



Public Health
Agency of Canada

Agence de la santé
publique du Canada

Canada

Update on COVID-19 in Canada: Epidemiology and Modelling

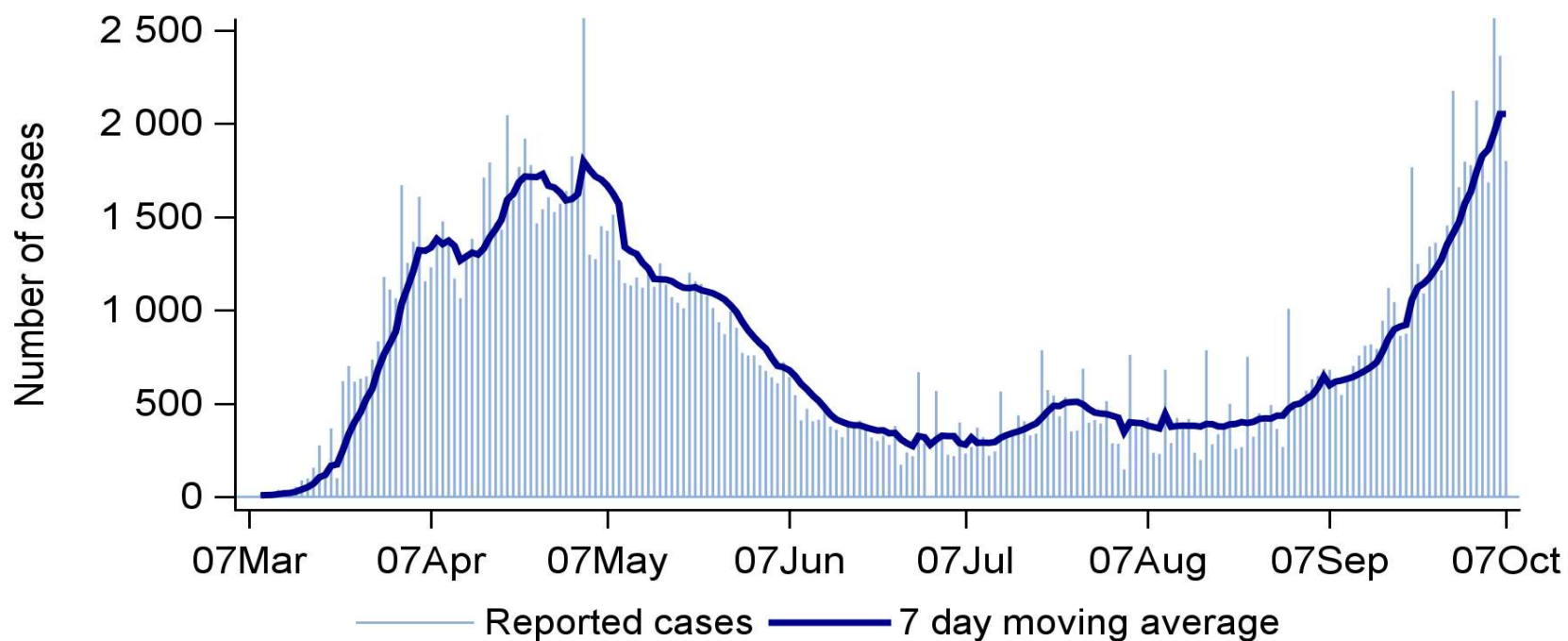
Oct 9th, 2020

PROTECTING AND EMPOWERING CANADIANS
TO IMPROVE THEIR HEALTH



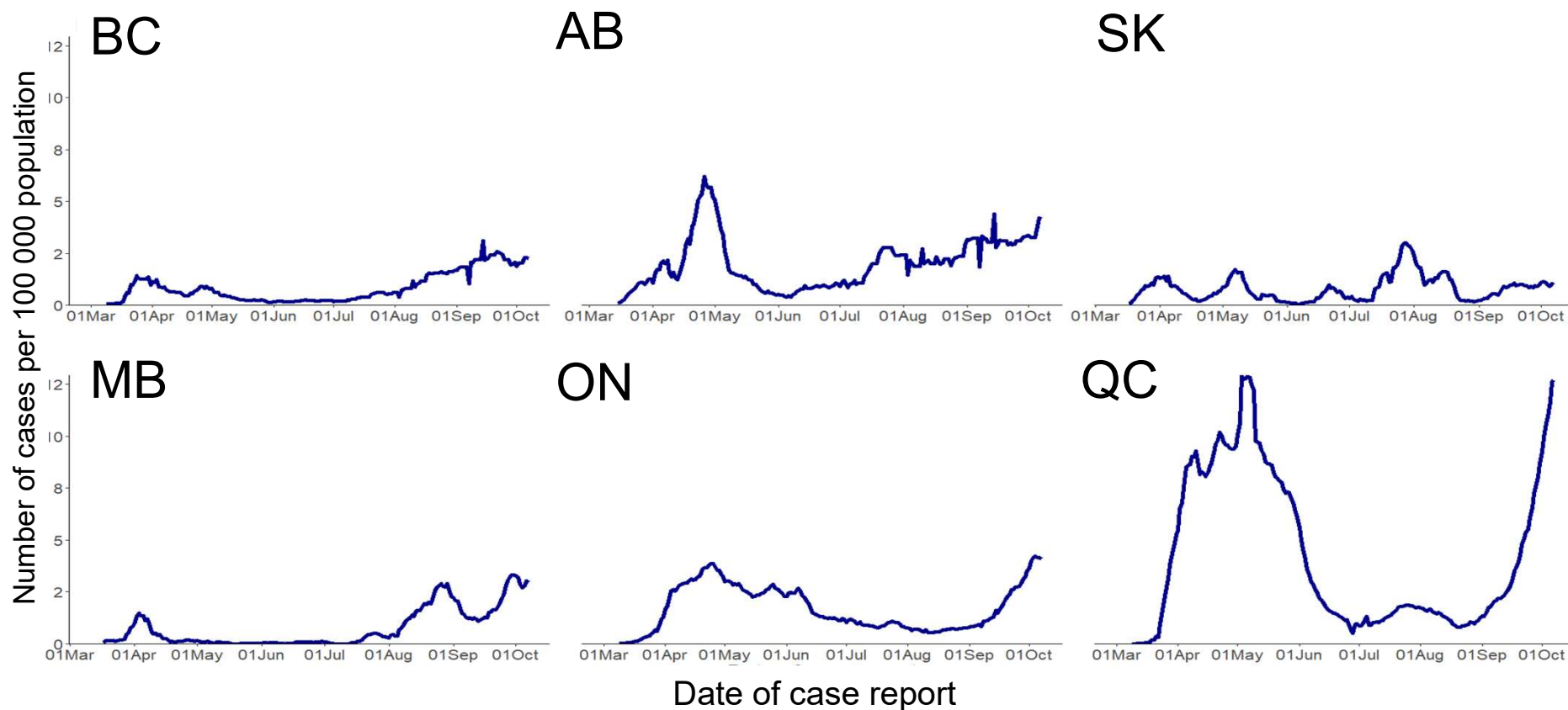
