

COVID-19 Modelling

April 3, 2020

COVID-19 Update: Today's Presentation

- The information provided in this presentation was developed by several experts at Ontario Health, Public Health Ontario and researchers at Ontario universities, led by the COVID-19 Command Table.
- The objective of today's presentation is to share the modelling and projection data that the Command Table has been using to inform our work, and advising government on their response to COVID-19.
- We feel it is important to be transparent with the public about the challenges we are facing, and the important work we all need to do to flatten the curve.
- How this outbreak unfolds is in the hands of the public, in all of your hands – we can change the outcomes by how we all stay at home and physically distance ourselves.
- Recognizing that we get new information about this outbreak on a daily basis, we will continue to refine our models.
- Our public health measures so far have made a significant difference and we need everyone to stay focused on these in the weeks ahead: stay home, stop the spread, stay safe.

Current Status

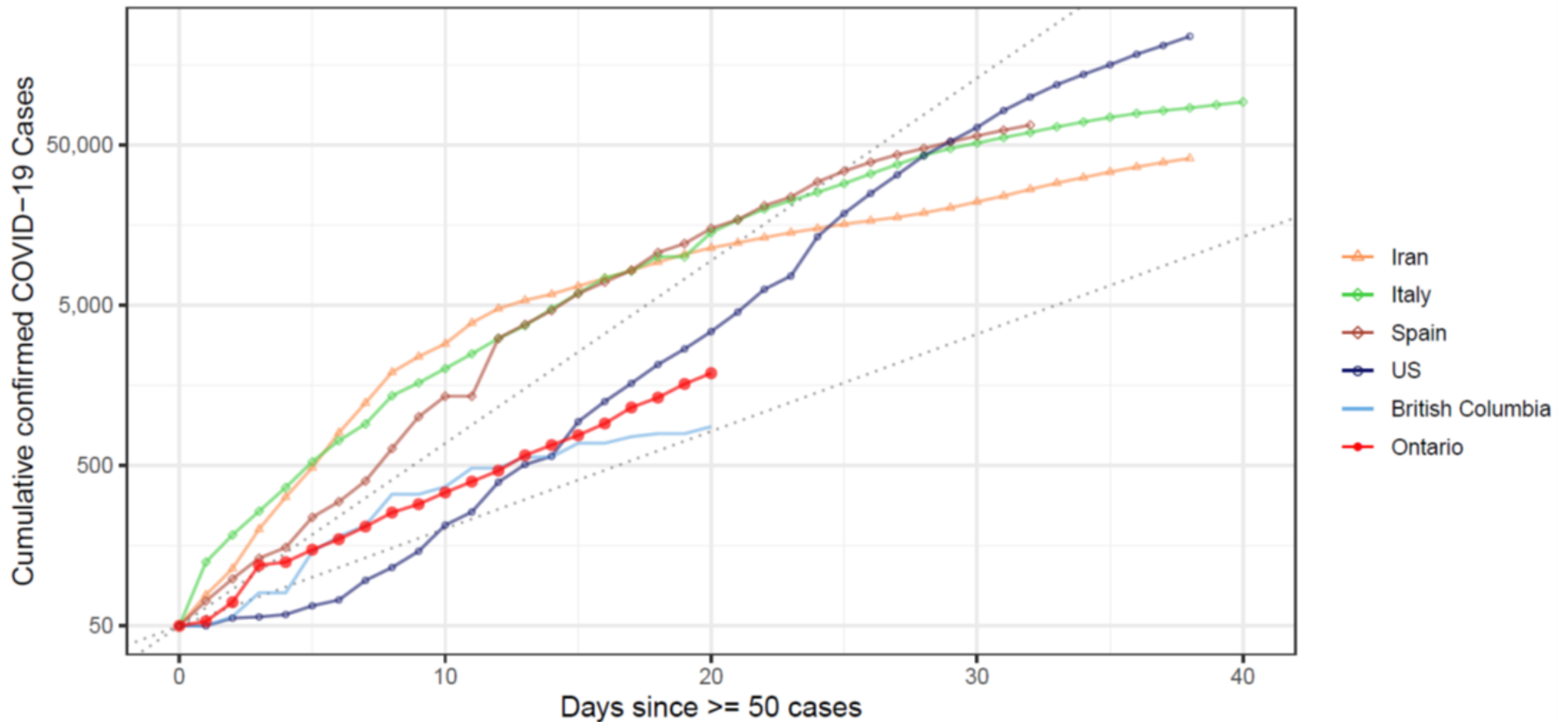
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COVID-19: Cases and Deaths by Age Group (January 15 to April 2, 2020)

