



Public Health  
Agency of Canada

Agence de la santé  
publique du Canada

Canada

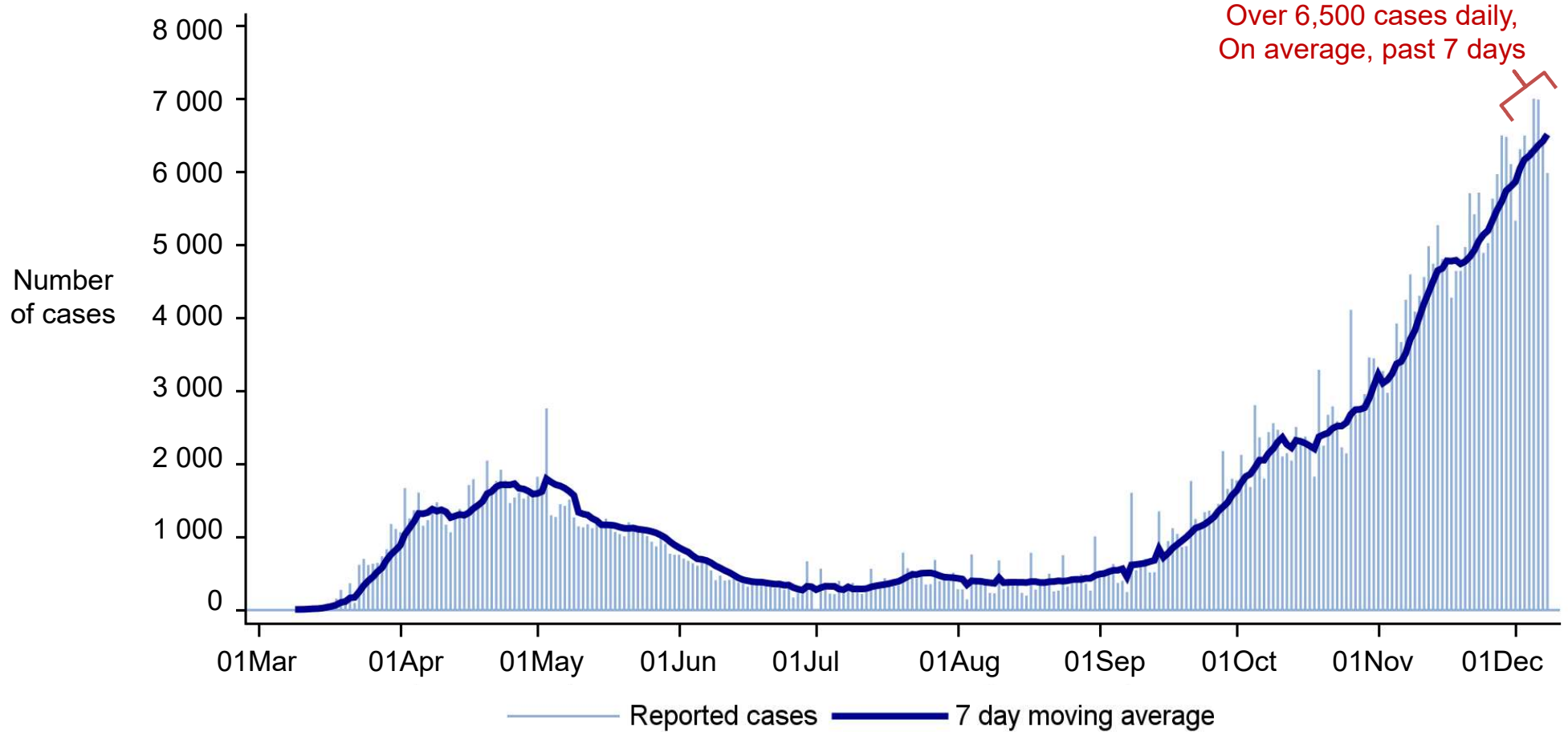
# Update on COVID-19 in Canada: Epidemiology and Modelling