Epidemic growth continues to accelerate nationally

Daily COVID-19 cases by date of report, Canada



Data as of October 7, 2020

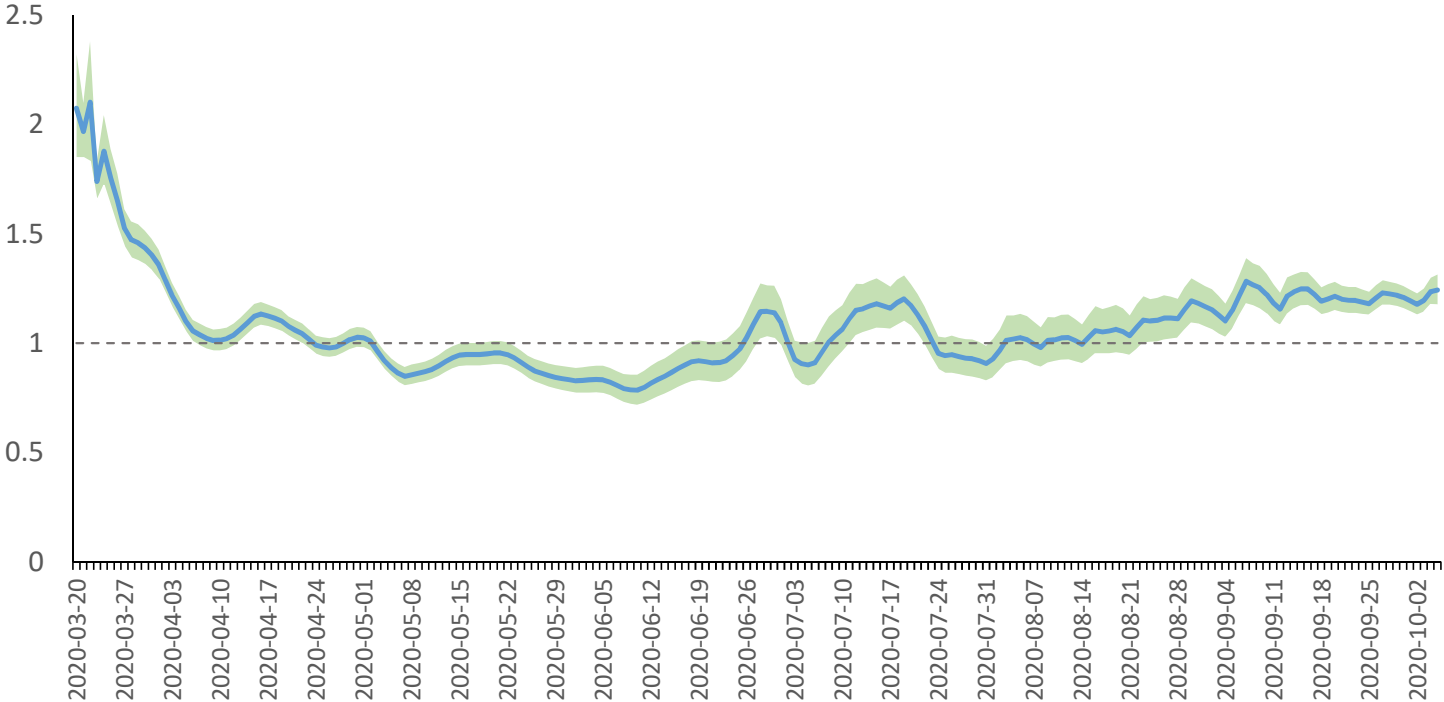
Incidence of COVID-19 is increasing in several provinces, most rapidly in Quebec, Ontario and Alberta