Age Group	Cases	Deaths	Case Fatality Ratio (%)
19 and under	82	0	0
20-39	945	0	0
40-59	1,178	7	0.6
60-79	821	24	2.9
80 and over	226	36	15.9
Unknown	3	0	0
Total	3,255	67	2.1

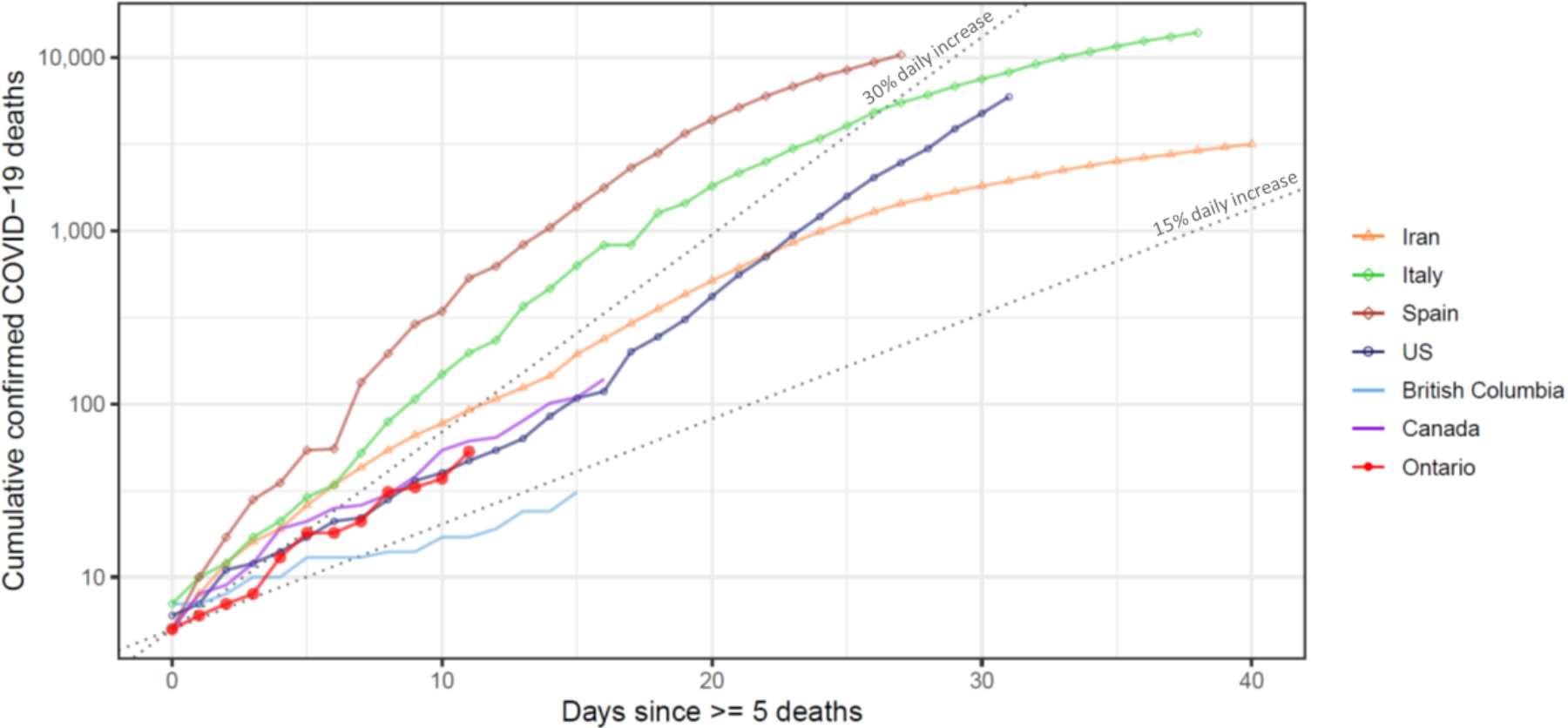
Data Source: integrated Public Health Information System (iPHIS). Data extracted April 2, 2020 at 4pm

