

## COVID-19: What's New for April 29, 2020

### **Main updates on IHME COVID-19 predictions since April 27, 2020**

#### Development pipeline preview: easing of implemented social distancing policies

As we mentioned in the [April 27 estimation update](#), increasingly more locations have begun easing or have planned to ease social distancing policies that were previously implemented. Thus far, this includes at least nine states in the US (Alaska, Mississippi, Missouri, Montana, Ohio, Oklahoma, South Dakota, Tennessee, and Vermont), and nine countries in Europe (Austria, Belgium, Czech Republic, Denmark, Lithuania, the Netherlands, Norway, Poland, and Switzerland). In addition, some other locations have eased certain parts or a subset of distancing policies (e.g., Georgia, North Dakota, South Carolina, and Texas in the US).

Our present modeling framework does not yet capture how the risk for more COVID-19 cases – and potentially deaths – could increase due to increased interaction among individuals. This is particularly true if locations have not fully instituted strong containment strategies like widely available testing and contact tracing.

We are currently working on a modeling framework that not only incorporates COVID-19 case and death data inputs, but also includes data on testing availability and capacity. Based on projections for all of these inputs, we aim to generate estimates of potential COVID-19 epidemic trends following the easing of currently implemented social distancing measures. We hope to release initial results from this new modeling approach in the near future.

In this rapidly evolving policy environment, we will keep tracking these policy changes and update accordingly. For now, identified locations that have eased or are in the process of easing previously implemented social distancing policies do not have projections beyond May 7 shown in our [visualization tool](#).

#### Key findings from today's release (April 29, 2020)

Today we focus on the latest results for COVID-19 death projections in currently included locations.

Note that while we compare today's results with predictions published in our April 27 estimation update below, we are routinely publishing updated estimates. Yesterday, on April 28, we published estimates based on updated data through April 27; they can be downloaded here, alongside today's results: <http://www.healthdata.org/covid/data-downloads>.

#### A focus on North American locations

##### **US: nationally and by states**

- Based on the latest available data, the COVID-19 epidemic's first wave could cause 72,433 cumulative deaths (estimate range of 59,343 to 114,228) in the US. The total from today's release is slightly lower than the average predictions published on April 27 (74,073, with an estimate range of 56,563 to 130,666), though the uncertainty intervals overlap considerably.

- The table below reflects this shift at the national level and summarizes cumulative COVID-19 predictions for states with the largest projected death toll through the epidemic’s first wave.

Location	Predictions for cumulative COVID-19 deaths through the first wave from our April 29 release (today)	Predictions from our April 27 release	Change of average values since the April 27 release*
<b>United States</b>	<b>72,433 (59,343 to 114,228)</b>	<b>74,073 (56,563 to 130,666)</b>	<b>↓ 1,640 deaths</b>
New York	24,314 (22,649 to 28,356)	23,930 (21,885 to 29,277)	↑ 384 deaths
New Jersey	7,246 (6,587 to 9,094)	7,250 (6,172 to 10,408)	↓ 4 deaths
Massachusetts	5,634 (3,391 to 13,109)	5,498 (3,202 to 13,245)	↑ 136 deaths
Michigan	3,920 (3,621 to 4,834)	3,785 (3,390 to 4,898)	↑ 135 deaths
Connecticut	3,315 (2,207 to 7,534)	3,340 (2,105 to 7,157)	↓ 25 deaths
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\*Change estimates do not include uncertainty; they are only based on the average value. If prediction values’ uncertainty intervals (the numbers reported in parentheses) overlap a lot across different releases, changes in these estimates are not considered substantively different.

- Nationally, the predicted peak for COVID-19 deaths appeared to be April 15, at 2,693 deaths. Most states seem to have passed their epidemic peaks, but some may be experiencing their peaks now or in the coming weeks (e.g., Utah). As illustrated in the [visualization tool](#), many states are seeing daily COVID-19 deaths staying near peak levels for many days in a row and slow declines in the numbers of daily deaths.

#### **Puerto Rico**

- Puerto Rico’s cumulative COVID-19 death toll may reach 87 (estimate range of 87 to 89) through the epidemic’s first wave. These estimates very similar to the release on April 27 (86 cumulative deaths, estimate range of 85 to 92). The predicted peak in daily COVID-19 deaths was on April 9 for Puerto Rico, at nine COVID-19 deaths.

#### **Canada: nationally and by provinces**

- Cumulative COVID-19 deaths could reach 4,508 (estimate range of 2,967 to 9,634) through the epidemic’s first wave in Canada. These estimates are lower than those from our April 27 release (5,611 deaths with an estimate range of 2,813 to 15,069) but align more closely with the April 22 projections for the country (4,544 deaths with an estimate range of 2,176 to 11,750). In all instances, uncertainty intervals overlap considerably. Alberta’s estimates saw the most substantive shift downward, again more closely aligning with [earlier projections](#) but still having sizeable overlap in uncertainty intervals.