Data as of October 7, 2020

Each new case in Canada is spreading infection to more than one person

Canada's Rt over time

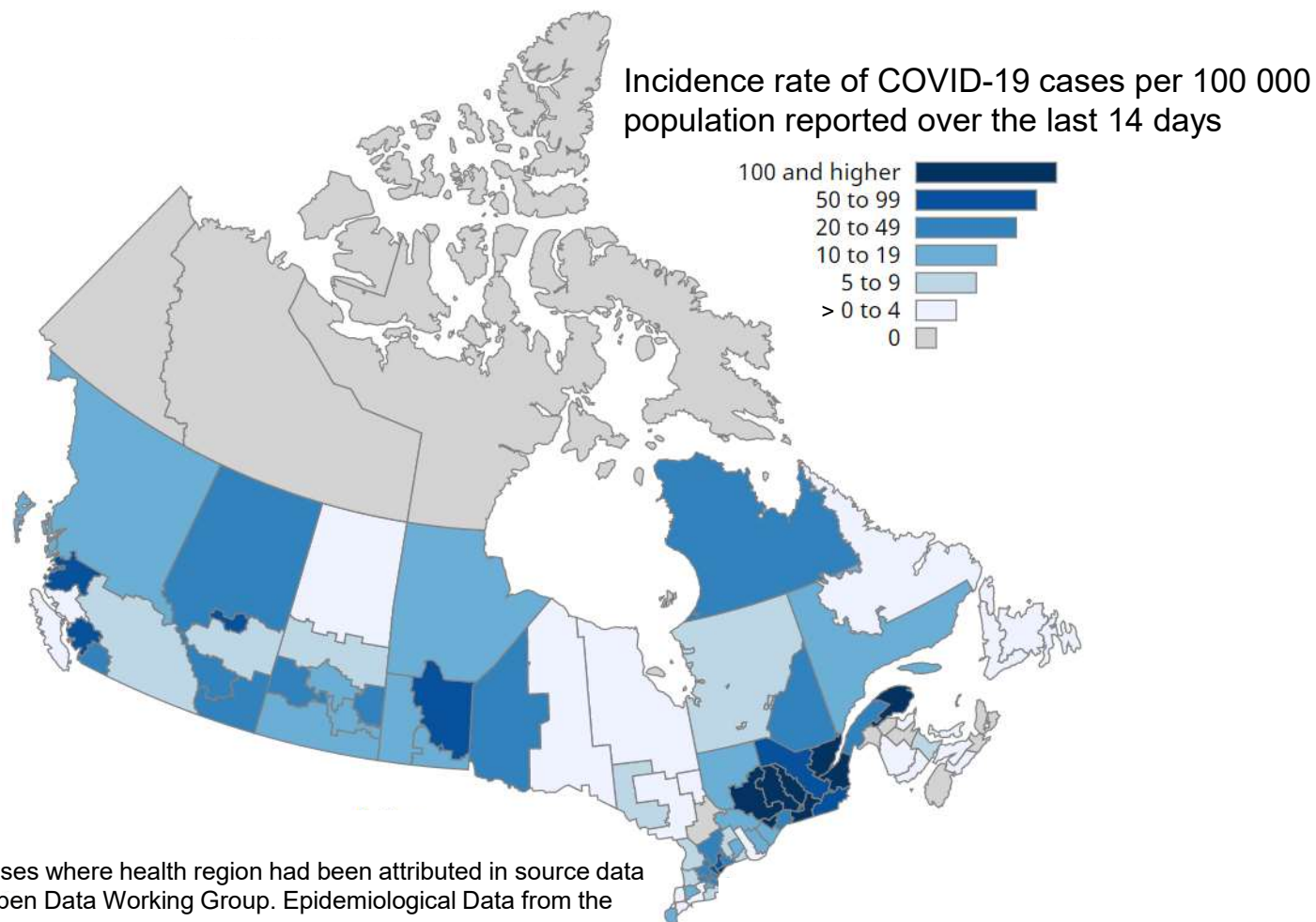


When *Rt* is consistently >1, the epidemic is growing

Since mid-August, Canada's *Rt* has been increasing and has remained >1

Data as of October 7th, 2020
Calculations are based on date of case report

Higher incidence of COVID-19 in more regions across the country



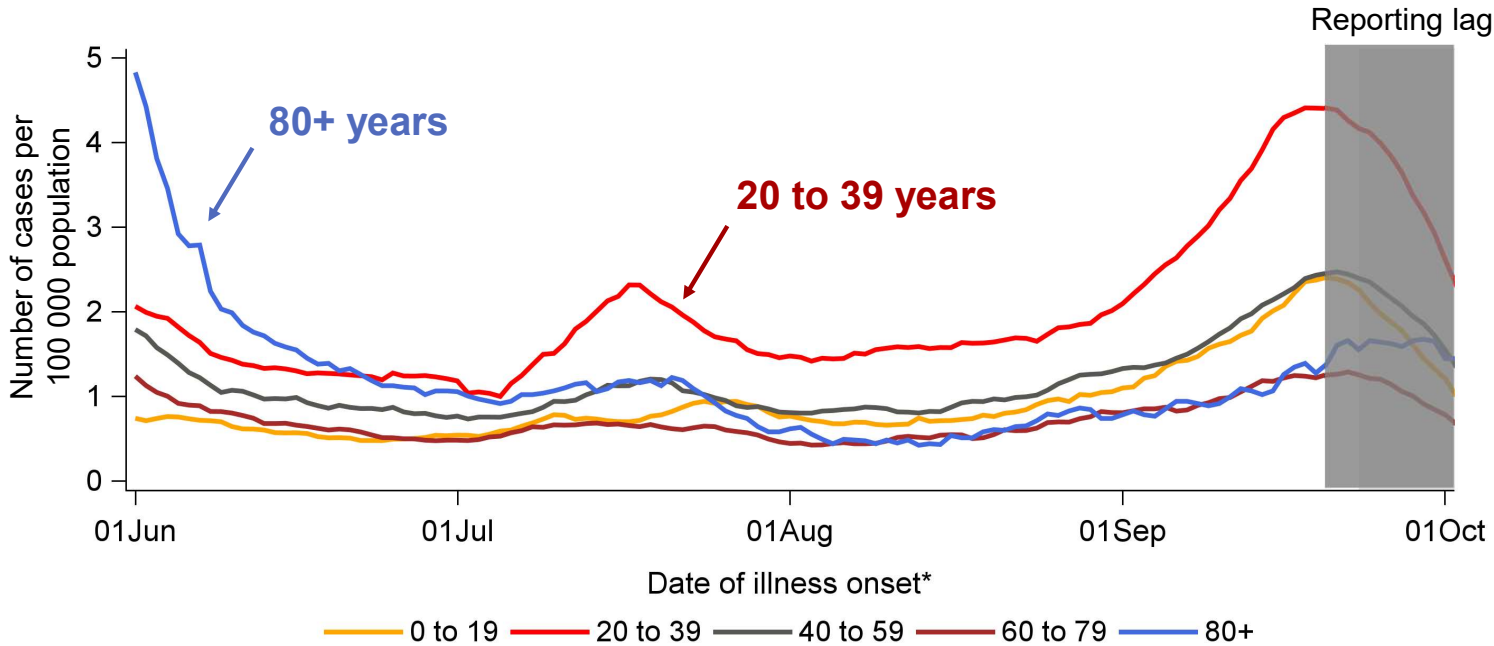
Data as of October 7, 2020

