

The Huge Cost of Waiting to Contain the Pandemic

As the numbers show, the timing of social distancing can have an enormous impact on death tolls.

By Britta L. Jewell and Nicholas P. Jewell

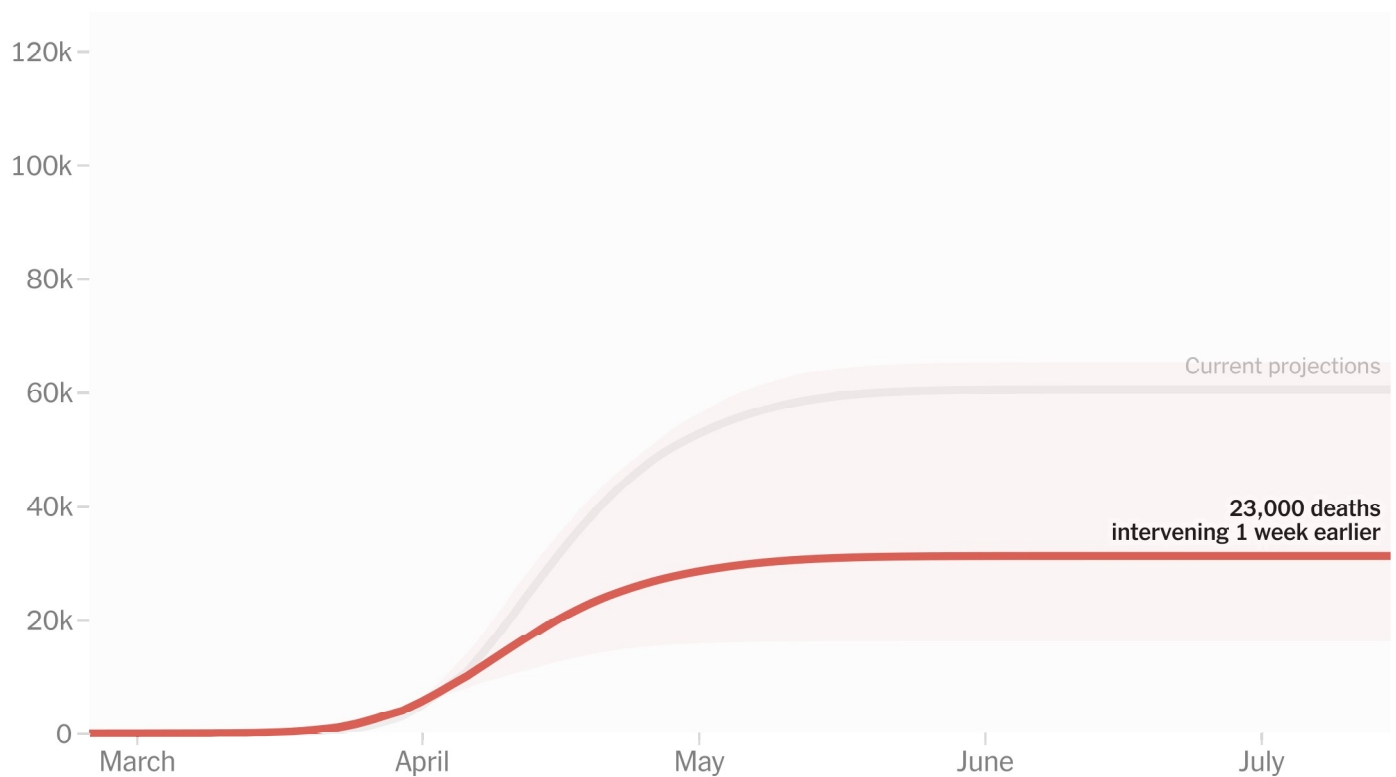
The writers are epidemiologists.

