COVID-19 Modelling

April 3, 2020

Ontario

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 is it 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.
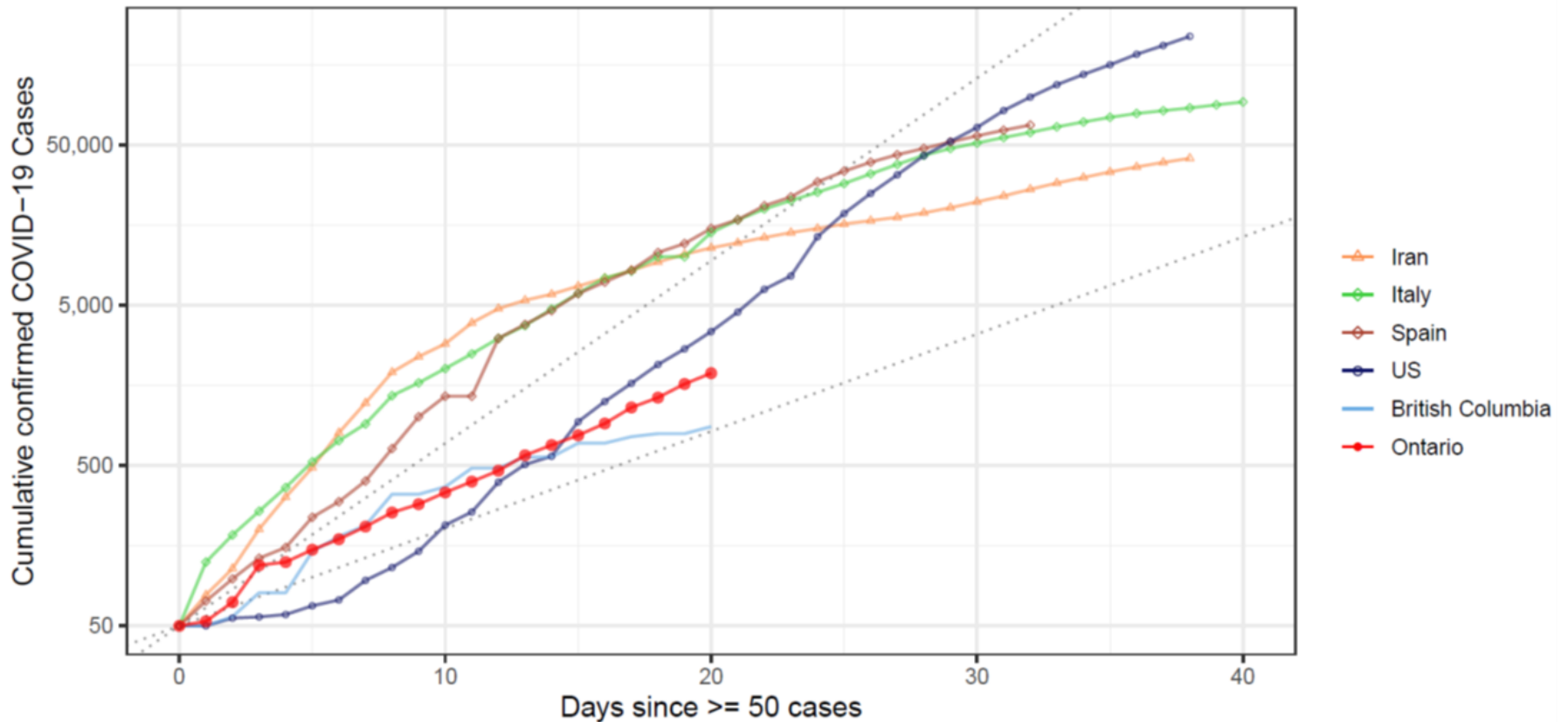
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Current Status

