

Update on COVID-19 in Canada: Epidemiology and Modelling

February 19th, 2021

Canada.ca/coronavirus



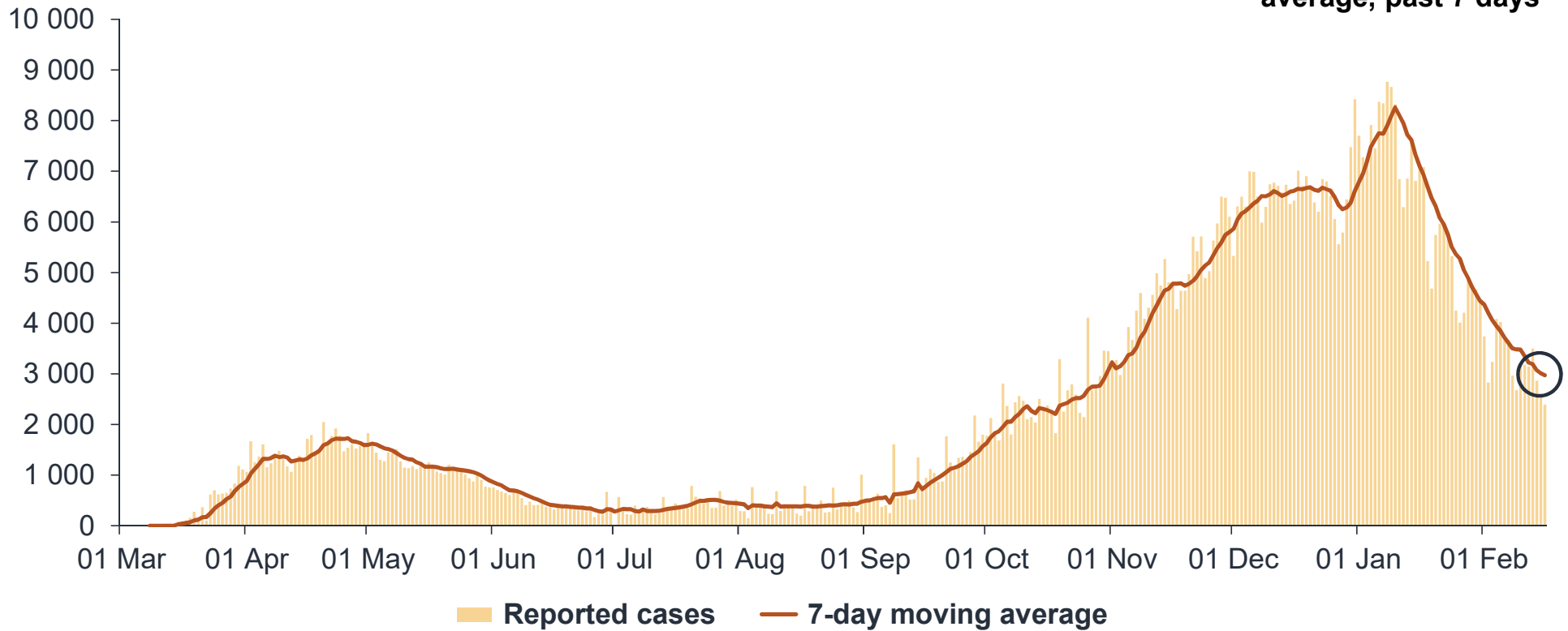
Public Health
Agency of Canada

Agence de la santé
publique du Canada

Canada

COVID-19 daily case counts continue to decline nationally