COVID-19: Cases in Ontario and Other Jurisdictions



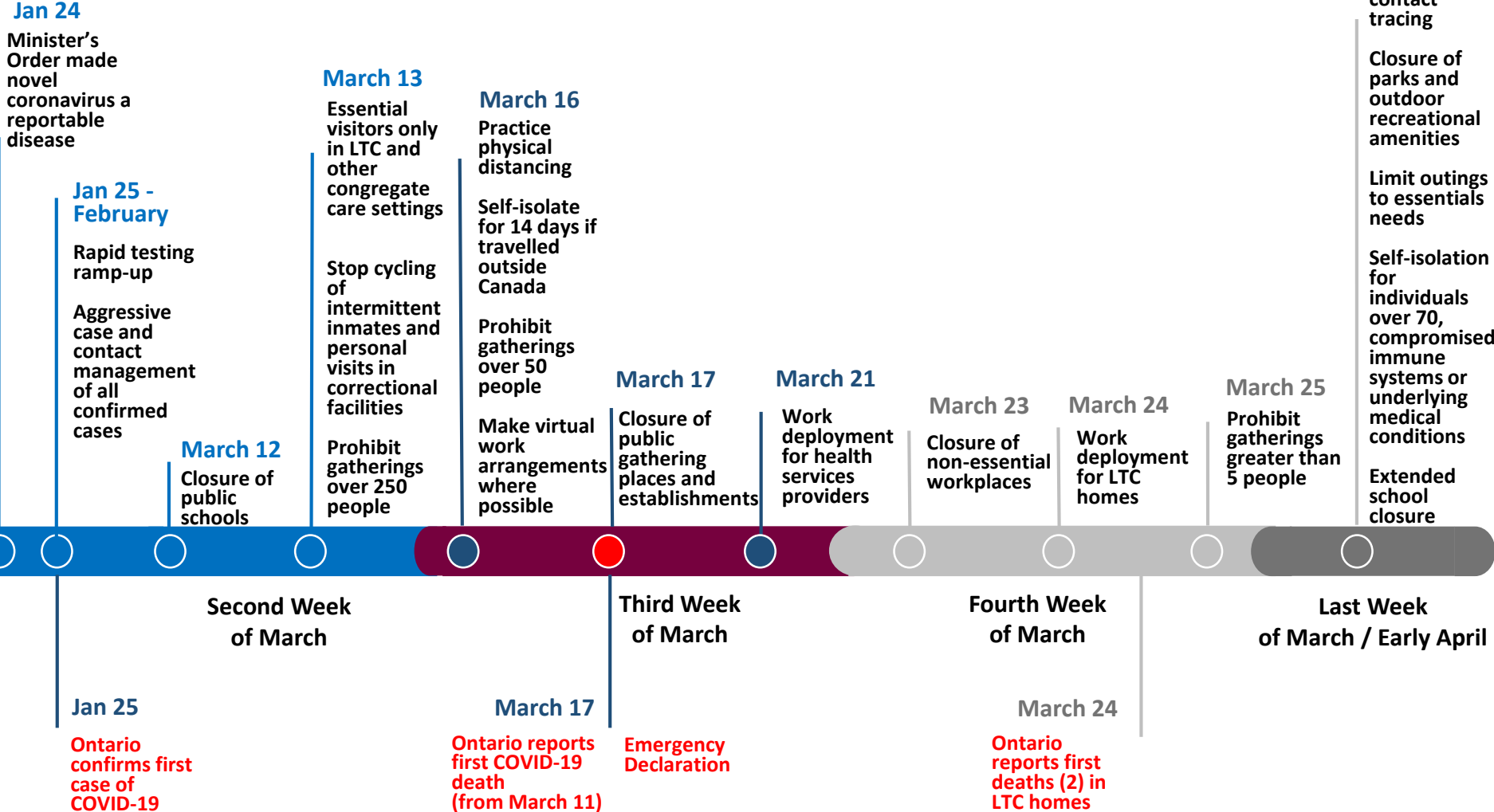
Source: Johns Hopkins University, Centre for System Science and Engineering. Accessed April 1, 2020

COVID-19: Deaths in Ontario and Other Jurisdictions



Source: Johns Hopkins University, Centre for System Science and Engineering. Accessed April 1, 2020