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

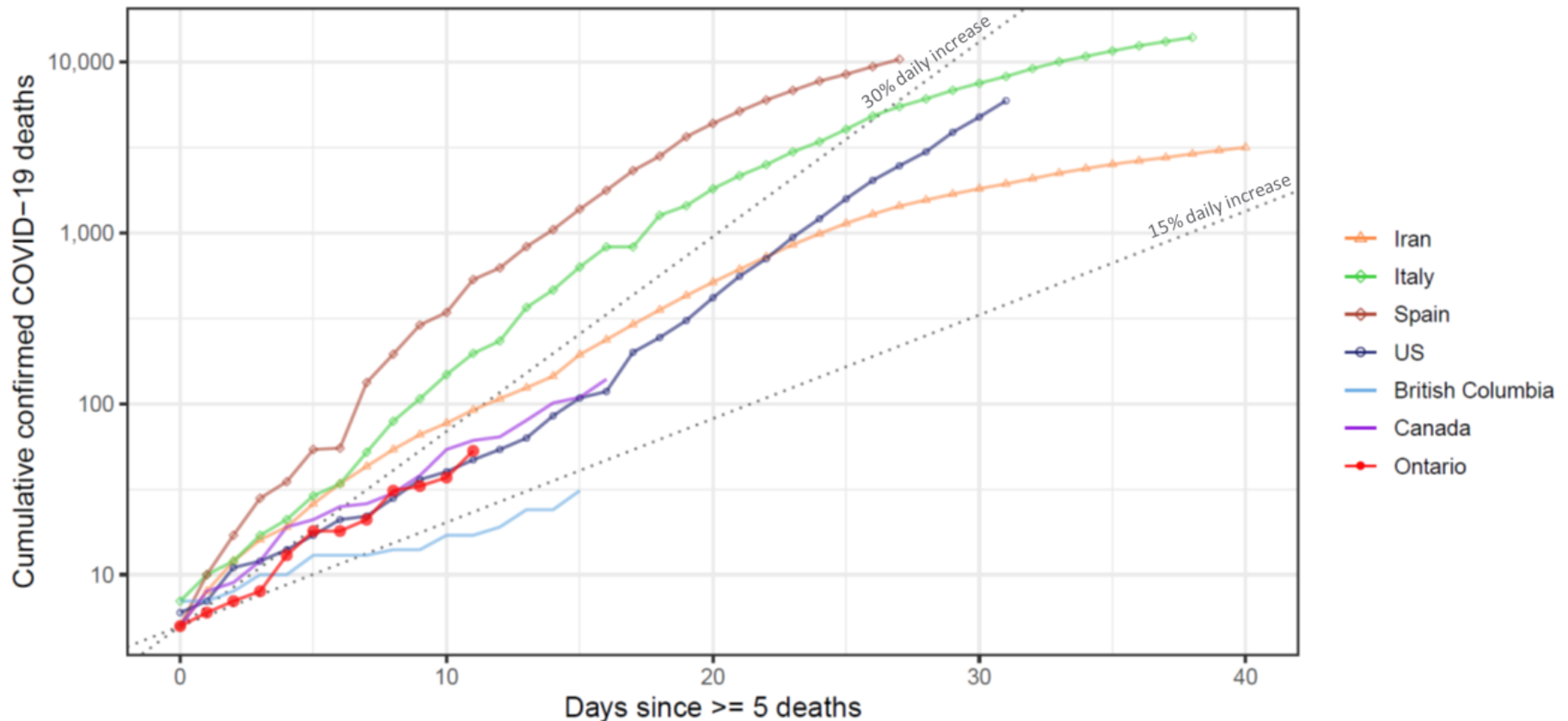| Age Group	Cases	Deaths	Case Fatality Ratio (%)
19 and under	82	0	0
20-39	945	0	0
40-59	1,178	7	0.6
60-79	821	24	2.9
80 and over	226	36	15.9
Unknown	3	0	0
Total	**3,255**	**67**	**2.1**