December 11<sup>th</sup>, 2020

PROTECTING AND EMPOWERING CANADIANS  
TO IMPROVE THEIR HEALTH

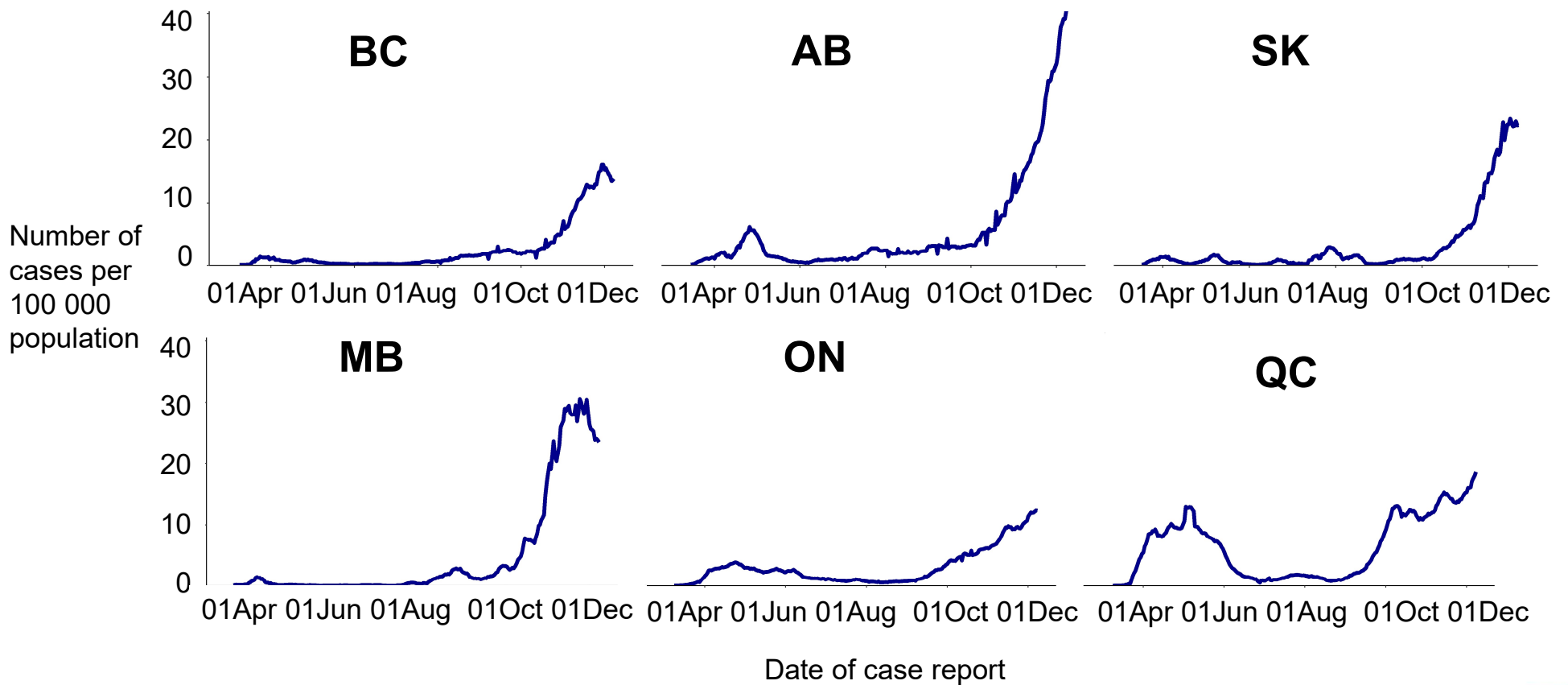


## Continued rise in national COVID-19 daily case counts



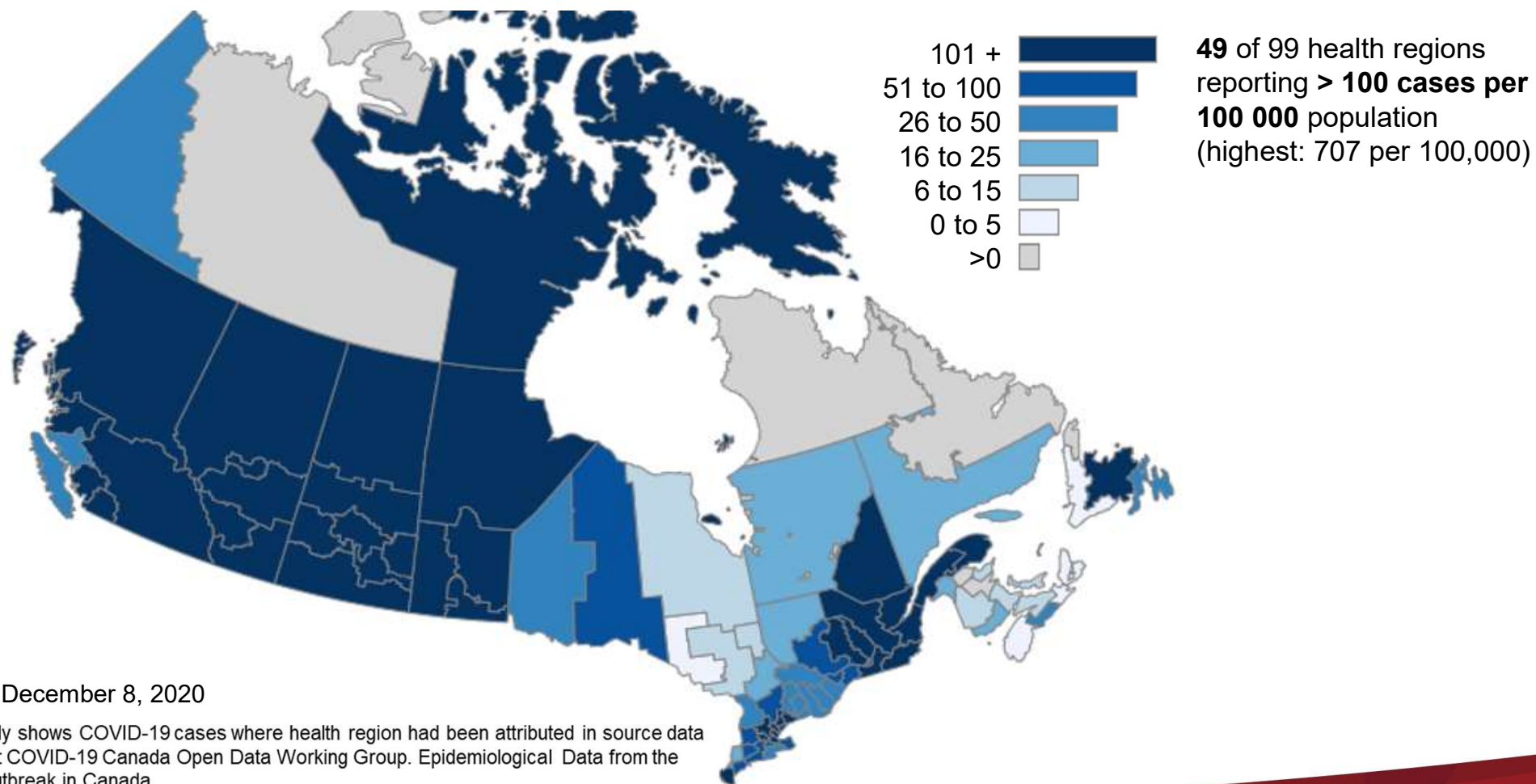
Data as of December 8, 2020