COVID-19: Key Public Health Measures Timeline



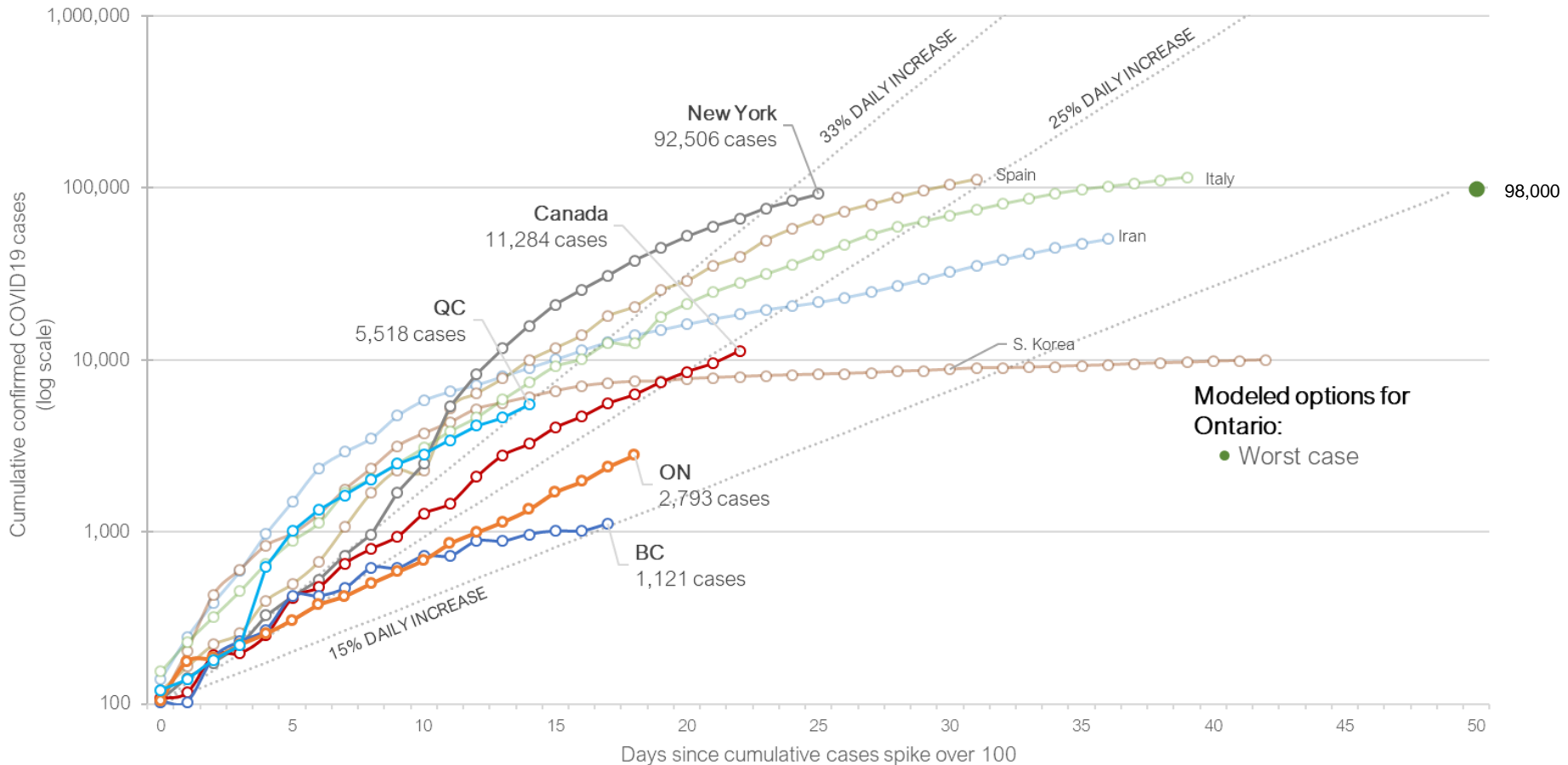
Future Outlook

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COVID-19: Using Models to Inform Ontario's Planning