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

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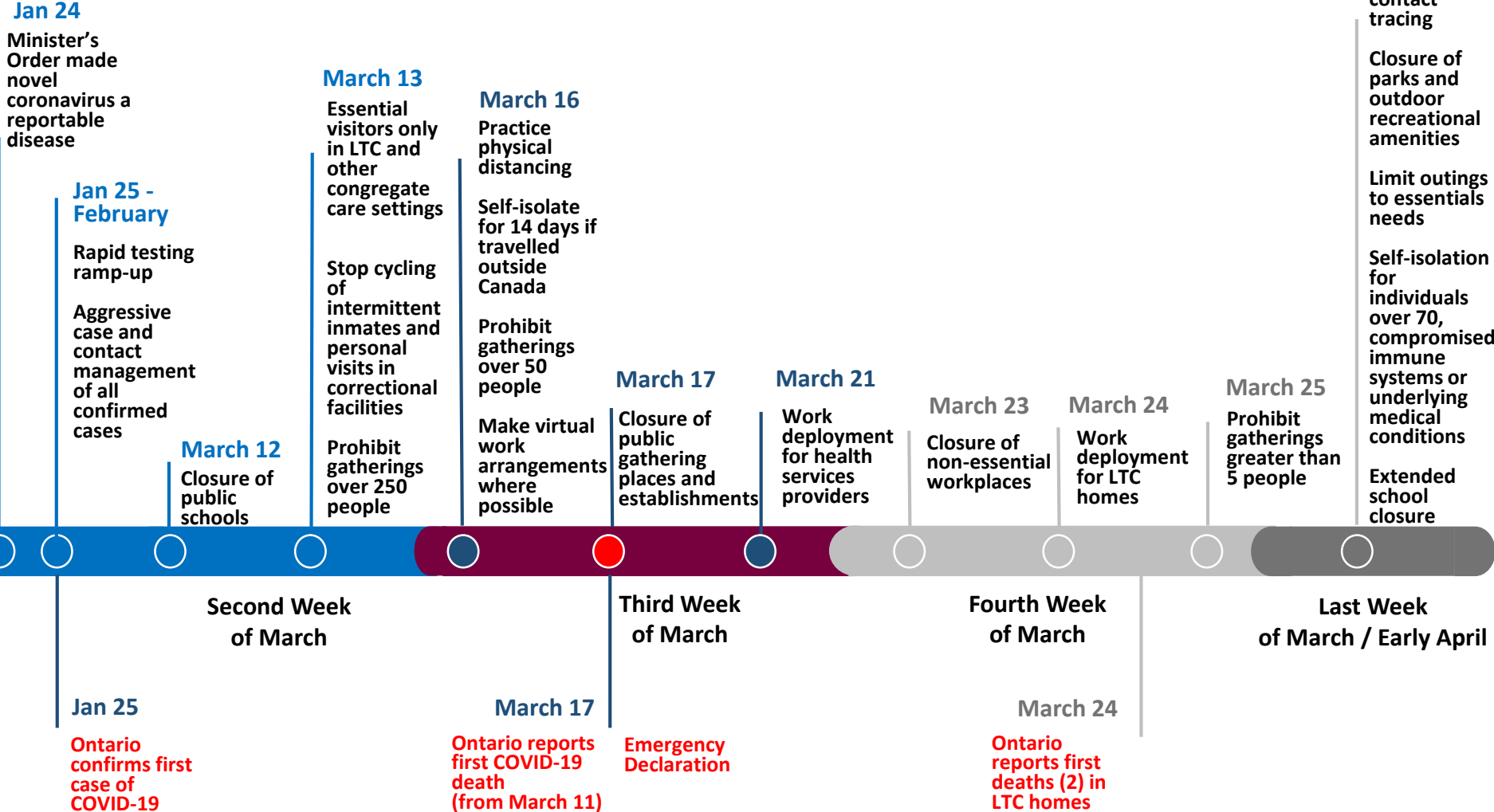# COVID-19: Cases in Ontario and Other Jurisdictions

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

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COVID-19: Deaths in Ontario and Other Jurisdictions