## Rapid growth is occurring in several provinces

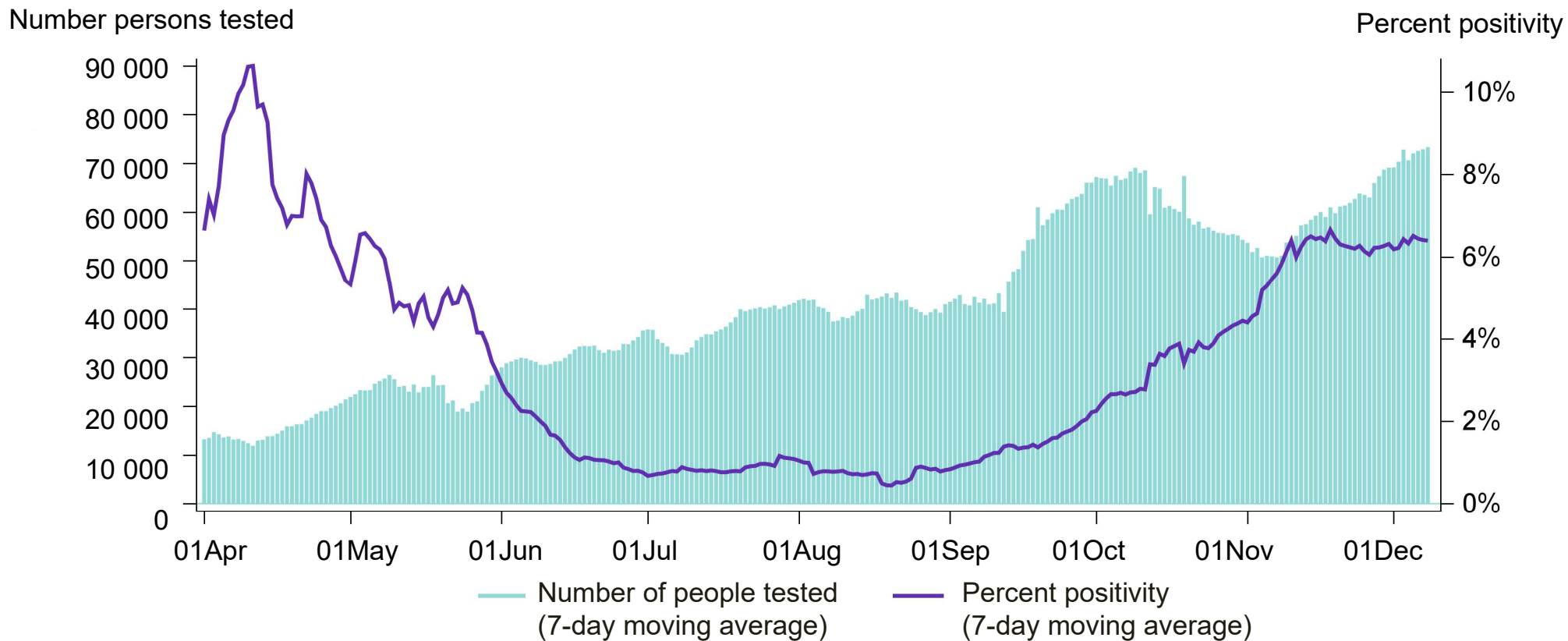


Data as of December 8, 2020

## More health regions are reporting higher rates of COVID-19 infection



## Nationally, the percentage of people testing positive remains high

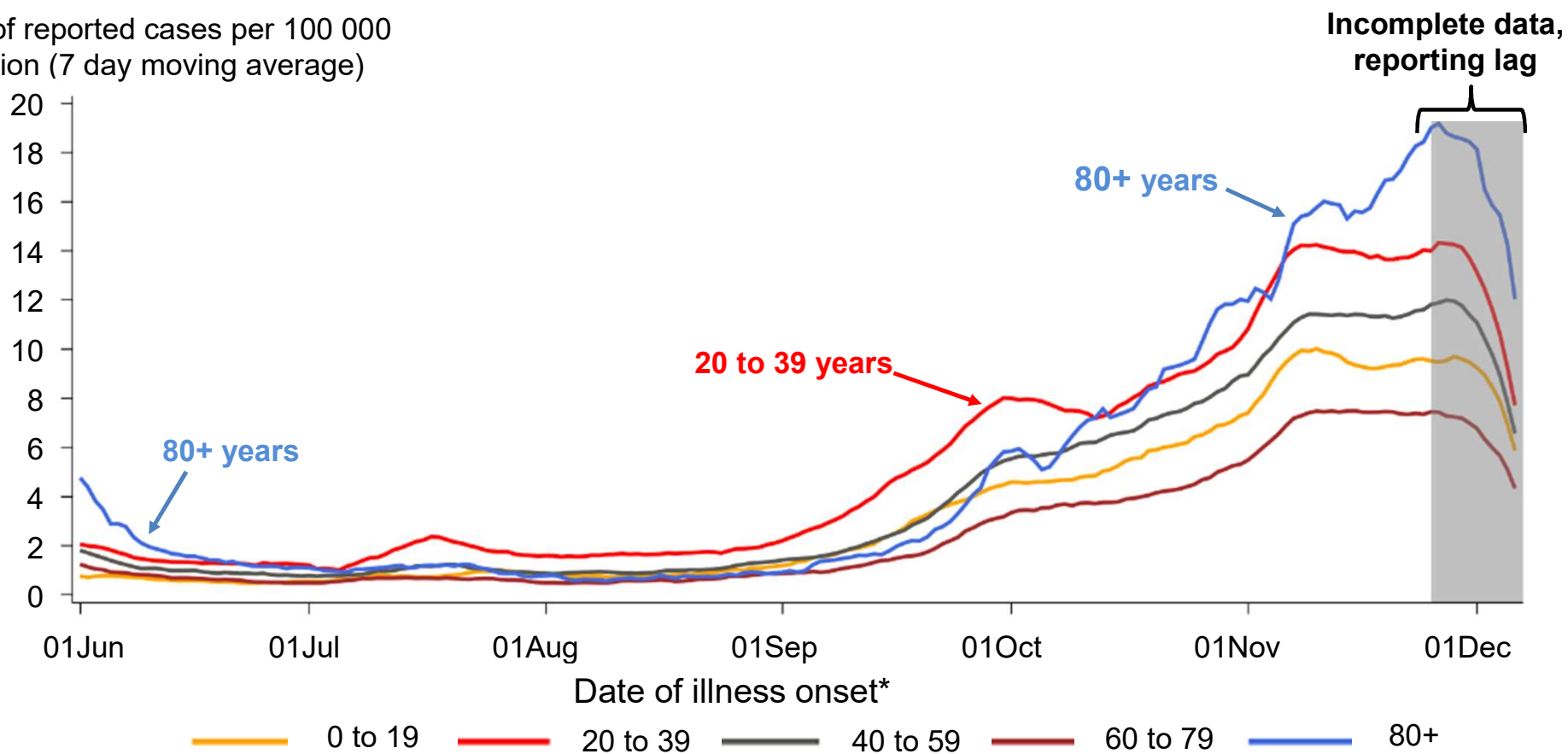