Note: Map only shows COVID-19 cases where health region had been attributed in source data

Data sources: COVID-19 Canada Open Data Working Group. Epidemiological Data from the COVID-19 Outbreak in Canada

Incidence of COVID-19 has remained highest among younger age groups

Incidence of COVID-19 over time and by age group (7-day moving average)

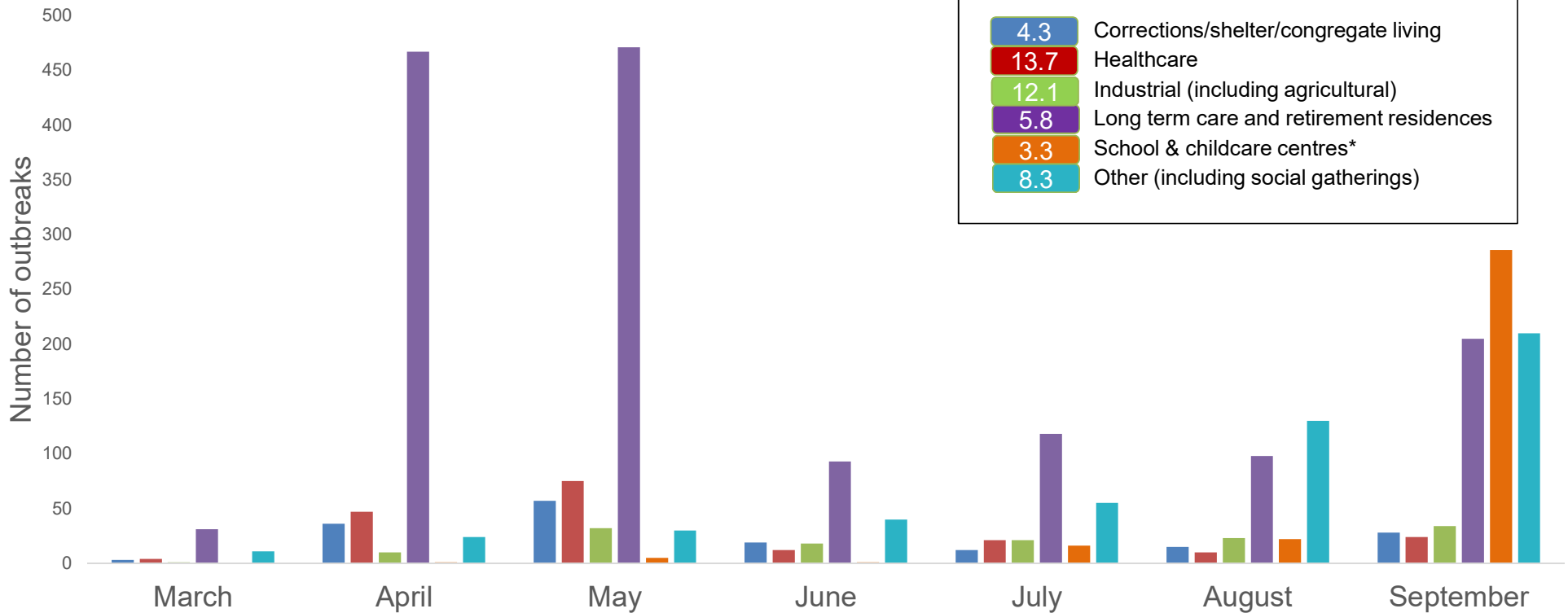


Data as of October 7, 2020

*First available of illness onset, specimen collection, laboratory test date; cases may not yet be reported in shaded area due to reporting lag