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

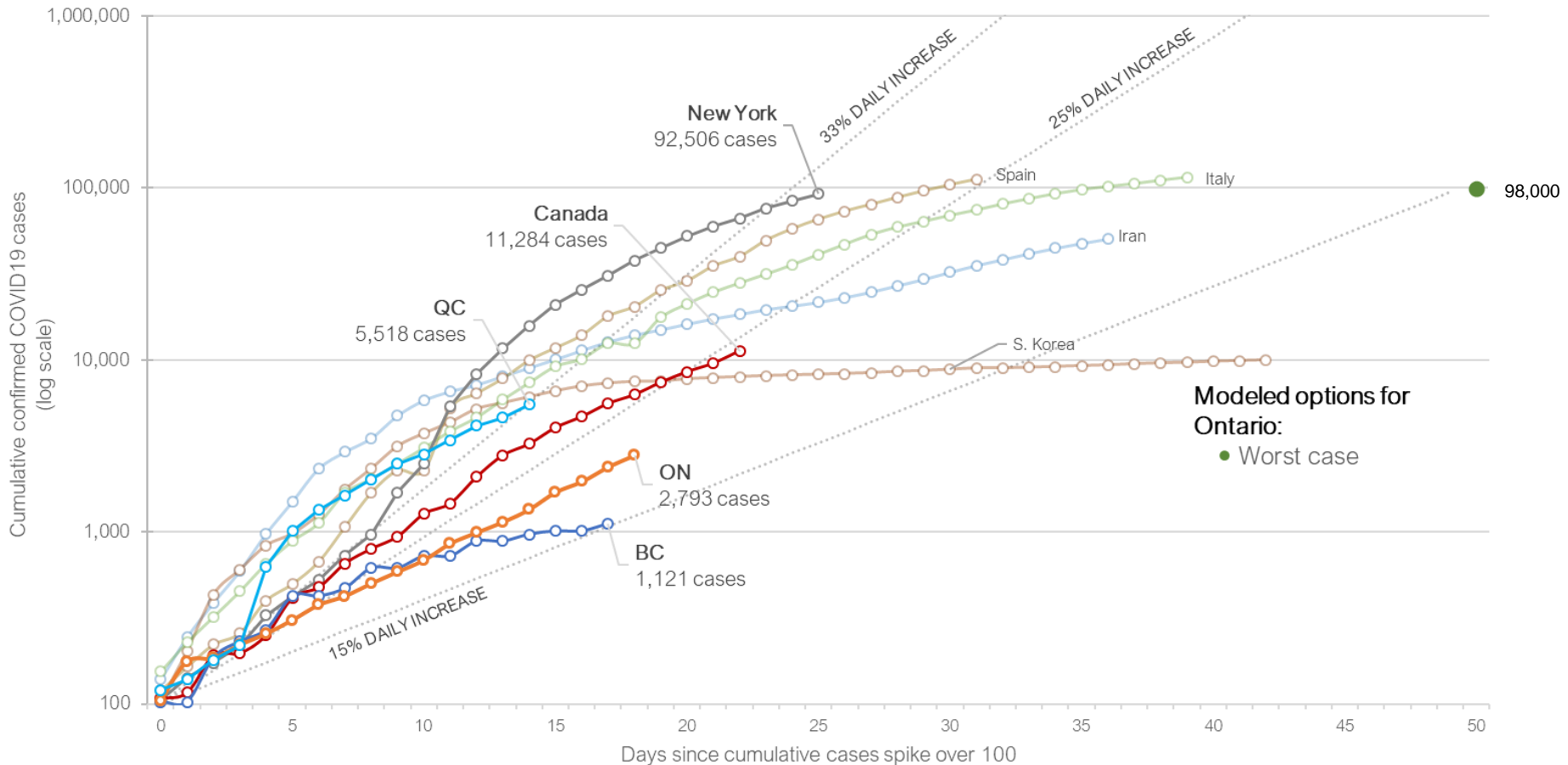Ontario

COVID-19: Key Public Health Measures Timeline

March 30 – Early April

Enhance capacity for contact tracing

Closure of parks and outdoor recreational amenities

Limit outings to essentials needs

Self-isolation for individuals over 70, compromised immune systems or underlying medical conditions

Extended school closure

Jan 24

Minister's Order made novel coronavirus a reportable disease

Jan 25 - February

Rapid testing ramp-up

Aggressive case and contact management of all confirmed cases

March 12

Closure of public schools

March 13

Essential visitors only in LTC and other congregate care settings

Stop cycling of intermittent inmates and personal visits in correctional facilities