Data as of December 8, 2020

Data excluding Alberta because of differences in methods of computation

## Escalating incidence among high-risk adults, aged 80 years and older

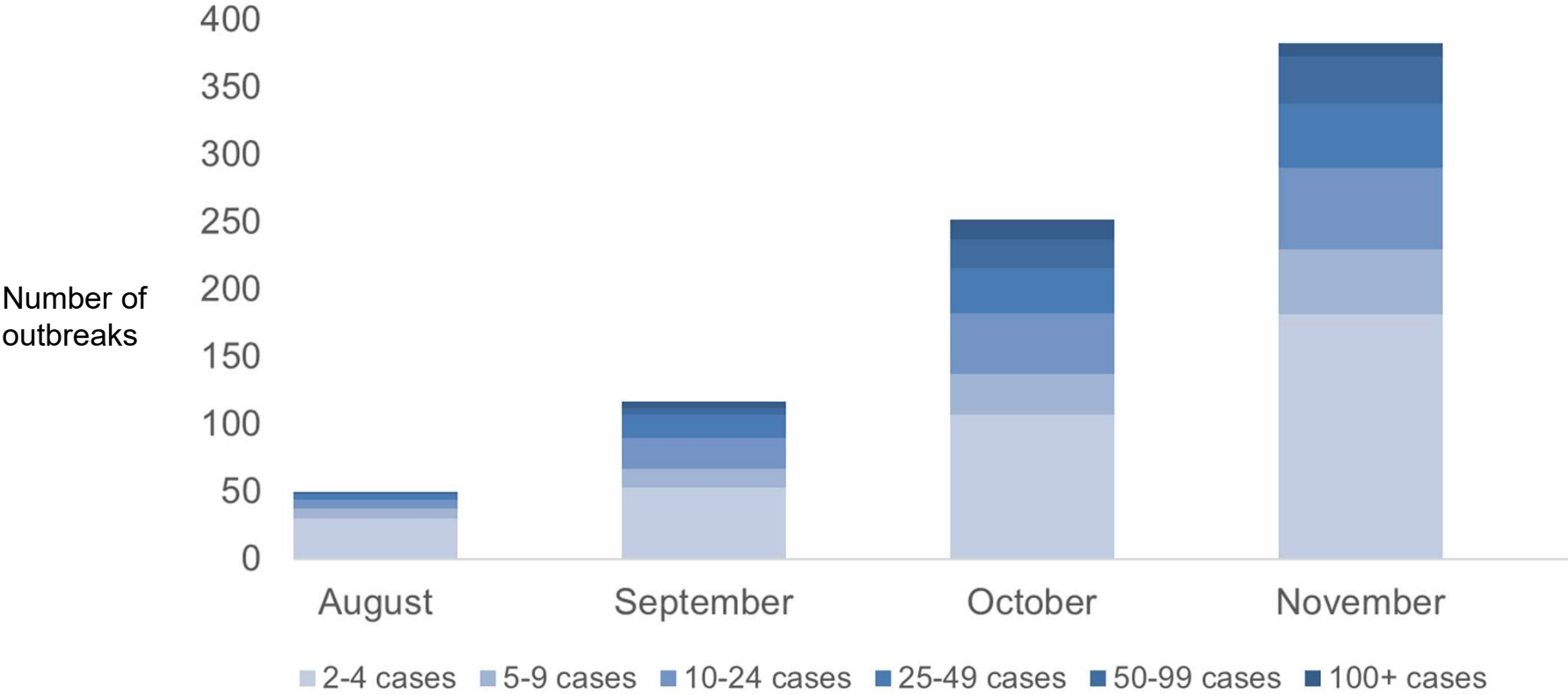
Number of reported cases per 100 000 population (7 day moving average)