Rapid detection and response to outbreaks remain key to preventing spread in at risk populations

Number of outbreaks by setting



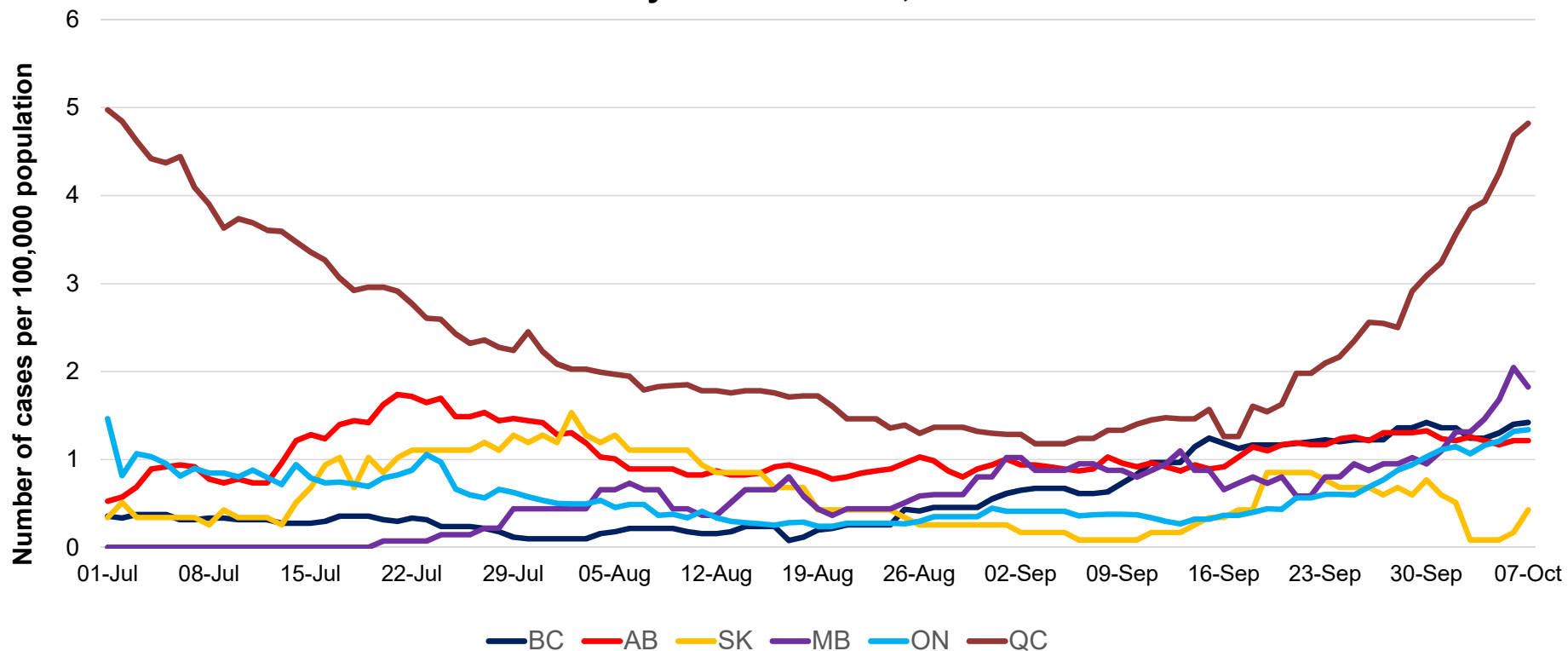
Average number of cases per outbreak (July to September)

- 4.3 Corrections/shelter/congregate living
- 13.7 Healthcare
- 12.1 Industrial (including agricultural)
- 5.8 Long term care and retirement residences
- 3.3 School & childcare centres*
- 8.3 Other (including social gatherings)

Data sources: Provincial/territorial websites and public information sources
 *Note school outbreaks include only those with at least two cases.