Prohibit gatherings over 250 people

March 16

Practice physical distancing

Self-isolate for 14 days if travelled outside Canada

Prohibit gatherings over 50 people

Make virtual work arrangements where possible

March 17

Closure of public gathering places and establishments

March 21

Work deployment for health services providers

March 23

Closure of non-essential workplaces

March 24

Work deployment for LTC homes

March 25

Prohibit gatherings greater than 5 people

Second Week of March

Third Week of March

Fourth Week of March

Last Week of March / Early April

Jan 25

Ontario confirms first case of COVID-19

March 17

Ontario reports first COVID-19 death (from March 11)

Emergency Declaration

March 24

Ontario reports first deaths (2) in LTC homes

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Future Outlook

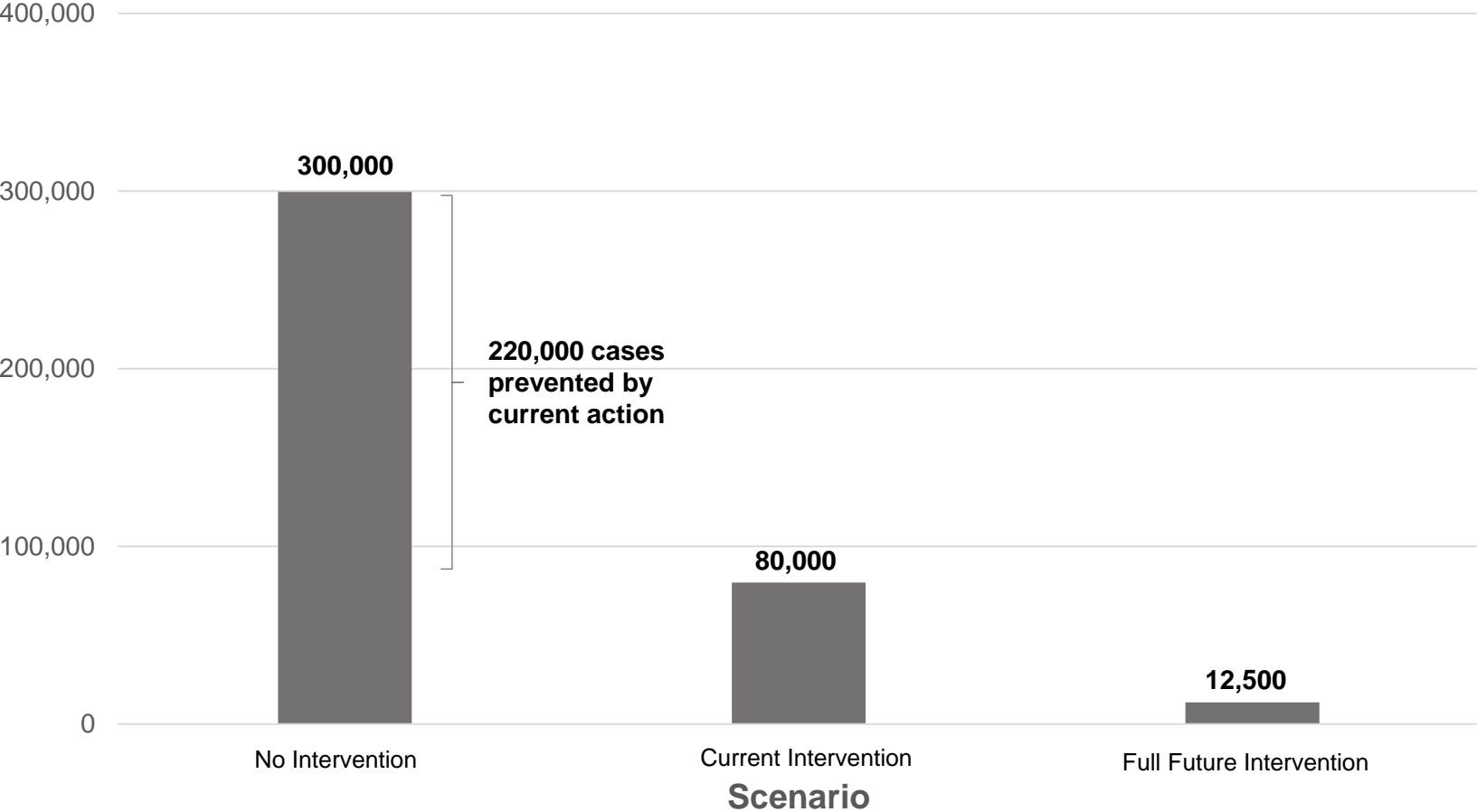# COVID-19: Using Models to Inform Ontario's Planning

- 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.