Data as of December 8, 2020

\*First available of illness onset, specimen collection, laboratory test date

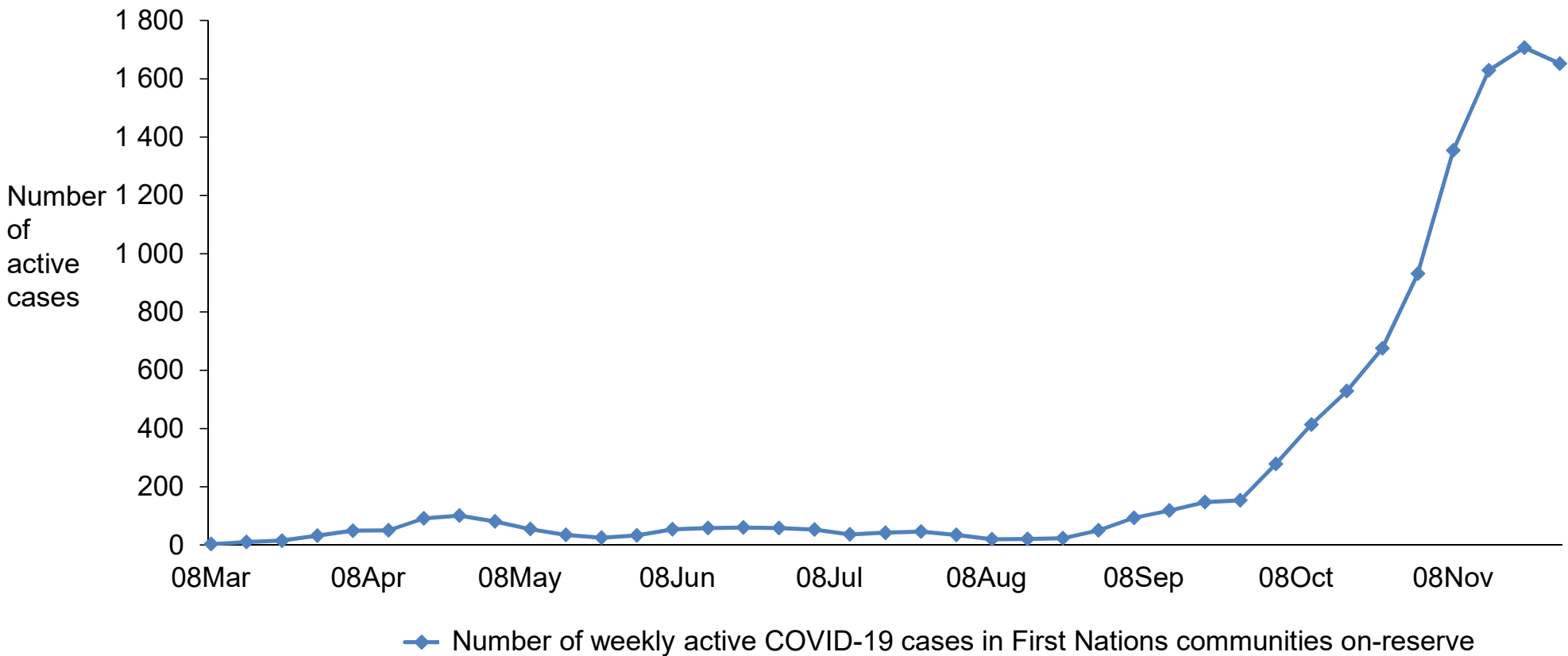
# Increasing number of outbreaks in long term care facilities\* with widespread community transmission



Data as of December 7, 2020

\* Including retirement residences. Data for December not included

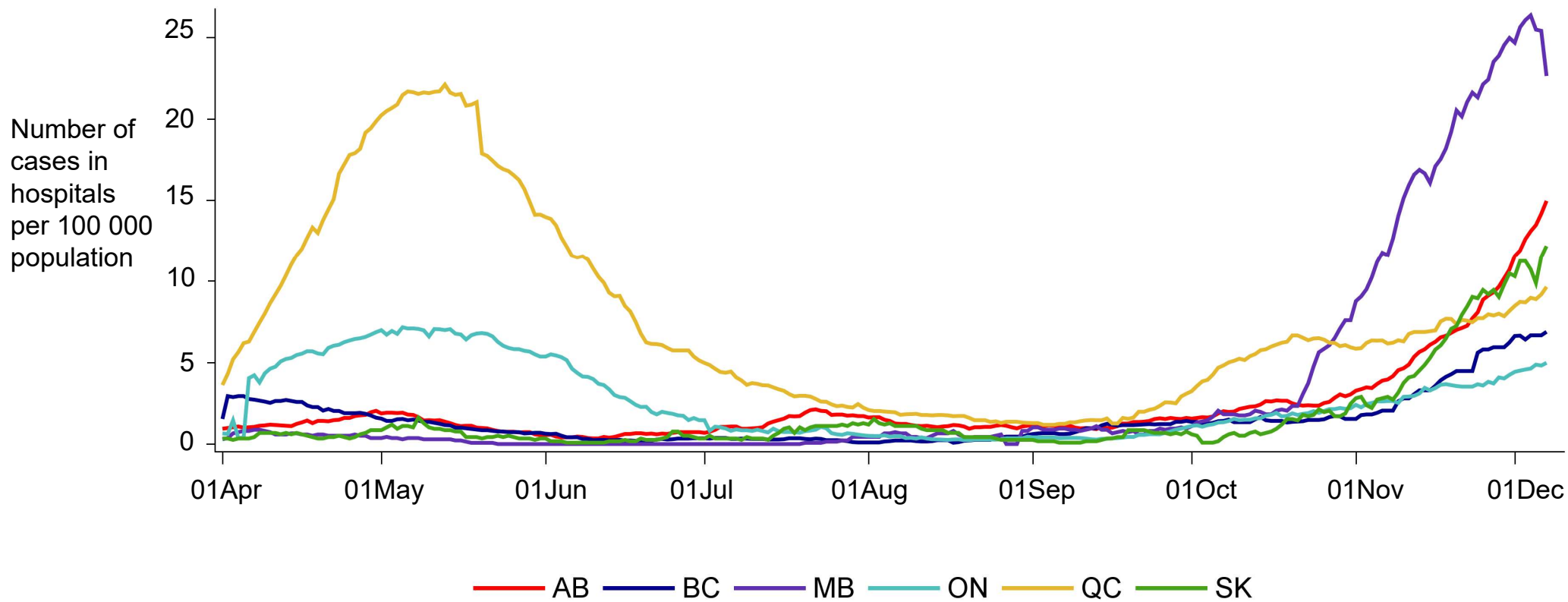
## Since September, reported COVID-19 cases have been increasing in First Nations communities