Hospitalizations have increased along with the increase in reported cases

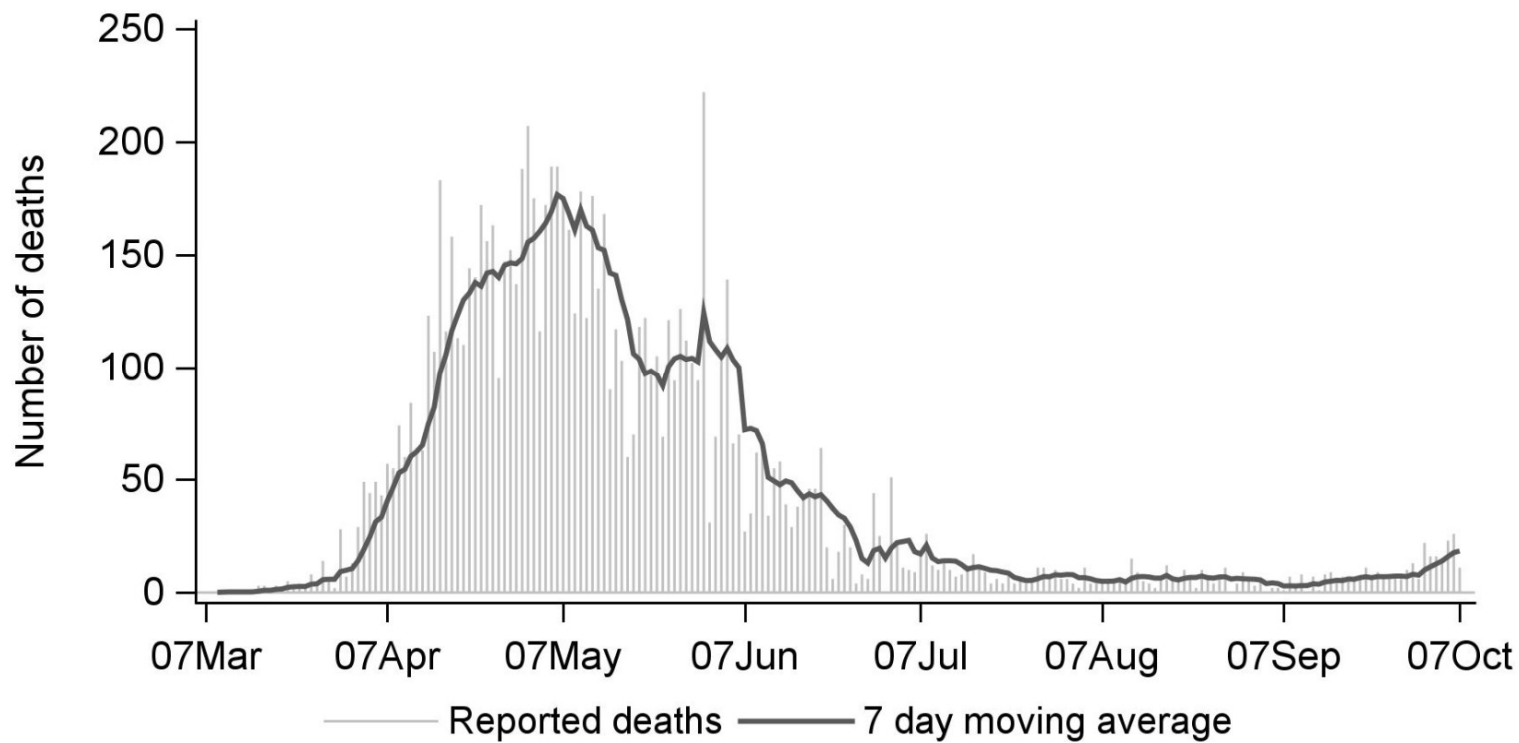
Number of cases in hospital daily, per 100 000 population
July 1 to October 7, 2020



Data as of October 7, 2020
Provinces with recent COVID-19 cases included

Daily number of COVID-19-related deaths increasing slightly

Daily COVID-19-related deaths by date of report, Canada

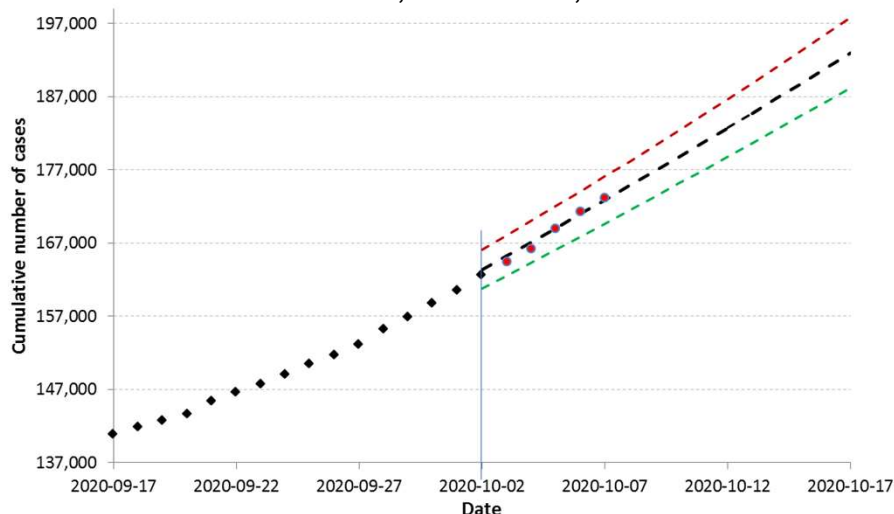


Data as of Oct 7, 2020

Short-term forecast suggests continued accelerated growth

Number of cases

Cumulative cases predicted to October 17:
188,150 to 197,830



- ◆ Reported data by October 02
- Prediction to October 17
- - Lower 95% confidence limit
- - Upper 95% confidence limit
- Added data points since October 02