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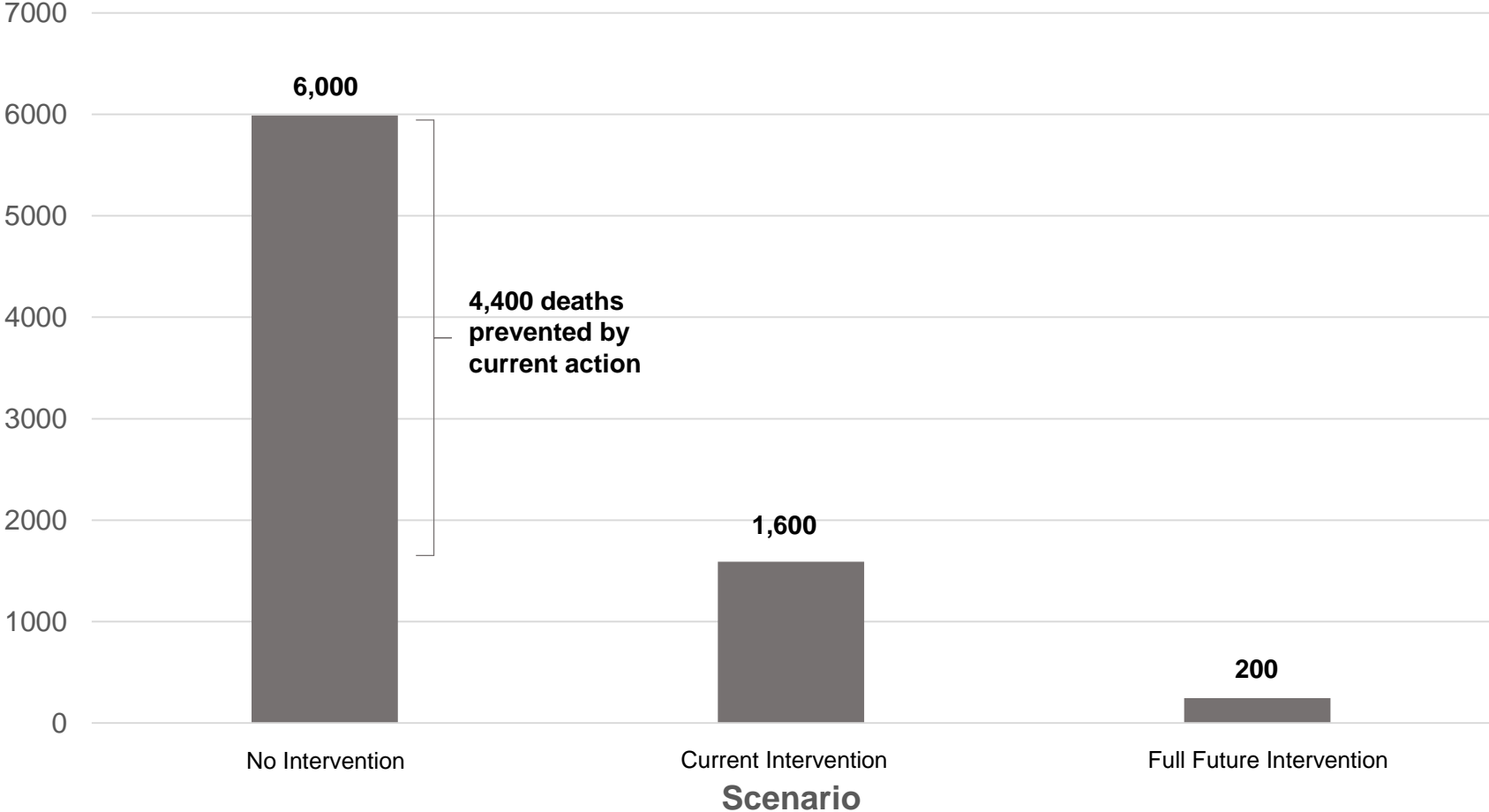# Cumulative Confirmed COVID-19 Cases, Number of Days since the 100th Case

