COVID-19: What's New for April 1, 2020

Main updates on US COVID-19 predictions since March 31, 2020

Key findings

- **Today's estimates show that nationwide, COVID-19 deaths are predicted to peak on April 16, when we predict 2,607 deaths (range of 1,294 to 4,140) in a single day.** This projection is higher than our estimates released on March 31, which projected peak US COVID-19 deaths at 2,214 (range of 1,106 to 3,321) on April 15. Learn more at https://covid19.healthdata.org/projections.

- **April 16 also is now estimated as the peak hospital use date in the US.** At this peak date, the US is projected to need 260,342 total hospital beds (38,849 for ICU) and 31,082 ventilators to support COVD-19 patients. This could equate to a projected shortage of 84,671 total hospital beds and 18,905 ICU beds given current COVID-19 trajectories.

- **A total of 93,765 US COVID-19 deaths (range of 41,399 to 177,381) are currently predicted through the epidemic's first wave**. These COVID-19 death predictions are higher than what was released on March 31, a difference of 11,624 deaths (though their estimated ranges overlapped). These estimates assume the strong continuation of statewide social distancing measures in places where they are already enacted, and future adoption within the next seven 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.

- Our model's increase in nationwide deaths since the March 31 release is primarily driven by increasing death tolls in states that previously had very few COVID-19 deaths. States with more COVID-19 deaths, such as New York and Washington, show far less fluctuation across daily updates. If the number of cumulative COVID-19 deaths rise by state, we expect increasing accuracy for predictions across states.

Key changes since our last release on March 31, 2020

Data updates and information

- **51 location-days of COVID-19 deaths and cases added**
  - Estimates now include COVID-19 data reported through 5:00 p.m. Pacific on March 31 for 50 states and the District of Columbia.

Analytic and methods updates

- **COVID-19 death models**
  - Our COVID-19 death modeling approach involves fitting state-specific curves with CurveFit (see documentation here) wherever there is sufficient data and an average curve for other states. In today's release, we were able to fit state-specific curves for

thee additional states: Alabama, Delaware, and Iowa. This resulted in important changes in today's estimates for these states.

- o Notably, fitting on new data released on March 31, the cumulative COVID-19 death estimates for Alabama increased to 7,334 (1,130 to 17,040), an estimate that is 6,161 deaths higher than previous estimates.

- o 13 other states still use "average curves" for their prediction fits. Our daily projection updates for these states are less stable a day-to-day. This is because uncertainty (the range) is much higher in the absence of more data. These 13 states are Alaska, Hawaii, Maine, Montana, Nebraska, New Hampshire, New Mexico, North Dakota, Rhode Island, South Dakota, Utah, West Virginia, and Wyoming.

- **US social distancing policies**
  - o We continue to receive feedback on the implementation status of social distancing measures. A key area of discussion is how to distinguish properly between clearly mandated actions versus recommendations. To date we have primarily focused on statewide mandates rather than actions where residents are advised or encouraged to follow, and/or when orders are only applicable to specific areas (e.g., counties with community spread) or specific sub-populations (e.g., individuals 70 and older).

  - o Some updates since March 31 reflect locations where these social distancing measures have been more nuanced. For instance, we now classify Kentucky having implemented school closures upon March 20. The governor had issued recommendations on March 16. Local school districts followed this recommendation, and by March 20, all 172 had closed and transitioned to remote learning.

  - o Feedback on the timelines of implementation of these measures, and the nuance of local interpretation, are the subject of ongoing discussion and revisions where necessary.

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, 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.