Data source: Indigenous Services Canada – by episode date  
Data as of December 5, 2020

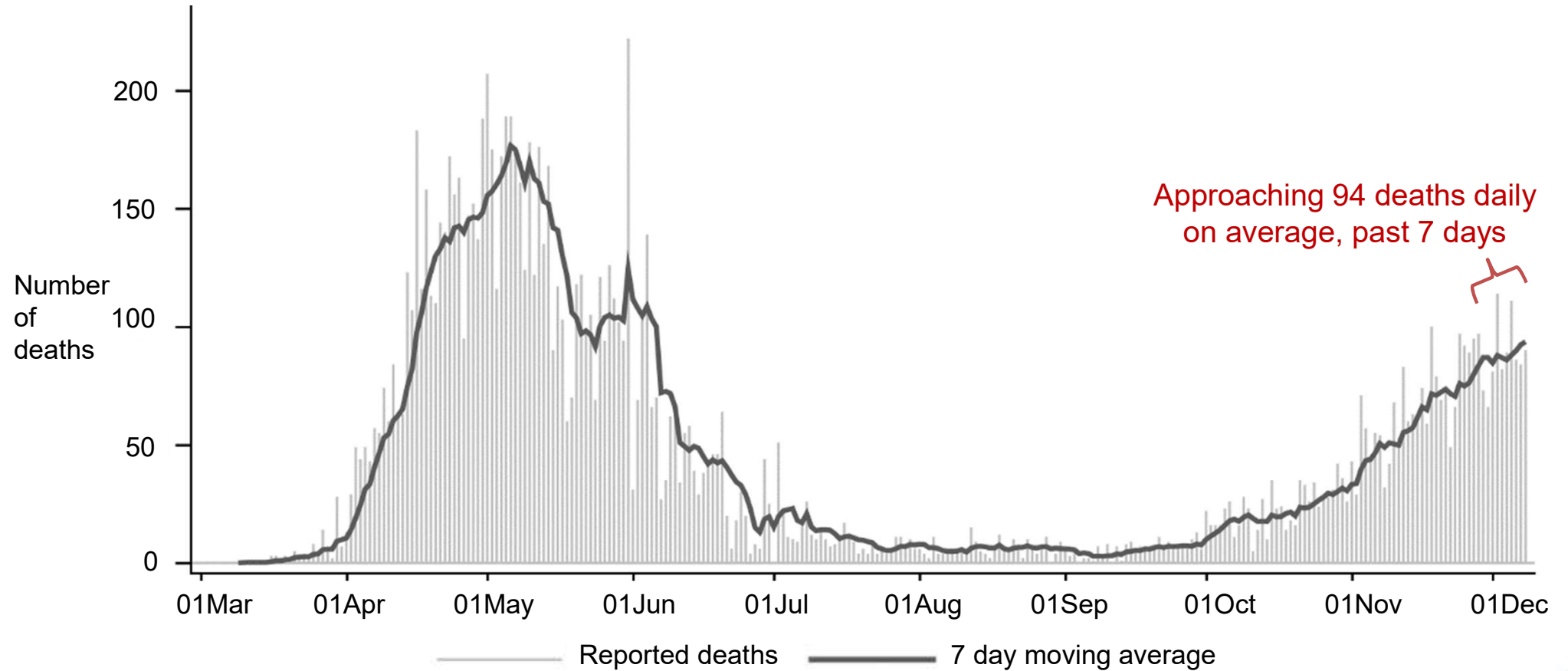


## Hospitalizations continue to increase in most provinces west of the Atlantic region



Data as of December 8, 2020

## With ongoing rapid epidemic growth, COVID-19 related deaths have been steadily rising

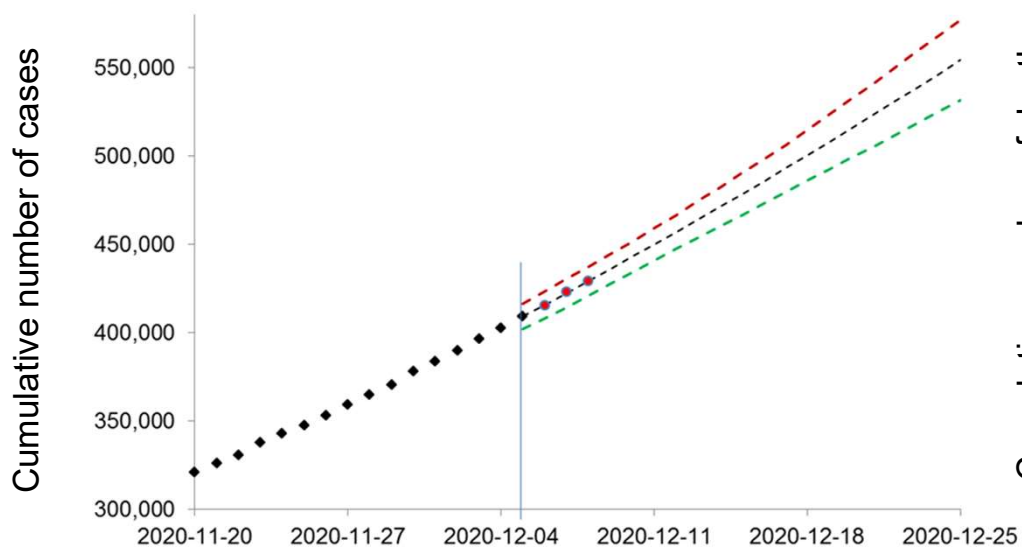


Data as of December 8, 2020

## Short-term forecast indicates continuation of rapid growth

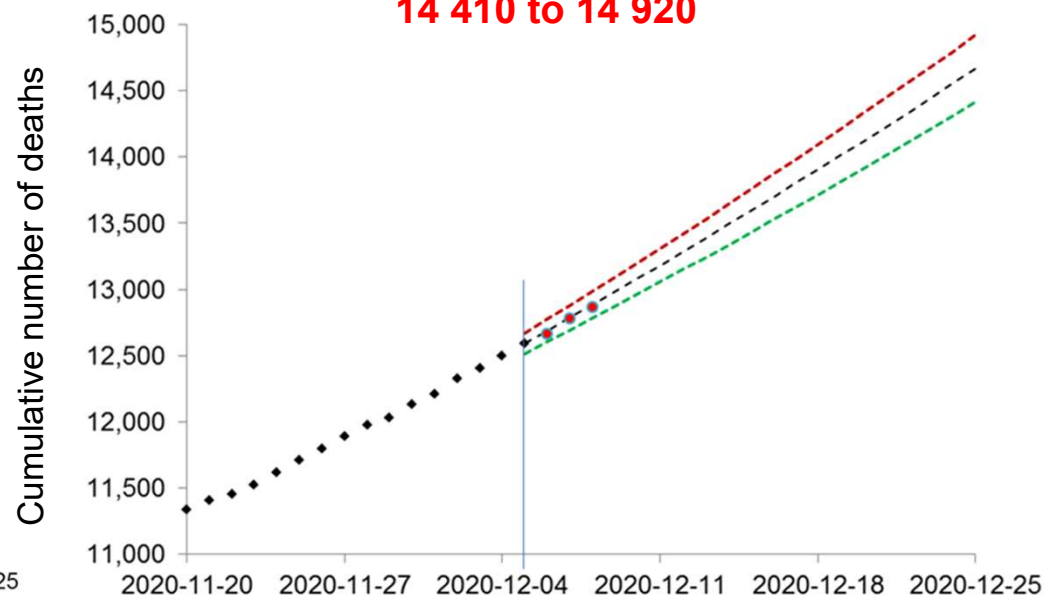
**Cumulative cases predicted to December 25:**

**531 300 to 577 000**



**Cumulative deaths predicted to December 25:**

**14 410 to 14 920**

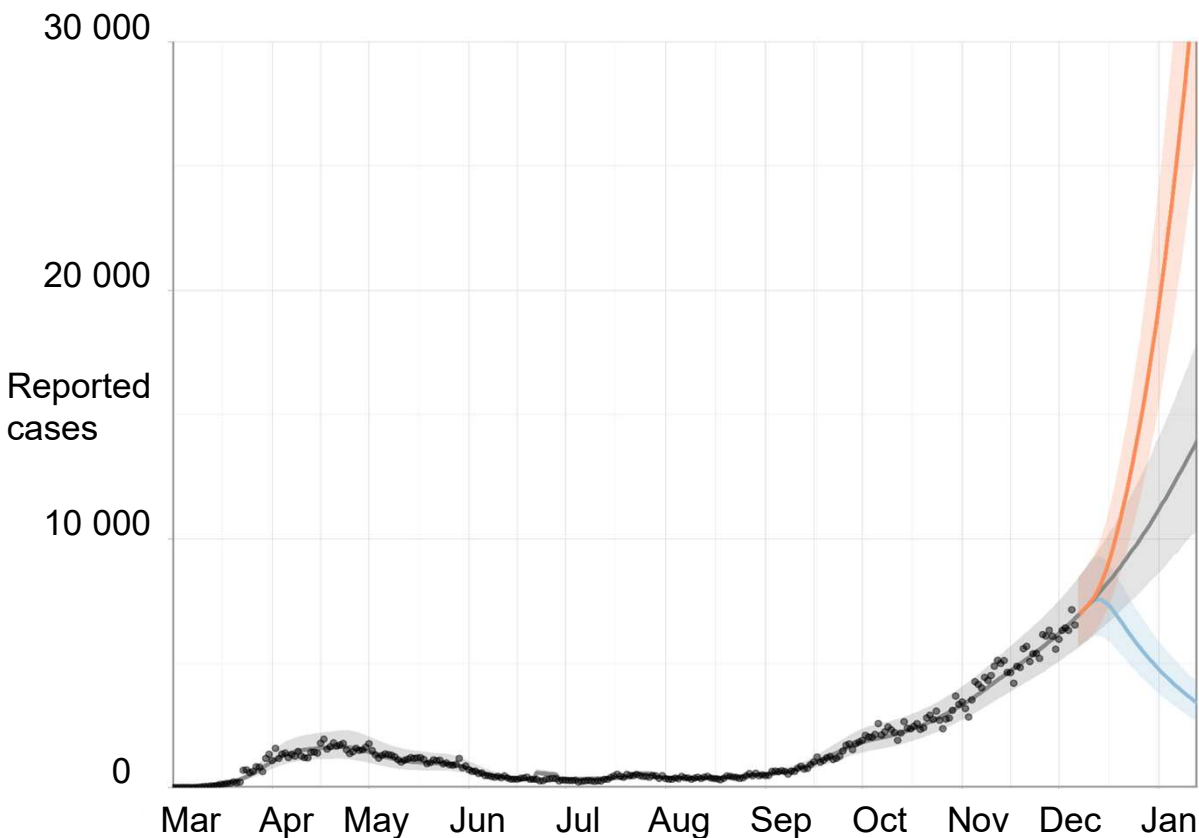


◆ Cumulatively reported cases in Canada by December 5 --- Prediction to December 25

--- Lower 95% prediction limit --- Upper 95% prediction limit ● Cases added since December 5 when the prediction was made

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

## Longer-range forecast shows overall for Canada we remain on a rapid growth trajectory



Methods: Anderson SC et al. 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>



- If we **maintain** the current number of people we contact each day – the epidemic will continue to resurge: **Grey line**



- If we **increase** the current number of people we contact each day – the epidemic is forecast to resurge faster and stronger: **Orange line**