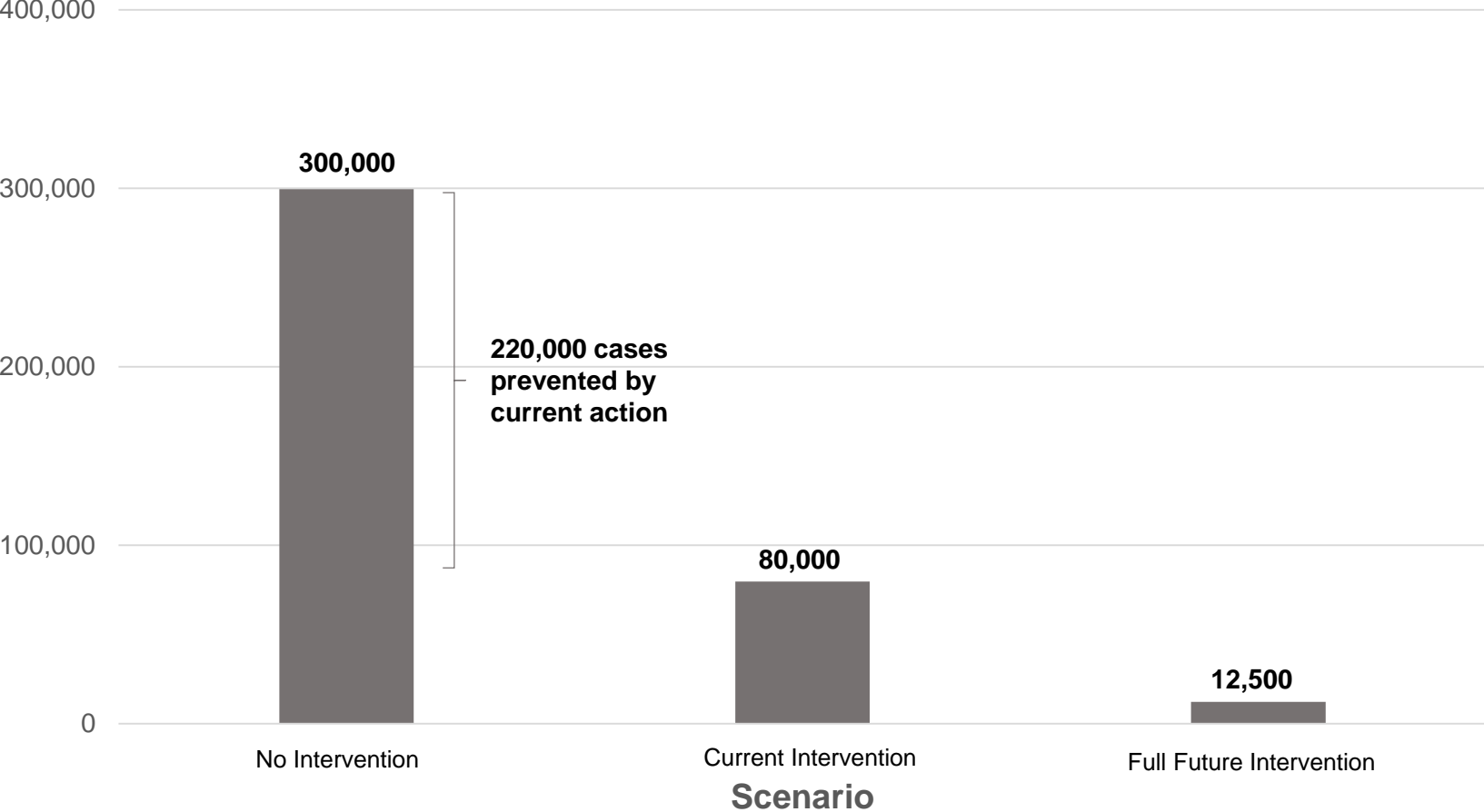
- Models are used to help plan for what could happen.
- As with any model, the farther out predicted, the more uncertainty there is in the predictions.
- There is more confidence in the projections for the next 30 days than in the longer term projections.
- Assumptions were used to inform the model.
- Experts modelled how the disease spreads based on observed data and what is known from other countries.
- Any benefit seen in the model from improved public health measures assumes people follow those measures.
- If there are people with COVID-19 infections moving between health care facilities, there could be larger outbreaks.