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During disease outbreaks, epidemiologists agonize about the timing and extent of interventions like social distancing to slow the spread. Their instincts are almost always to move sooner rather than later, because preventing new infections as early as possible can disrupt chains of transmission and save many lives. Our experience with Covid-19 makes that clear.

Projected deaths in the United States

The estimated number of deaths falls sharply with earlier interventions, using calculations based on a model by the Institute for Health Metrics and Evaluation. Ranges reflect uncertainty in the model's estimates.



In cases like that of the novel coronavirus, for which we have neither an effective treatment nor a vaccine, interventions must go back to the basics, including simply keeping individuals from one another by prohibiting large gatherings, closing schools and asking people to stay at home. The graphic above illustrates the extraordinary effect that the timing of social distancing policies can have on an outbreak's death toll.

On March 16, the White House issued initial social distancing guidelines, including closing schools and avoiding groups of more than 10. But an estimated 90 percent of the cumulative deaths in the United States from Covid-19, at least from the first wave of the epidemic, might have been prevented by putting social distancing policies into effect two weeks earlier, on March 2, when there were only 11 deaths in the entire country. The effect would have been substantial had the policies been imposed even one week earlier, on March 9, resulting in approximately a 60 percent reduction in deaths.

To determine the impact of early interventions, we used growth rates in cumulative deaths calculated by the Institute for Health Metrics and Evaluation

at the University of Washington from the date that social distancing measures were introduced until the predicted end of the epidemic, and applied them to case numbers from earlier points when such measures could hypothetically have been put into effect.

The absolute numbers are largely beside the point. No model is a crystal ball, and there is far too much uncertainty in the trajectory of the U.S. epidemic to conclude that a certain prediction will be borne out. What matters more is the relative effect of moving earlier rather than later in trying to contain the spread. The relative effects of moving earlier necessarily depend on the assumed rate of growth, but the general conclusion is the same: Earlier is better.

Dr. Anthony Fauci, the director of the National Institute of Allergy and Infectious Diseases, said as much on Sunday on the CNN program “State of the Union.”

“Obviously, you could logically say that if you had a process that was ongoing and you started mitigation earlier, you could have saved lives,” he said. But, he noted, “there was a lot of pushback about shutting things” early in the outbreak.

Whatever the final death toll is in the United States, the cost of waiting will be enormous, a tragic consequence of the exponential spread of the virus early in the epidemic.

To a large extent, the growth in U.S. deaths from Covid-19 has been fueled by the devastating events in New York, where the state’s stay-at-home order did not take effect until March 22. Our assessment echoes that of Dr. Tom Frieden, the former director of the Centers for Disease Control and Prevention, who was New York City’s health commissioner from 2002 to 2009. He has estimated that deaths might have been reduced by 50 percent to 80 percent in the city if social distancing had been widely adopted a week or two earlier.

