A Rutgers engineer has created a mathematical model that accurately estimates the death toll linked to the COVID-19 pandemic in the United States and could be used around the world.

"Based on data available on April 28, the model showed that the COVID-19 pandemic might be over in the United States, meaning no more American deaths, by around late June 2020," said Hoang Pham, a distinguished professor in the Department of Industrial and Systems Engineering in the School of Engineering at Rutgers University-New Brunswick. "But if testing and contact tracing strategies, social-distancing policies, reopening of community strategies or stay-at-home policies change significantly in the coming days and weeks, the predicted death toll will also change."

The model, detailed in a study published in the journal *Mathematics*, predicted the death toll would eventually reach about 68,120 in the United States as a result of the SARS-CoV-2 coronavirus that causes COVID-19. That's based on data available on April 28, and there was high confidence (99 percent) the expected death toll would be between 66,055 and 70,304.

The model's estimates and predictions closely match reported death totals. As of April 29, more than 58,000 Americans had succumbed to COVID-19, according to the Johns Hopkins University COVID-19 Tracking Map.

The next steps include applying the model to global COVID-19 death data as well as to other nations such as Italy and Spain, both of which have experienced thousands of deaths due to COVID-19. The model could also be used to evaluate population mortality and the spread of other diseases.

More information: Hoang Pham, On Estimating the Number of Deaths Related to Covid-19, *Mathematics* (2020). DOI: 10.3390/math8050655