Cumulative Confirmed COVID-19 Cases, Number of Days since the 100th Case

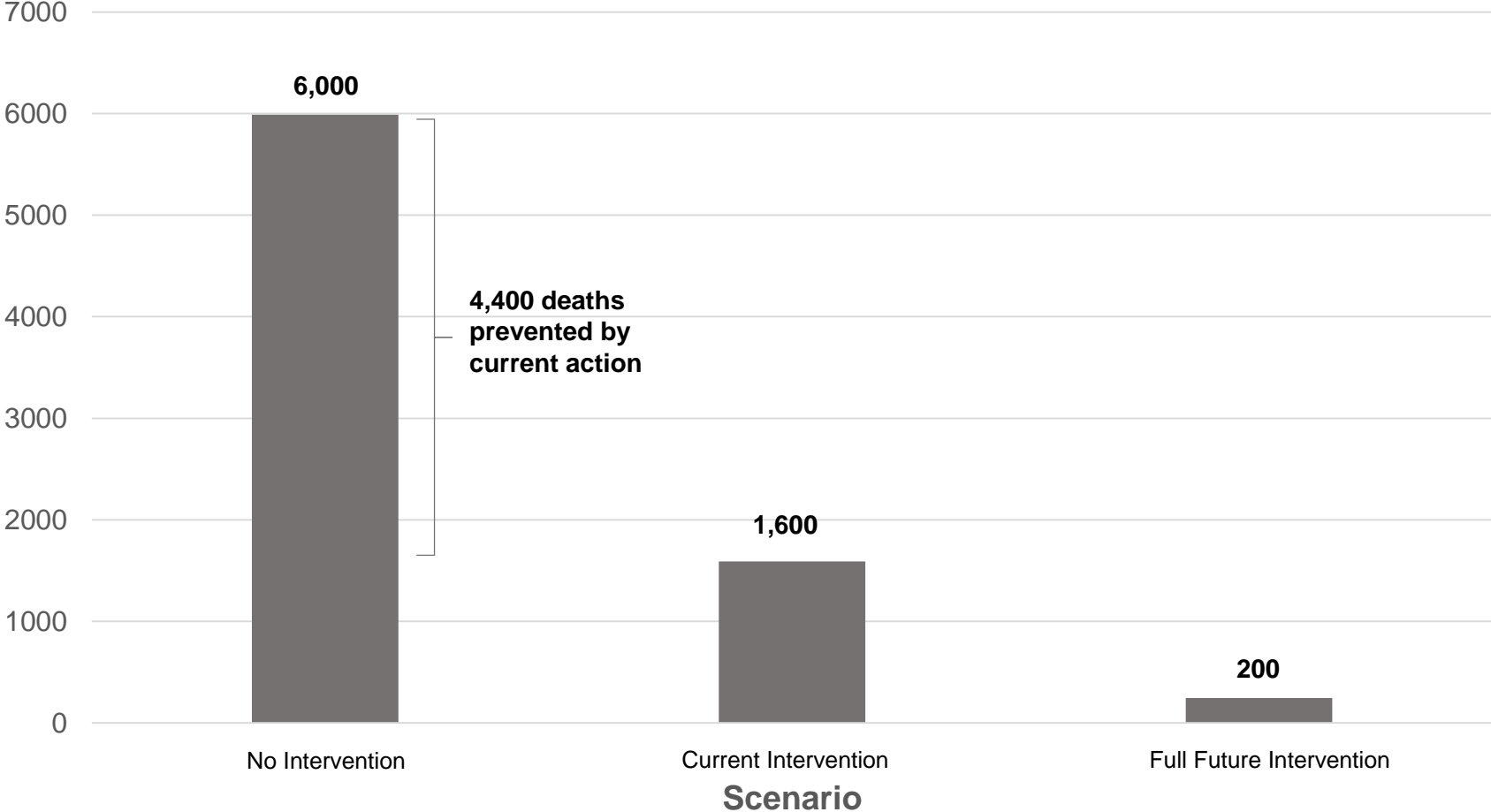


Data from: Dong, E., Du, H., & Gardner, L. (2020). An interactive web-based dashboard to track COVID-19 in real time. *The Lancet Infectious Diseases*, as of April 2, 2020. Data compiled by Johns Hopkins University from the following sources: [WHO](#), [CDC](#), [ECDC](#), [NHC](#), [DXY](#), [1point3acres](#), [Worldometers.info](#), [BNO](#), state and national government health department, and local media reports.