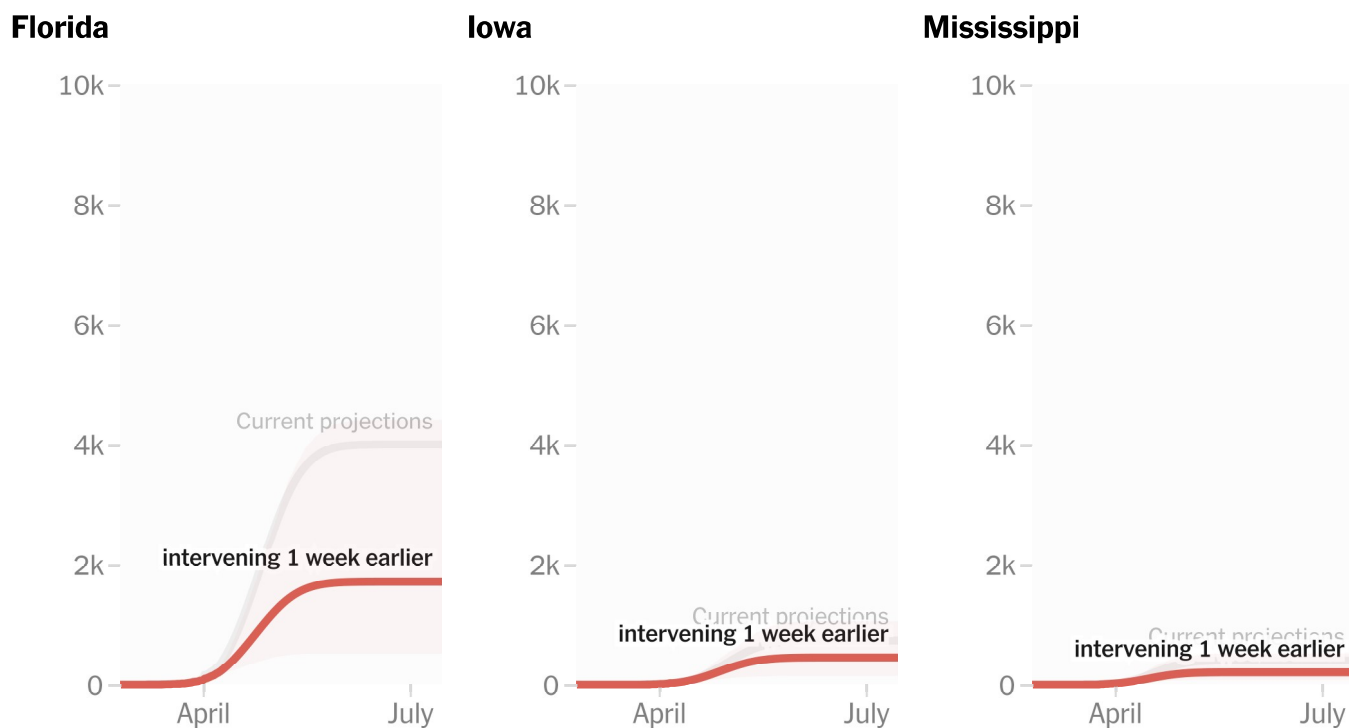
The point here is not to cast blame on mayors or governors for the timing of what were difficult decisions for both public health and the economy, but rather, to alert cities and states where full social distancing measures are not in place

that hesitation can come at a very high cost.

We also looked at state estimates and illustrate two that have only recently introduced statewide stay-at-home provisions (April 3 for Mississippi and Florida), and one that has yet to do so (Iowa, for which we selected April 14 for a possible stay-at-home order). The results for a one- or two-week earlier start on statewide policies are consistent and resemble those for the United States as a whole: Applying social distancing one week earlier is associated with a 60 percent reduction in the expected final death count.

The percentage reductions are, of course, estimates but this hardly blunts the take-home message.

Projected deaths by state



Many governors have argued for following the data and the science to determine when to act. Some states have already experienced partial effects of social distancing by taking intermediate steps to moderate the growth in infections, like limiting the size of gatherings or shutting some nonessential businesses. But

the data and science are clear: It's always too late if you wait until you think the number of deaths is sufficient to act.

There is no need to rely on the hypothetical calculations that we have described. The recent divergence of epidemics in Kentucky and Tennessee shows that even a few days' difference in action can have a big effect. Kentucky's social distancing measure was issued March 26; Tennessee waited until the last minute of March 31. As Kentucky moved to full statewide measures in reducing infection growth, Tennessee was usually less than a week behind. But as of Friday, the result was stark: Kentucky had 1,693 confirmed cases (379 per million population); Tennessee had 4,862 (712 per million).

It is important to understand that lockdowns are not a solution to the virus, but they do buy us time to better prepare for further waves of infection and to develop treatments and vaccines. Decisions about the timing of imposing social distancing are now largely behind us. The next critical decisions will center on when we begin easing stay-at-home policies.

Getting that wrong will lead to second wave of infections and a return to lockdowns. We can't afford to repeat the same mistakes.

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