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.
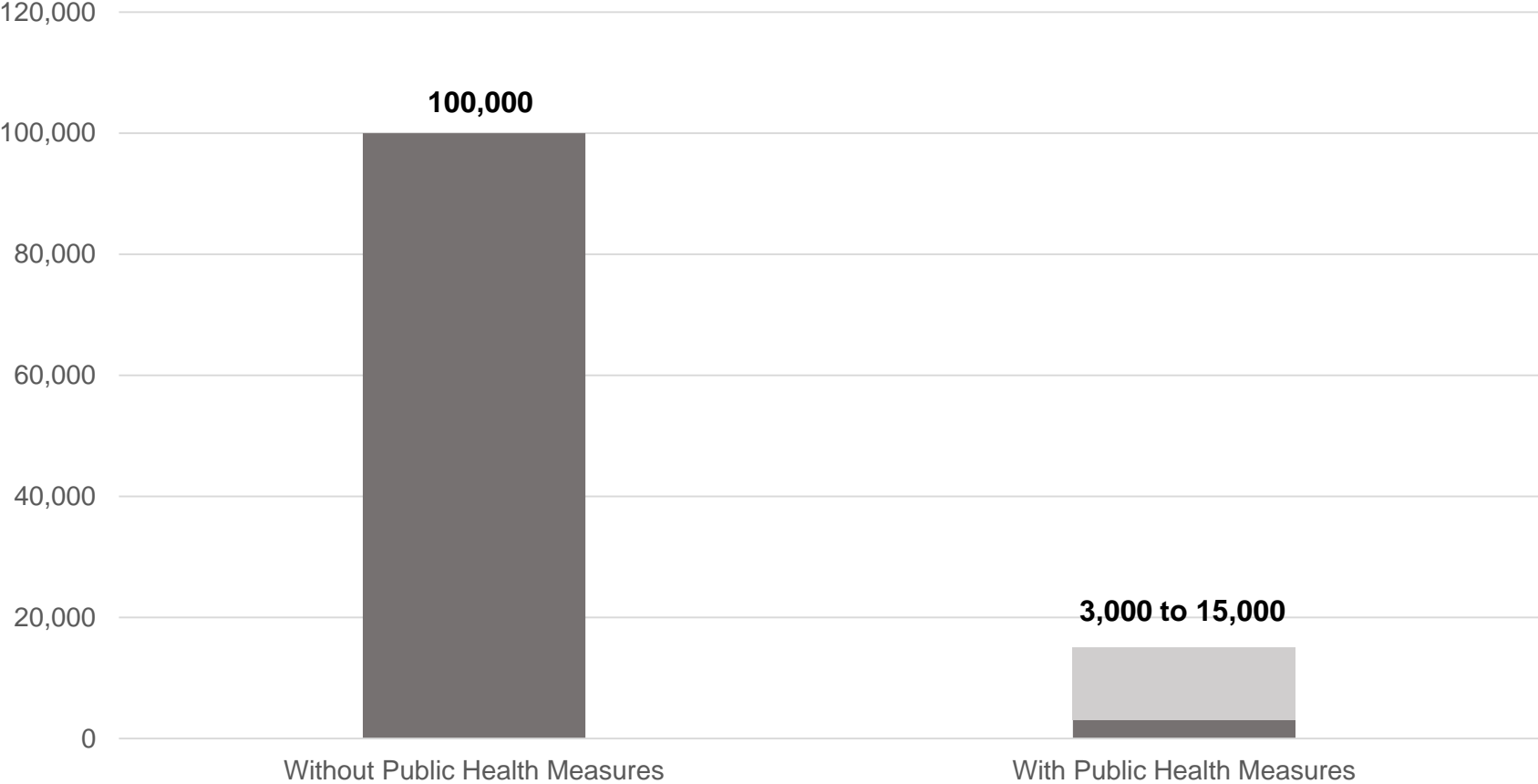
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Projected Ontario Cases by April 30, 2020