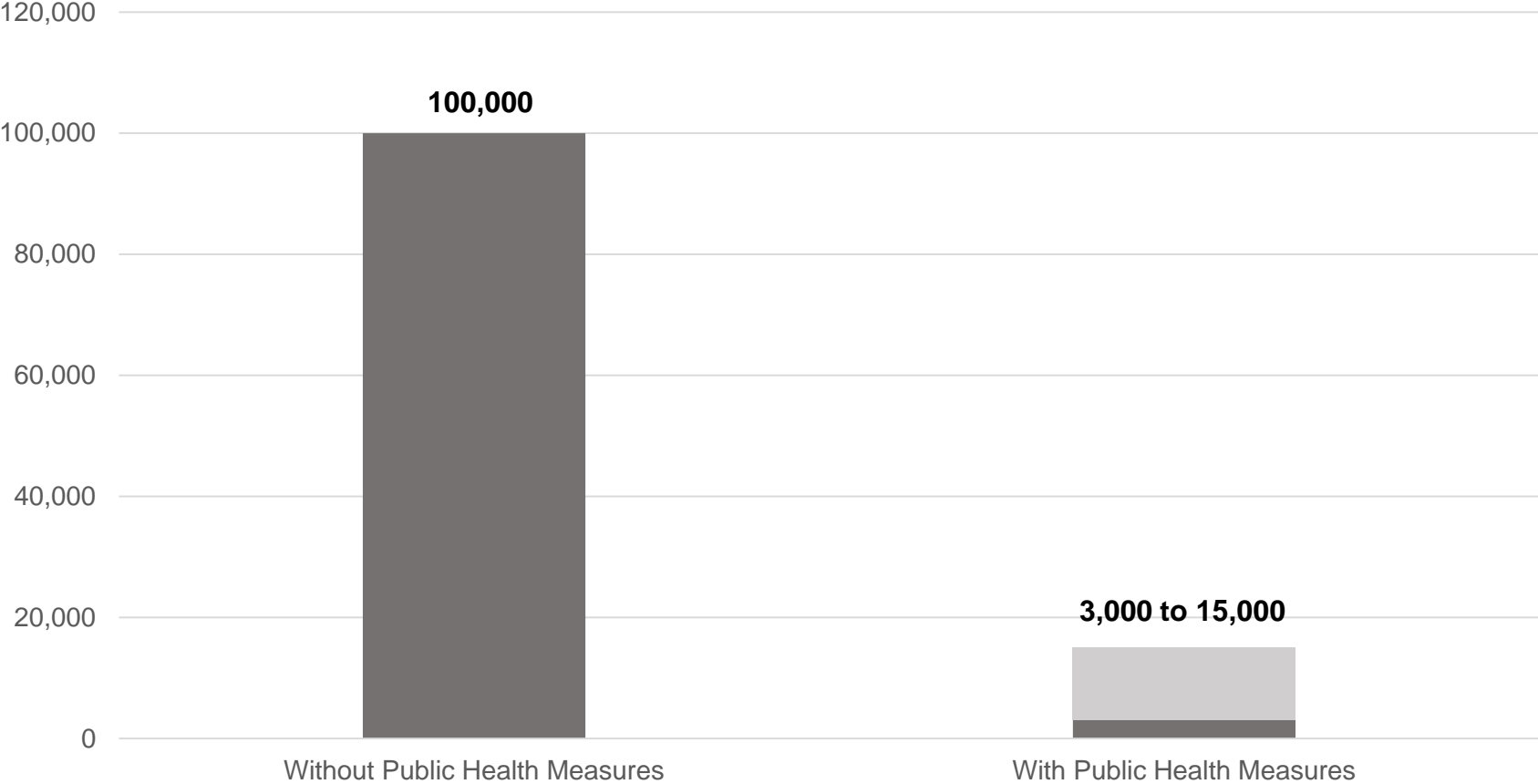
Projected Ontario Cases by April 30, 2020



