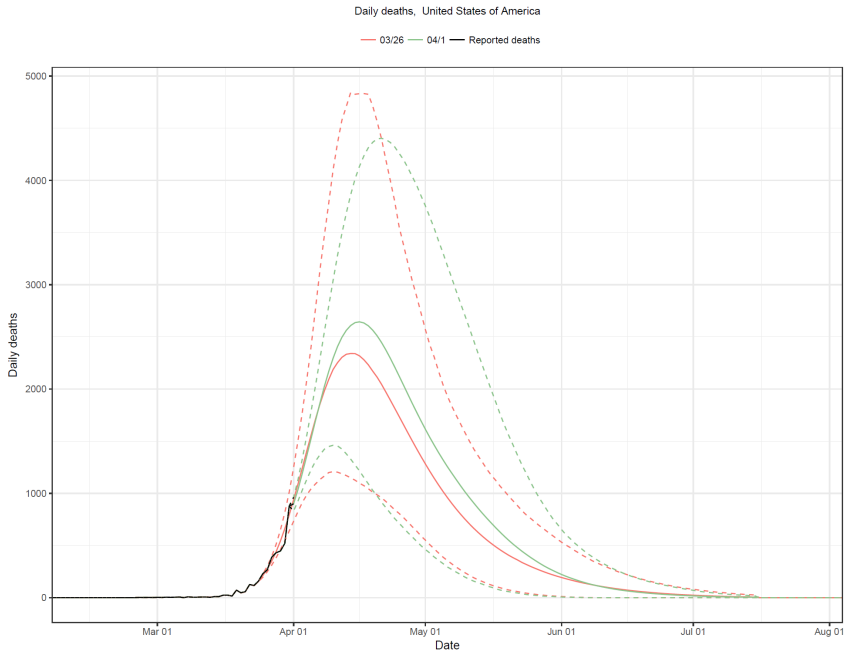
COVID-19: What's New for April 2, 2020

Main updates on US COVID-19 predictions since April 1, 2020

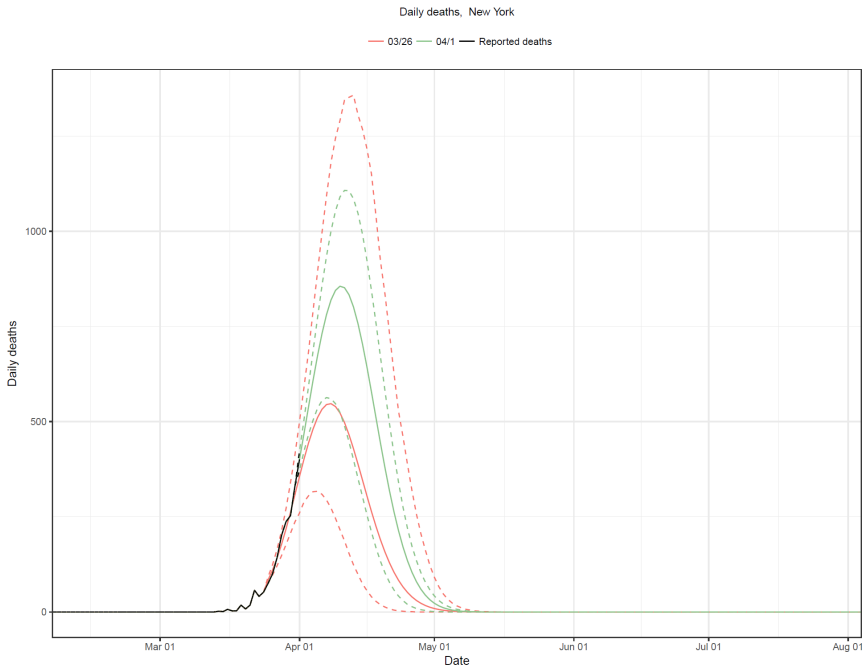
Predicting daily COVID-19 deaths: how well is our model performing to date

- **We are now one week into our daily updates for COVID-19 projections for the United States**, so we wanted to benchmark our model's performance thus far. Today's release (April 2) includes COVID-19 death data reported in the US through April 1. Our first release (March 26) included data reported through March 24. The graphs below compare reported COVID-19 deaths through April 1 in black, predictions from the March 26 release in red, and predictions from today's release in green.