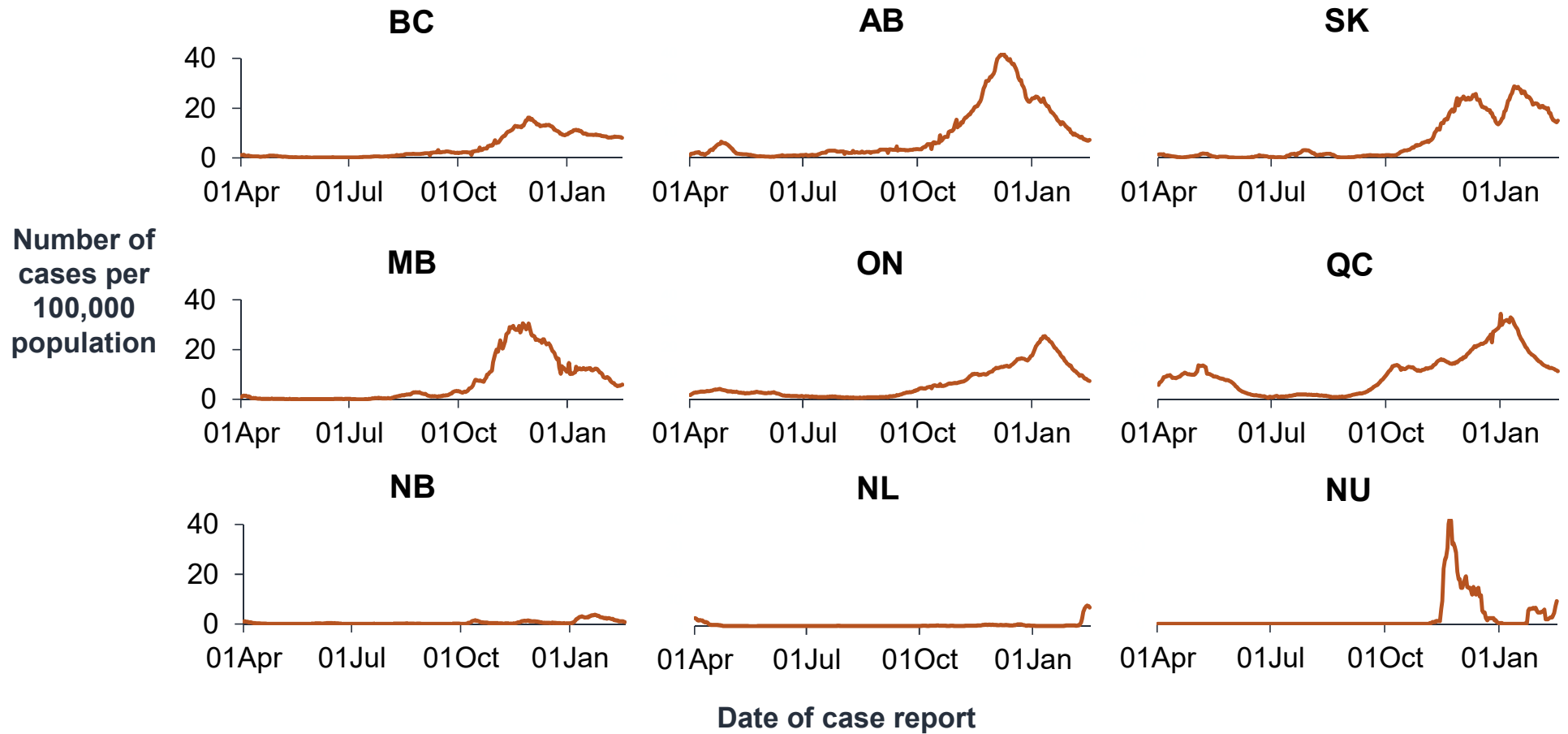
Number of cases



Data as of February 16, 2021



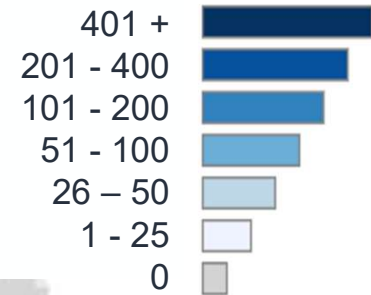
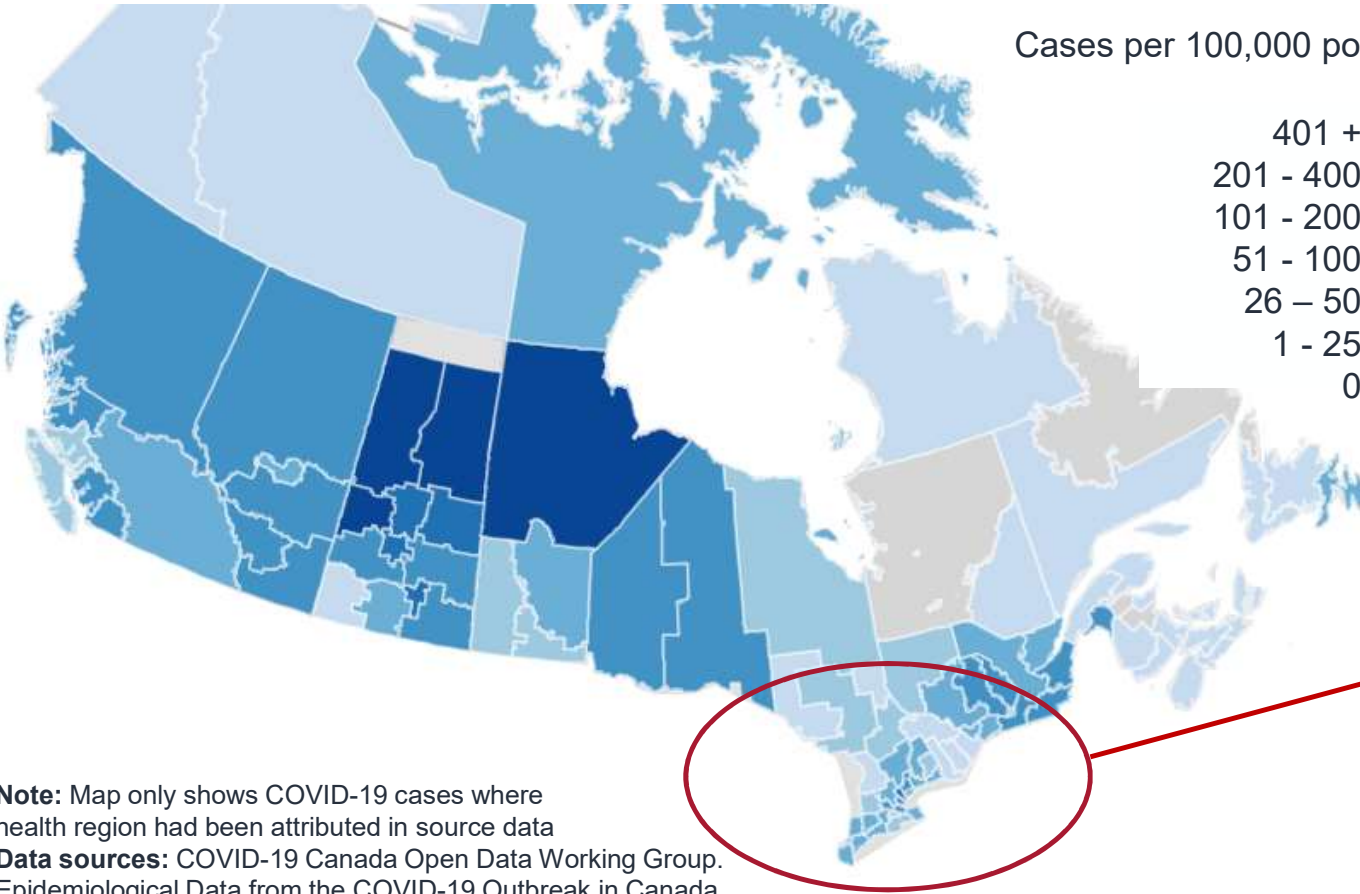
COVID-19 incidence rate over time in nine Canadian jurisdictions