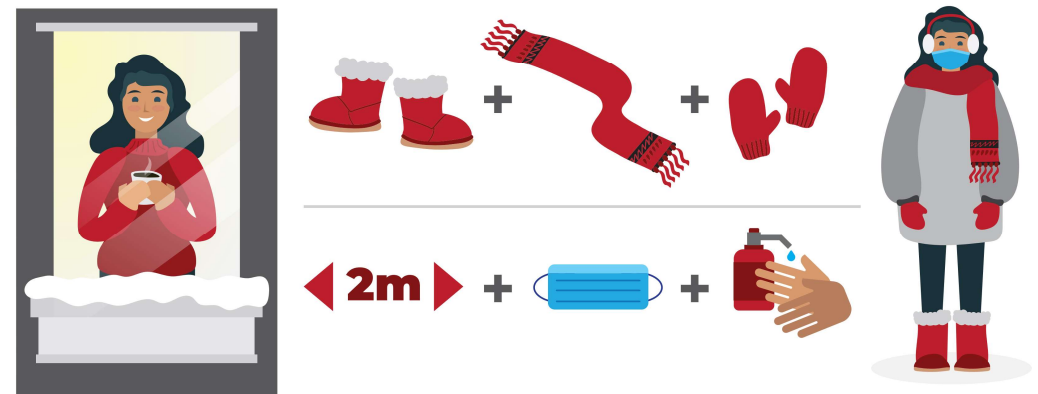
- If we **reduce** the current number of people we contact each day **to only essential activities** through combined individual precautions and public health measures – the epidemic is forecast to come under control in most locations: **Blue line**

# Combined efforts of Canadians and Public health are needed now and through the holidays

- Nationally, we remain on a rapid growth trajectory.
- When we work together to **implement** and **adhere** to more stringent controls, we can bend the curve
- Safe and effective vaccines are in sight but our **combined efforts are urgently needed** to prevent severe illness and death, and reduce strain on hospitals and public health systems
- Always layer up with essential public health practices

**If you're sick, stay home. If you go out, layer up.**

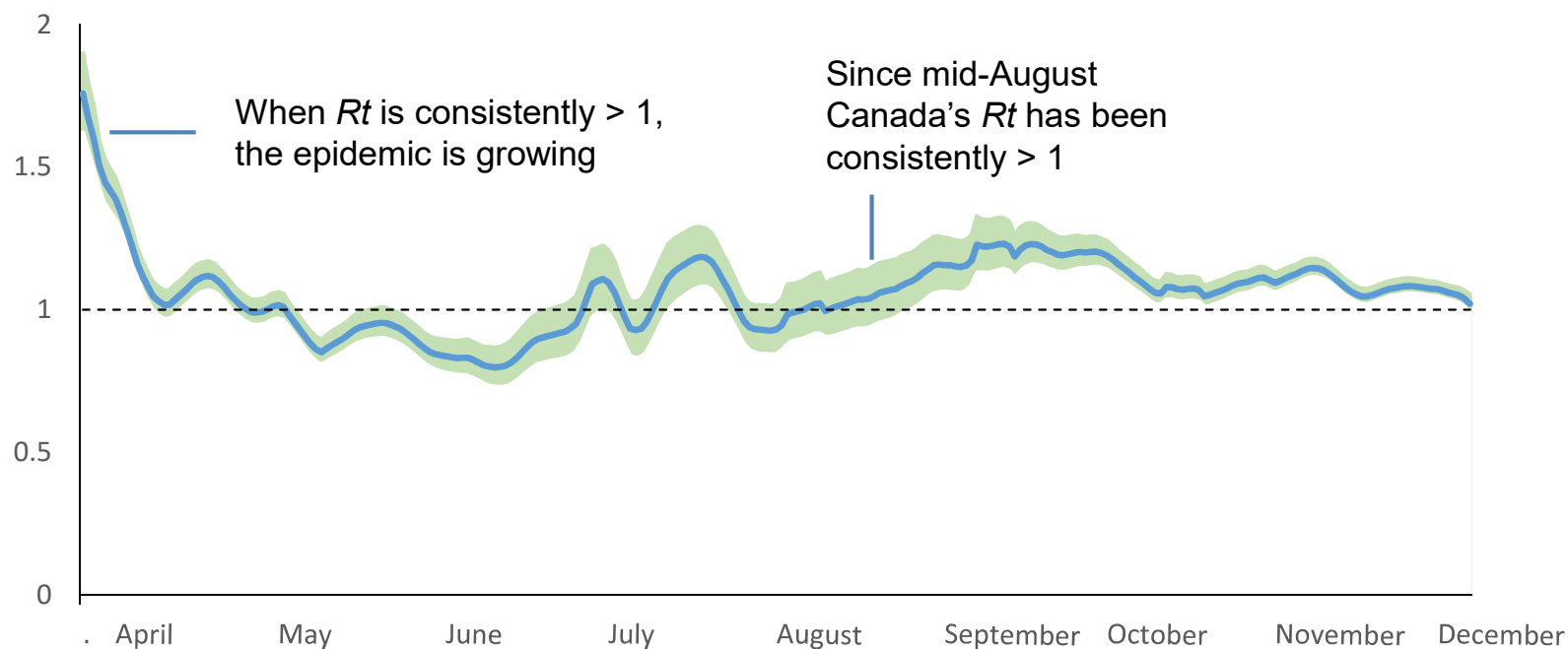
*The more layers of protection you add, the lower your risk of infection and spreading the virus.*



Plan Safer Holidays with the Public Health Agency of Canada's **COVID-19: Plan a safe holiday or celebration** planning guide: <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/guidance-documents/plan-safe-holiday-celebration.html>

# APPENDIX

## Each new case in Canada is spreading infection to more than one person, keeping the epidemic in a growth pattern



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

### Canada's $R_t$ over time

# Long-range forecast indicates that a stronger response is needed now in all large Provinces to slow the spread of COVID-19