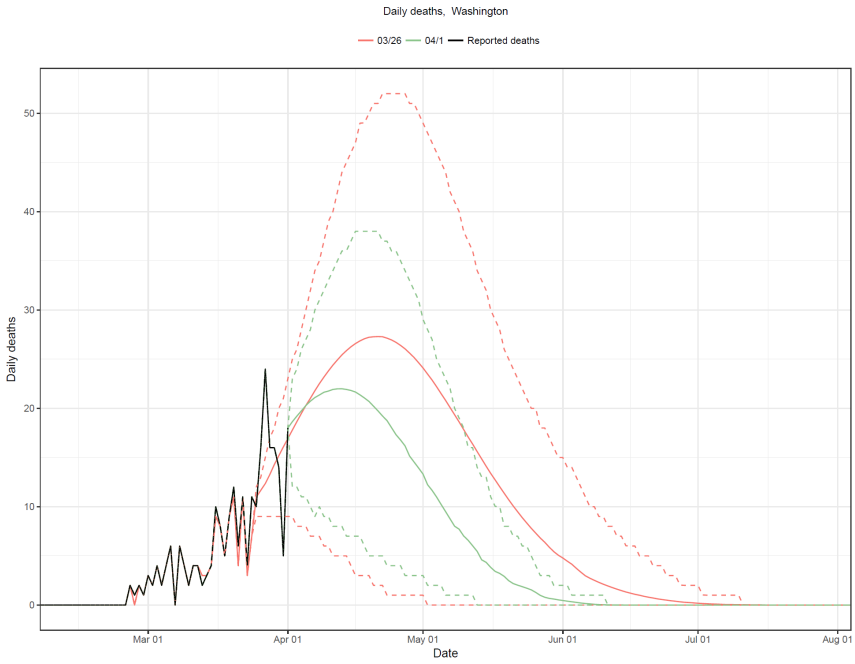
- **At the national level, our model has done well in predicting daily deaths a week later**. You can see this by comparing the black line (reported COVID-19 deaths) to the red line (predictions from our initial projections released on March 26) – these closely overlap. Predictions of the peak in daily COVID-19 deaths have increased: our March 26 release (red) was lower than what our current release projects (green). Our estimates' uncertainty intervals (the dashed lines) show that while our projections have changed over the last week, changes in our mean predictions are relatively small compared with uncertainty associated with them. Our projections on the cumulative total COVID-19 deaths in the US also increased: our March 26 release estimated 81,114 deaths (uncertainty interval 38,242 to 162,106) through the first wave, while today's release estimates 93,531 deaths (range of 39,966 to 177,866) through the first wave.



- **A focus on New York:** The March 26 release of predicted daily COVID-19 deaths was fairly accurate until April 1, as seen by comparing the black line with the red line. Our models now include 8 more days of COVID-19 deaths in New York state; today's release (in green) suggests a higher predicted peak in daily deaths (855 deaths on April 10, with a range of 524 to 1,090) and projected total COVID-19 deaths (16,261 deaths, with a range of 9,720 to 20,962 – cumulative COVID-19 death projections can be viewed here: https://covid19.healthdata.org/projections)



- **A focus on Washington:** As shown below, the March 26 release of COVID-19 death predictions was fairly accurate for the following week in our home state of Washington. Based on the new data included in our prediction model since, today's release points to an earlier – and lower – peak of daily COVID-19 deaths than what was projected from our first release. Today's release also projects a lower cumulative COVID-19 deaths in Washington, now at 978 deaths (range of 468 to 1634).



- **These graphic comparisons underscore why daily updates of predictions are critical for tracking COVID-19,** as daily updates in the data available then inform our projections. We monitor our model's performance on a regular basis and aim to keep improving its performance as more data become available.

- We are currently working on model improvements and incorporating additional data sources, including health service utilization data that are being shared with us.

Key findings from today's release

- **Our model for the US points to April 15 as the peak day for hospital use.** At this peak time, the US is predicted to need 262,092 total hospital beds (39,727 for ICU), and 31,782 ventilators to support COVD-19 patients. This demand on hospital resources could lead to a nationwide shortage of 87,674 total hospital beds and 19,863 ICU beds given current COVID-19 trajectories.

- **Today's estimates show that nationwide, COVID-19 deaths are predicted to peak on April 16, when we predict 2,644 deaths (range of 1,216 to 4,136) in a single day.** This projection is very similar to our estimates from yesterday's release (2,607 deaths, with a range of 1,294 to 4,140). Learn more at https://covid19.healthdata.org/projections.

- **Based on the latest available data, a total of 93,531 COVID-19 deaths (range of 39,966 to 177,866) are currently predicted through the epidemic's first wave.** These estimates correspond with yesterday's release, where the projected cumulative deaths due to COVID-19 were 93,765 (range of 41,399 to 177,381).

- All estimates presented here assume the continuation of statewide social distancing measures in places where they are already enacted, and future adoption within the next 7 days in states without them. If such policies are relaxed or not implemented, the US could experience a higher COVID-19 death toll and hospital burden than what our models currently predict.

Key changes since our last release on April 1, 2020

Data updates and information

- **51 location-days of COVID-19 deaths and cases added** – estimates now include COVID-19 data reported through 5:00pm PST on April 1 for 50 states and the District of Columbia.

Analytic and methods updates

- **COVID-19 death models**. There were no modeling changes since yesterday's release.

- **US social distancing policies**. We added seven state-level social distancing policies since our April 1 release, including:
    - Stay-at-home orders effective as of April 1 in Pennsylvania and Nevada.
    - Stay-at-home orders will be enacted on April 3 in Florida and Mississippi.
    - Non-essential business closures were added for Alabama (effective on March 28), and Mississippi (effective on April 3).
    - Travel mandate in Alaska, effective March 28, which prohibited all in-state travel for citizens between communities, unless obtaining or providing an essential service.

  As state-level policy response to the novel coronavirus evolves each day, we in turn continue to revisit how these mandates are implemented and refine as necessary. See our definitions under IHME COVID-19 model FAQs for more information on how we are categorizing social distancing policies in our framework.

A note of thanks

None of these estimation efforts is possible without the tireless data collection and collation efforts of individuals throughout the US and world. Your work in hospitals, health care organizations, local health departments, and state and national public health agencies, among others, is invaluable. We thank you for your dedication to fighting the coronavirus pandemic and we appreciate your willingness to share data and collaborate with the IHME COVID-19 team.

For all COVID-19 resources at IHME, visit http://www.healthdata.org/covid.
Questions? Requests? Feedback? Please contact covid19@healthdata.org.