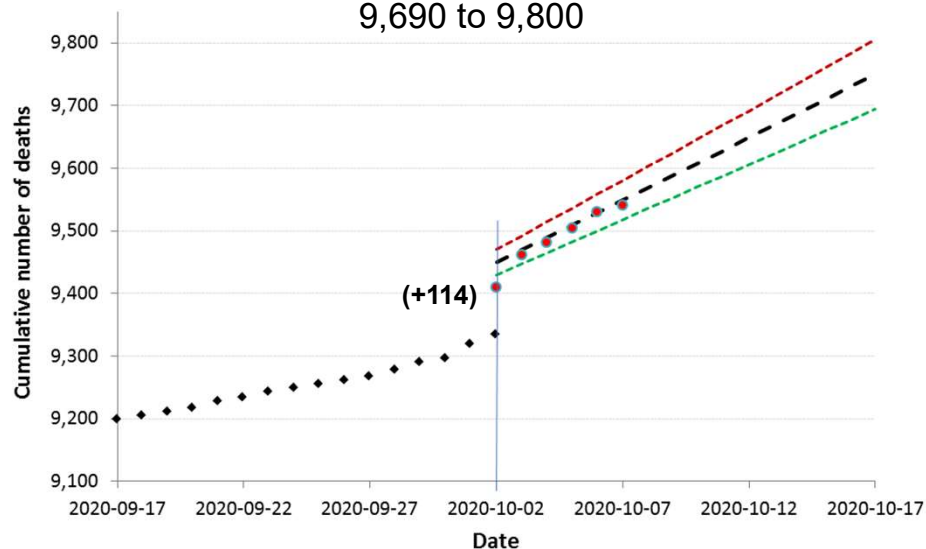
Extrapolation based on recent trends using a forecasting model (with ranges of uncertainty)

When the cases and deaths reported are between the red and green dotted lines, they are within the forecasted range of expected cases and deaths.

More importantly, if reported data points since Oct 2nd fall outside these limits, the model detects unexpected signals that require further epidemiologic investigation.

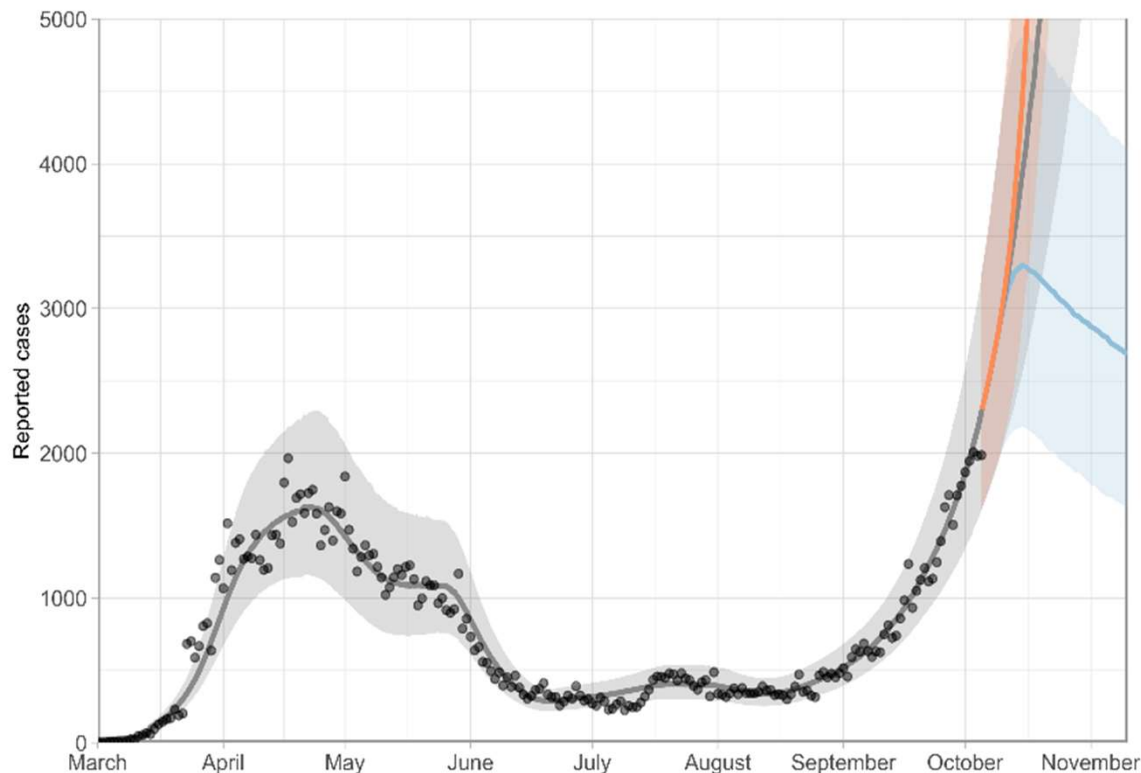
Number of deaths

Cumulative deaths predicted to October 17:
9,690 to 9,800



* Technical note: Ontario reported an additional 114 deaths between October 2-4 for cases that occurred in the spring or summer, the forecast has been adjusted to include this