Note that we are currently focusing on provinces where at least 50 total COVID-19 deaths have occurred to date (Alberta, British Columbia, Ontario, and Quebec). While COVID-19 has certainly

affected other provinces and we are tracking their epidemic trajectories in our development pipeline, their estimates remain too noisy to report individually.

Location	Predictions for cumulative COVID-19 deaths through the first wave from our April 29 release (today)	Predictions from our April 27 release	Change of average values since the April 27 release*
<b>Canada (nationally)</b>	<b>4,508 (2,967 to 9,634)</b>	<b>5,611 (2,813 to 15,069)</b>	<b>↓ 1,103 deaths</b>
Alberta	539 (106 to 2,083)	1,146 (140 to 4,937)	↓ 607 deaths
British Columbia	371 (119 to 1,178)	573 (137 to 1,962)	↓ 202 deaths
Ontario	1,677 (1,029 to 3,825)	1,913 (954 to 5,069)	↓ 236 deaths
Quebec	1,921 (1,713 to 2,547)	1,978 (1,583 to 3,097)	↓ 57 deaths
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- Based on the latest available data, Alberta may experience its epidemic peak for COVID-19 daily deaths on May 7, at an estimated 17 deaths (estimate range of 1 to 67). This is lower than Alberta's predicted peak from April 27's release (37 daily deaths, with an estimate range of 2 to 150), and likely is contributing to the province's lowered cumulative death projections. Ontario may have experienced its epidemic peak on April 28, at 59 deaths. The other currently included provinces likely saw their peak daily COVID-19 deaths around mid-April. At the national level, peak COVID-19 deaths occurred on April 16, with 183 deaths that day.

#### A focus on Europe

- Among European Economic Area (EEA) countries, the United Kingdom (UK), Italy, Spain, and France are still likely to have the highest cumulative COVID-19 deaths through the epidemic's first wave. The UK's cumulative projections are now lower than in our April 27 release (as summarized in the table below), though the uncertainty intervals overlap. This change is primarily due to incorporating three additional days of daily deaths data for the UK. In general, reported daily death data can fluctuate greatly day to day, underscoring the importance of trying to regularly update the full time series of input data to inform projections.

Location	Predictions for cumulative COVID-19 deaths through the first wave from our April 29 release (today)	Predictions from our April 27 release	Change of average values since the April 27 release*
Italy	27,777 (27,393 to 29,149)	27,425 (26,725 to 29,898)	↑ 352 deaths
United Kingdom	27,100 (22,291 to 44,203)	35,004 (22,090 to 79,613)	↓ 7,904 deaths
Spain	25,231 (24,088 to 28,948)	26,342 (24,368 to 32,368)	↓ 1,111 deaths
France	25,096 (23,795 to 29,099)	24,719 (23,034 to 29,989)	↑ 377 deaths
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## Data and methods updates

### Data and locations

- For all currently included locations, we have added reported data points on COVID-19 deaths and available information on social distancing policies through April 28 at 10:00 pm Pacific.
- Currently included locations are the US (national level) and 50 states plus the District of Columbia, Puerto Rico, Canada (nationally and by province), and European Economic Area (EEA) countries and Switzerland. Three EEA countries – Germany, Italy, and Spain – also have subnational estimates at the first administrative level.

## What's in the development pipeline for IHME COVID-19 predictions

Before we introduce new model components or improvements to our current analytical platform for predictions, IHME's COVID-19 development team members test these additions or changes.

Based on currently available data and model testing progress, these are some of our immediate- and medium-term priorities:

- **Predicting the effects of easing currently implemented social distancing policies on the next phase of epidemic trajectories.** As mentioned above, a number of EEA countries and US states have begun to ease at least some of their currently implemented social distancing measures. We are now actively modifying our present modeling framework in order to better capture the potential effects of easing these measures given current and near-term estimates of testing capacities and COVID-19 burden.
- **Initial COVID-19 projections for additional countries.** Data collation and processing for a wider set of locations and countries worldwide are in progress. We are currently working on adapting our prediction model to countries which have experienced more than 50 total COVID-19 deaths to date. With the increasing recognition of under-counting of COVID-19 deaths in many

locations outside of EEA and North America, we are now exploring methods that can approximate excess mortality and incorporate such estimates into our COVID-19 models.

### A note of thanks

None of these estimation efforts is possible without the tireless data collection and collation efforts of individuals throughout the 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 us here](#).**