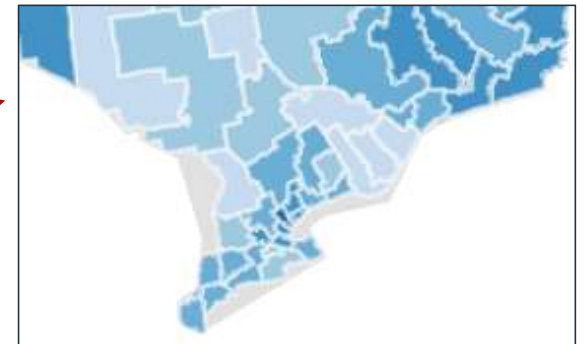
Data as of February 16, 2021

Fewer health regions reporting high rates of COVID-19 infection

Cases per 100,000 population (Feb 3 – Feb 16, 2021)



35 of 99 health regions with **> 100 cases per 100,000** population over a 14-day period
Down from 59 of 99 regions with > 100 cases per 100,000 population on January 15th

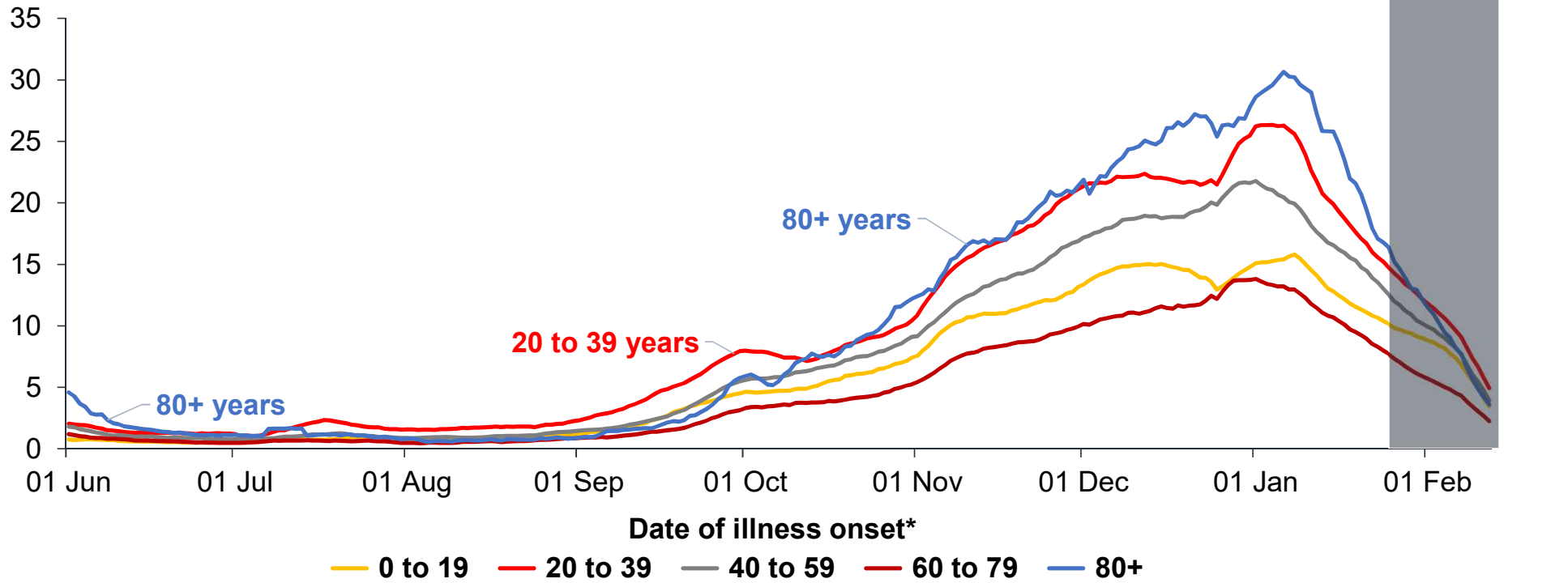


Note: Map only shows COVID-19 cases where health region had been attributed in source data