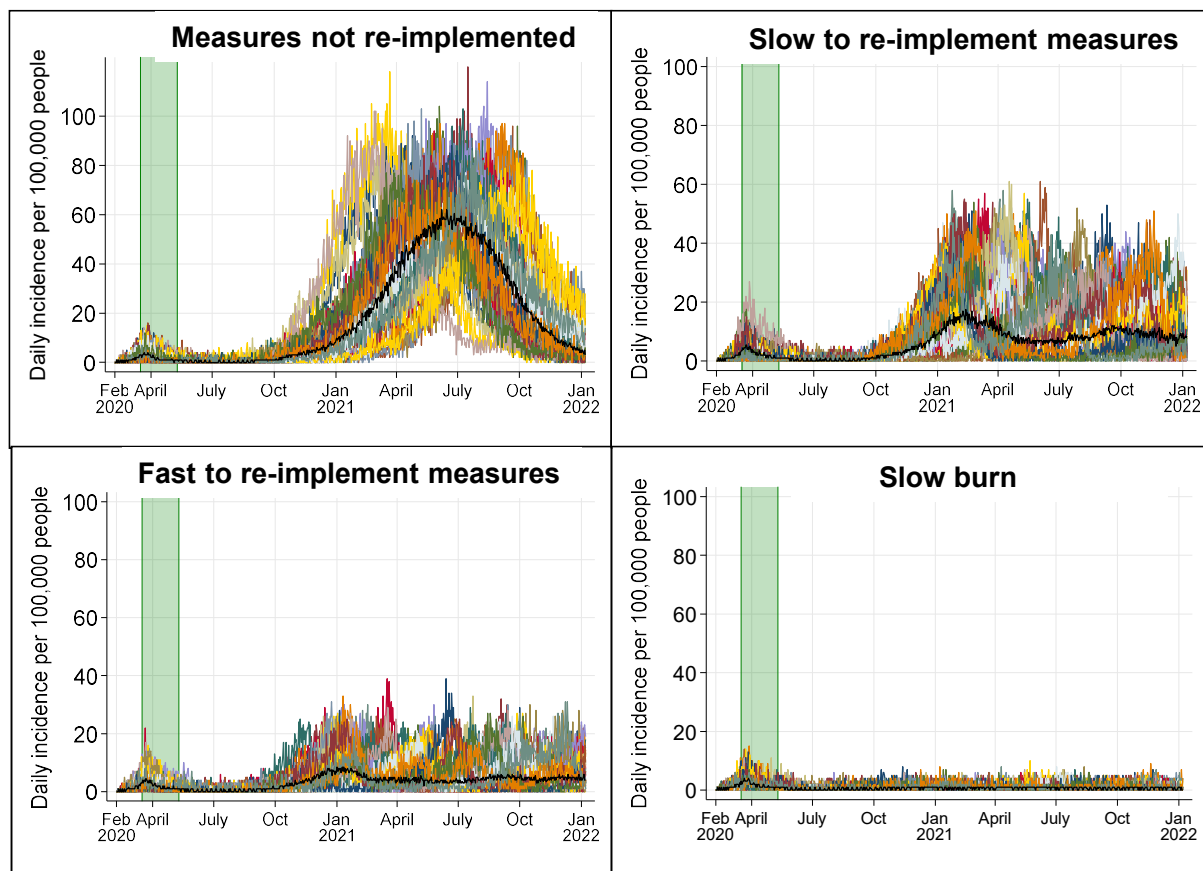
Long-range forecast indicates that a stronger response is needed now



- If we **maintain** our current rate of contacts – the epidemic is forecast to resurge: **Grey line**
- If we **increase** our current rate of contacts by 20% – the epidemic is forecast to resurge faster and stronger: **Orange line**
- If we **decrease** our current rate of contacts by 25% to 35% – the epidemic is forecast to come under control in most locations: **Blue line**

Methods: Anderson SC, Edwards AM, Yerlanov M, Mulberry N, Stockdale J, Iyaniwura SA, Falcao RC, Otterstatter MC, Irvine MA, Janjua NZ, Coombs D, Colijn C. 2020. Estimating the impact of COVID-19 control measures using a Bayesian model of physical distancing. <https://www.medrxiv.org/content/10.1101/2020.04.17.20070086v1>

Acting fast is important when and where strategic closures are needed



Dynamic models show:

When strategic closures are required, the faster they are applied the greater the impact.

**These model scenarios are run with numerous simulations to account for the ranges of possible values of some parameters (e.g. duration of infectivity). Each simulation is depicted by a different colour and the black line denotes the average projection of these simulations.*

**Green bar represents the period of time where restrictive measures were in place during the spring.*

Stay up to date on your local COVID-19 situation

What matters most this fall is the actions of individual Canadians to limit our contacts and opportunities for the virus to spread

Keep up to date on COVID-19 activity in your local area to make informed decisions to reduce your risk and protect your friends, family and community

Download COVID Alert today



COVID Alert is Canada's free exposure notification app.

<https://health-infobase.canada.ca/covid-19/covidtrends/>

What area do you want to know about?

Add your postal code (first 3 characters) or municipality



Canada



Last 14 days

26,870
cases

311
deaths

Total*

177,995
cases

9,601
deaths

[See national data](#)

Protect loved ones this Thanksgiving long weekend

Act now to slow spread and prevent new outbreaks:

- Limit gatherings to your household contacts
- Stay close to home
- Celebrate creatively with virtual gatherings and festive outdoor activities

Always consider your risk and layer on precautions with the ABCs of COVID-19 control

ABCs of COVID-19 control

Quick-Check the risks by considering:

- A.** your personal risks and household/close contacts risk factors
- B.** risks posed by the setting and/or activity

Take action to reduce the spread of COVID-19:

- C.** Layer on precautions:
 - Stay home and get tested if you have symptoms
 - Maintain public health practices: physical distancing, handwashing, wearing a non-medical mask/face covering as appropriate
 - Limit time spent in settings/situations that have not implemented measures to reduce the risk of exposure