

COVID-19: What's New for April 27, 2020

Main updates on IHME COVID-19 predictions since April 22, 2020

More data, improved models, better estimates

Today's release primarily focuses on COVID-19 death results for currently included locations – the US, Puerto Rico, Canada, and European Economic Area (EEA) countries – which can be further explored through our [visualization tool](#). Our updated manuscript and technical appendices are also [available online](#). And thanks to the work of collaborators and IHME's COVID-19 team, we aim to publish initial estimates for a number of Latin American countries soon.

Development pipeline preview: easing of currently implemented social distancing policies

Increasingly more locations in Europe, and now recently in the US, have started to ease social distancing policies that were previously enacted. To date, this includes Alaska and Oklahoma in the US, as well as nine countries in Europe: Austria, Belgium, Czech Republic, Denmark, Lithuania, the Netherlands, Norway, Poland, and Switzerland. In addition, other locations are easing certain parts or a subset of distancing policies (e.g., Georgia and South Carolina in the US).

Our current 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.

The IHME COVID-19 team is currently working on a prediction 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 in the 18–20 days following the easing of currently implemented social distancing measures. We hope to release initial results from this new modeling approach in the near future.

For now, locations where previously implemented social distancing have been eased or fully lifted, projections beyond May 6 are not being shown in our visualization tool.

Key findings from today's release (April 27, 2020)

A focus on new locations: Puerto Rico and Canada

Puerto Rico

- Puerto Rico's cumulative COVID-19 death toll may reach 86 (estimate range of 85 to 92) through the epidemic's first wave. These estimates are somewhat higher than the April 22 release of results for Puerto Rico (72 cumulative deaths, estimate range of 64 to 100). As shown in the [visualization tool](#), the total number of COVID-19 deaths to date increased from 64 on April 22 to 85 on April 26; this increase is contributing to higher cumulative predictions through the first wave.
- The predicted peak in daily COVID-19 deaths was on April 9, at nine COVID-19 deaths.

Canada: nationally and by province

- Cumulative COVID-19 deaths could reach 5,611 (estimate range of 2,813 to 15,069) through the epidemic's first wave in Canada. These projections are higher than the April 22 release of results for the country (4,544 deaths with an estimate range of 2,176 to 11,750), though the uncertainty intervals overlap considerably.

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 27 release (today)	Predictions from our April 22 release	Change of average values since the April 22 release*
Canada (nationally)	5,611 (2,813 to 15,069)	4,544 (2,176 to 11,750)	↑ 1,067 deaths
Alberta	1,146 (140 to 4,937)	626 (95 to 2,462)	↑ 520 deaths
British Columbia	573 (137 to 1,962)	278 (108 to 724)	↑ 295 deaths
Ontario	1,913 (954 to 5,069)	1,481 (761 to 3,629)	↑ 432 deaths
Quebec	1,978 (1,583 to 3,097)	1,953 (1,186 to 4,101)	↑ 25 deaths

Results as of 04/27/2020
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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.

- Based on the latest available data, Alberta may experience its epidemic peak for COVID-19 daily deaths on May 7, at an estimated 37 deaths (estimate range of 2 to 150). Based on the latest available data, it appears that British Columbia's predicted peak may be later (approximately mid-May) as well. Ontario, with an estimated 57 daily COVID-19 deaths (12 to 169) at peak, could experience its predicted epidemic peak later too (about April 29). 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 the US

- Based on the latest available data, the COVID-19 epidemic's first wave could cause 74,073 cumulative deaths (estimate range 56,563 to 130,666) in the US. The total from today's release is higher than average predictions published on April 22 (67,641, with an estimate range of 48,058 to 123,157), though the uncertainty intervals still overlap considerably.
- At least part of this increase is due to many states experiencing flatter and thus longer epidemic peaks. Further, updated data indicate that daily COVID-19 deaths are not falling very quickly

after the peak, leading to longer tails for many states' epidemic curves. In combination – less abrupt peaks and slower declines in daily COVID-19 deaths following the peak – many places in the US could have higher cumulative deaths from the novel coronavirus.

- The table below summarizes the five states with the largest shifts upward since our last release; they are ordered in terms of their projected cumulative COVID-19 deaths through the epidemic's first wave.

Location	Predictions for cumulative COVID-19 deaths through the first wave from our April 27 release (today)	Predictions from our April 22 release	Change of average values since the April 22 release*
United States	74,073 (56,563 to 130,666)	67,641 (48,058 to 123,157)	↑ 6,432 deaths
New York	23,930 (21,885 to 29,277)	23,232 (19,506 to 32,374)	↑ 699 deaths
Massachusetts	5,498 (3,202 to 13,245)	4,242 (2,362 to 9,457)	↑ 1,255 deaths
Michigan	3,785 (3,390 to 4,898)	3,379 (2,754 to 5,032)	↑ 407 deaths
Connecticut	3,340 (2,105 to 7,157)	3,006 (1,725 to 6,019)	↑ 334 deaths
Texas	1,656 (753 to 4,954)	1,241 (622 to 3,423)	↑ 415 deaths

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- Across the US, the predicted peak for daily COVID-19 deaths appeared to be on April 15, reaching 2,698 deaths. While most states seem to have passed their epidemic peaks, seven – Hawaii, Mississippi, Texas, Wyoming, Utah, Nebraska, and North Dakota – may be experiencing their peaks now or could be in the coming weeks. As illustrated in the [visualization tool](#), many states are seeing daily COVID-19 deaths falling more slowly than the speed at which deaths rose to peak levels. These slower trajectories are contributing to higher cumulative COVID-19 deaths being estimated through the epidemic's first wave.

A focus on Europe

- Among 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. As summarized in the table below, these cumulative projections are higher than estimates from our April 22 release. Similar to many states in the US, a number of European countries have daily reports of COVID-19 cases and deaths that are remaining flat (and thus not declining very quickly). Estimates are now showing a longer duration of both the epidemic peak and the current phase of the epidemic, which is contributing to higher cumulative COVID-19 death predictions than in previous releases.

- Of these countries, three – Italy, Spain, and France – experienced their epidemic peaks in late March or early April. Predictions for the UK indicate that the country may be experiencing its peak in daily COVID-19 deaths, with an estimated 1,250 deaths (estimate range of 127 to 5,198) on April 27.

Location	Predictions for cumulative COVID-19 deaths through the first wave from our April 27 release (today)	Predictions from our April 22 release	Change of average values since the April 22 release*
United Kingdom	35,004 (22,090 to 79,613)	31,929 (19,580 to 67,802)	↑ 3,075 deaths
Italy	27,425 (26,725 to 29,898)	26,867 (25,008 to 32,740)	↑ 558 deaths
Spain	26,342 (24,368 to 32,368)	25,104 (22,584 to 31,164)	↑ 1,238 deaths
France	24,719 (23,034 to 29,989)	23,304 (21,234 to 29,072)	↑ 1,415 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 26 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 in 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](#).