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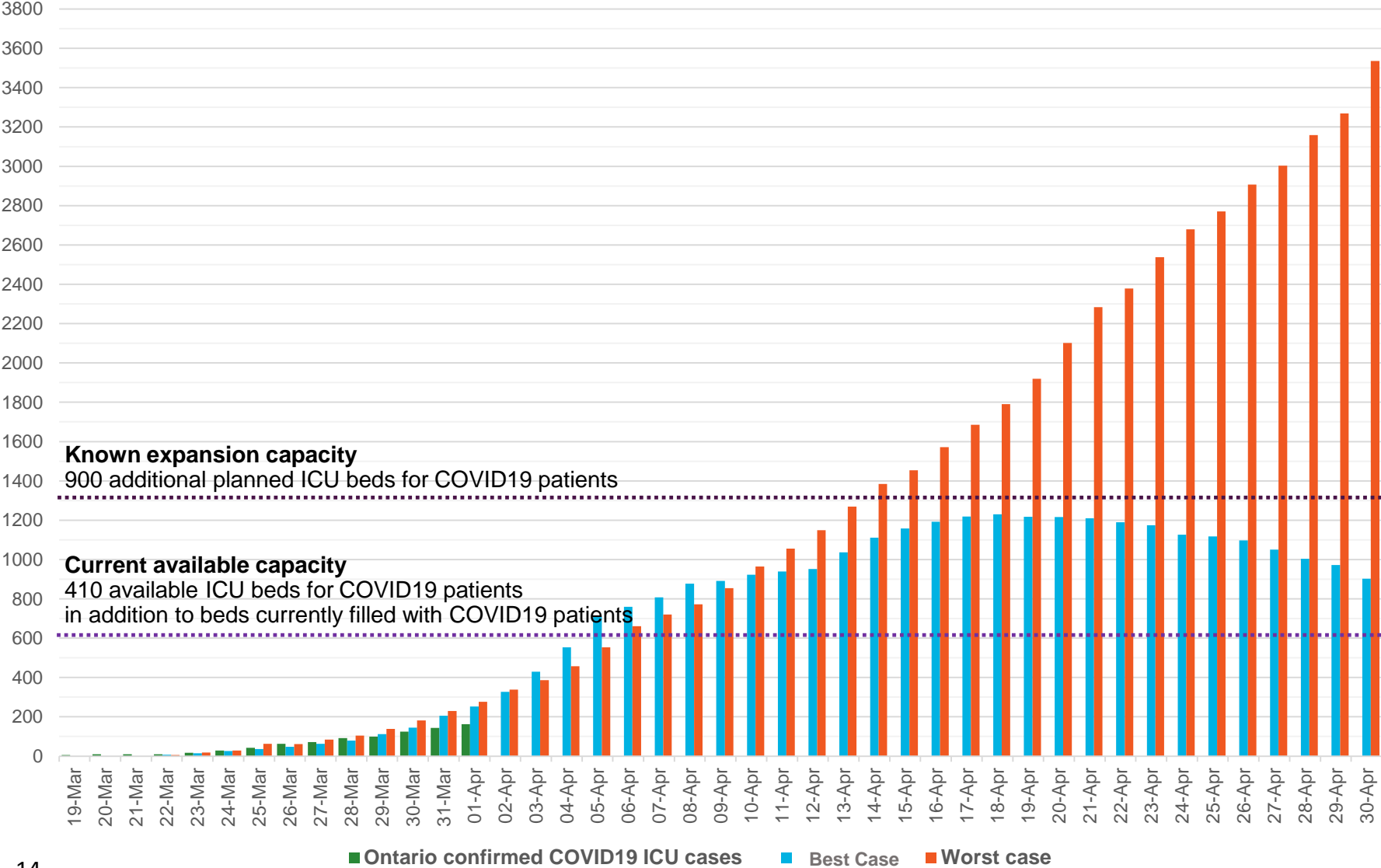# Projected Ontario Deaths by April 30, 2020

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

Known expansion capacity
900 additional planned ICU beds for COVID19 patients

Current available capacity
410 available ICU beds for COVID19 patients
in addition to beds currently filled with COVID19 patients

Legend: ■ Ontario confirmed COVID19 ICU cases ■ Best Case ■ Worst case

Looking Ahead

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.

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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).

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