Projected Ontario Deaths by April 30, 2020



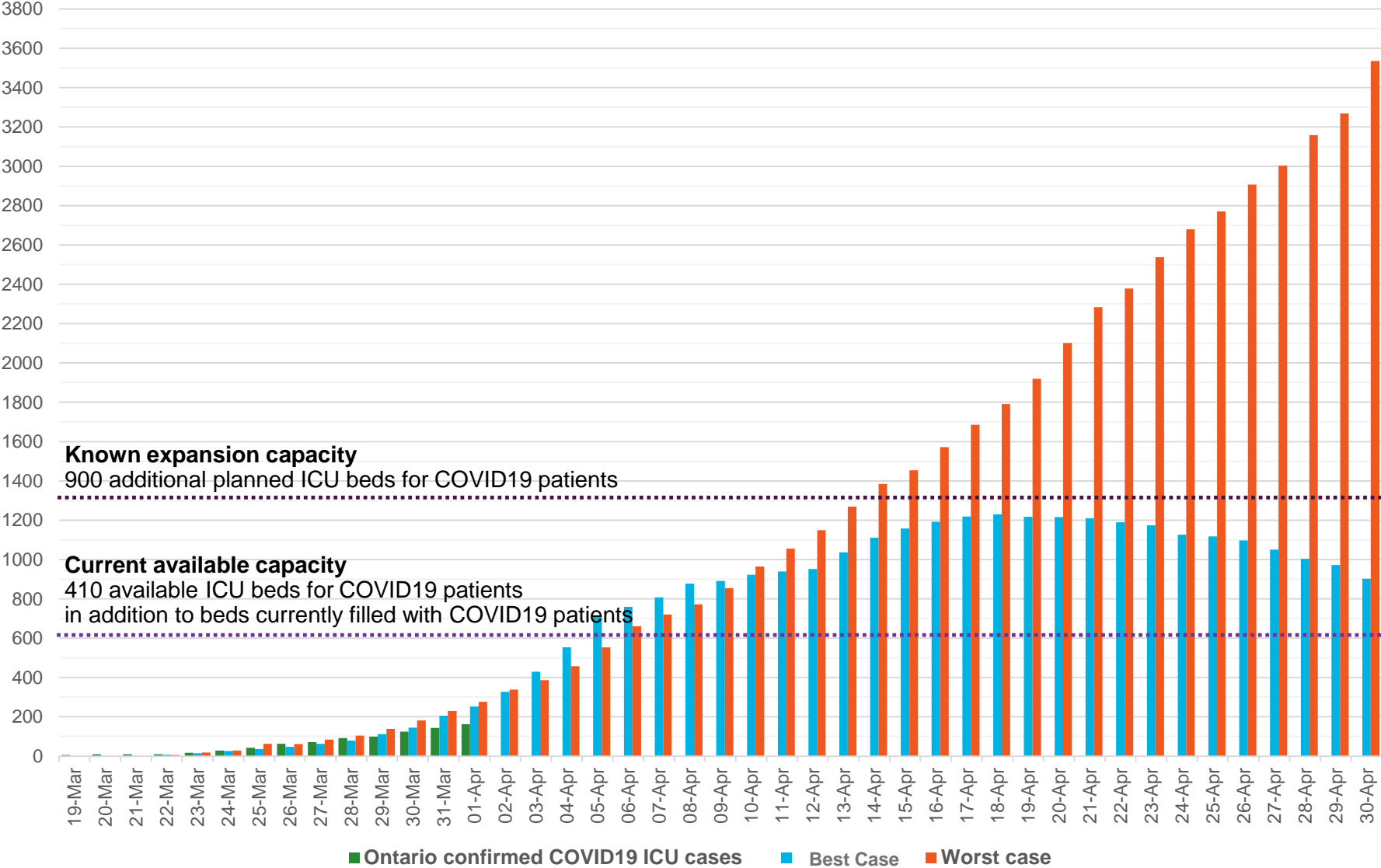
Projected Ontario Deaths over Course of Pandemic



Projected Deaths

Note: Range depends on implementation of maximum public health measures

Ontario ICU Capacity for COVID-19



Looking Ahead

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COVID-19: Slowing the Spread

- We need you to help us change the outcomes for Ontarians by staying at home and physically distancing.
- Our public health measures so far have made a difference and we need everyone to stay focused on these: stay home, stop the spread, stay safe.
- We need everyone to help stop the spread so we all must continue to fully adhere to the public health measures that have been put in place. We want to avoid the health care system being overwhelmed and the consequences to Ontarians, as we have seen in other jurisdictions in Europe and in the United States.

COVID-19: Additional Public Health Measures

Immediate Focus

- Enhanced capacity for case and contact tracing is underway.
- Increased testing for COVID-19, with a focus on long-term care, retirement homes and other congregate settings.

Future Measures

- Reduce the number and types of essential workplaces.
- Enhance focus on enforcement and fines for non-compliance.
- Expand direction/guidance on physical distancing, including retail settings.
- Enhanced support for elderly, homeless and other vulnerable populations and communities.
- Consider entry restrictions in some communities including First Nations.
- Human resource management (movement of health care workers between settings).
- Use of technology to reinforce self-isolation (alerts).
- Additional public education and communication (shelter in place with limited exceptions).