Data sources: COVID-19 Canada Open Data Working Group. Epidemiological Data from the COVID-19 Outbreak in Canada

Data as of February 16, 2021

Incidence rates declining across all age groups

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



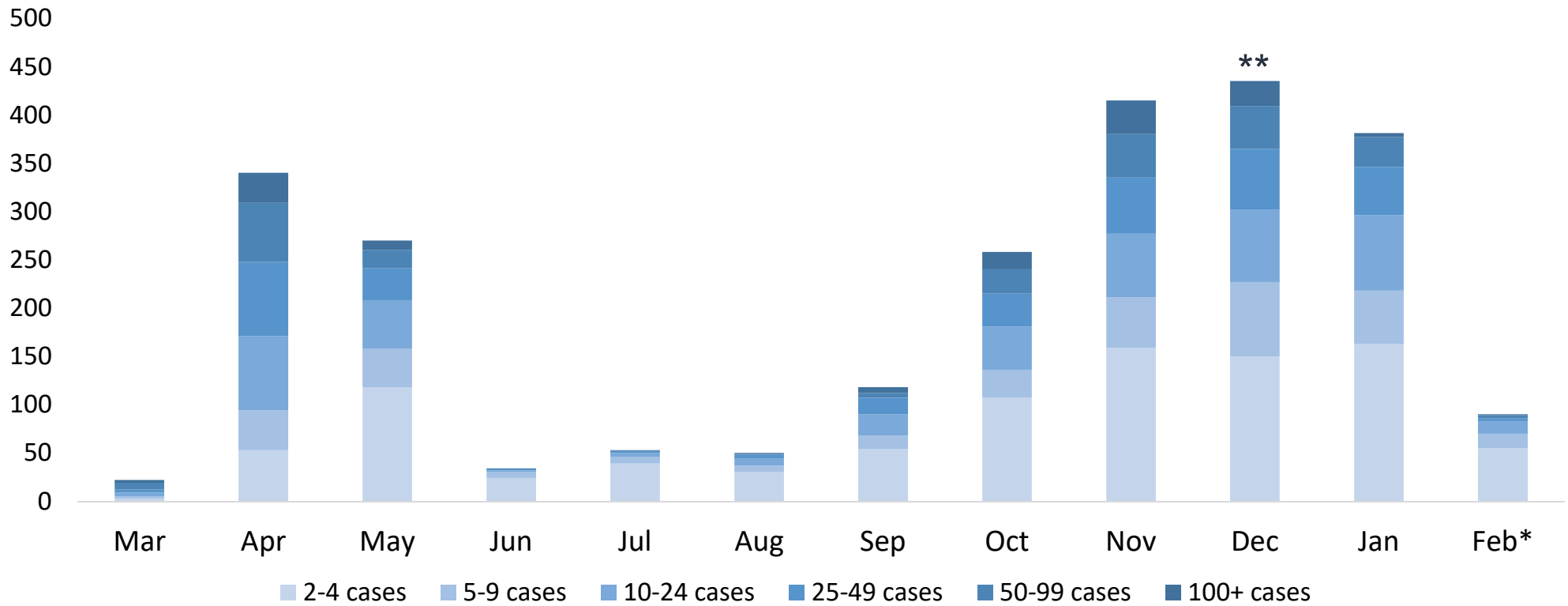
Data as of February 16, 2021

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



Number of outbreaks in long term care homes* appears to be declining

Number of outbreaks



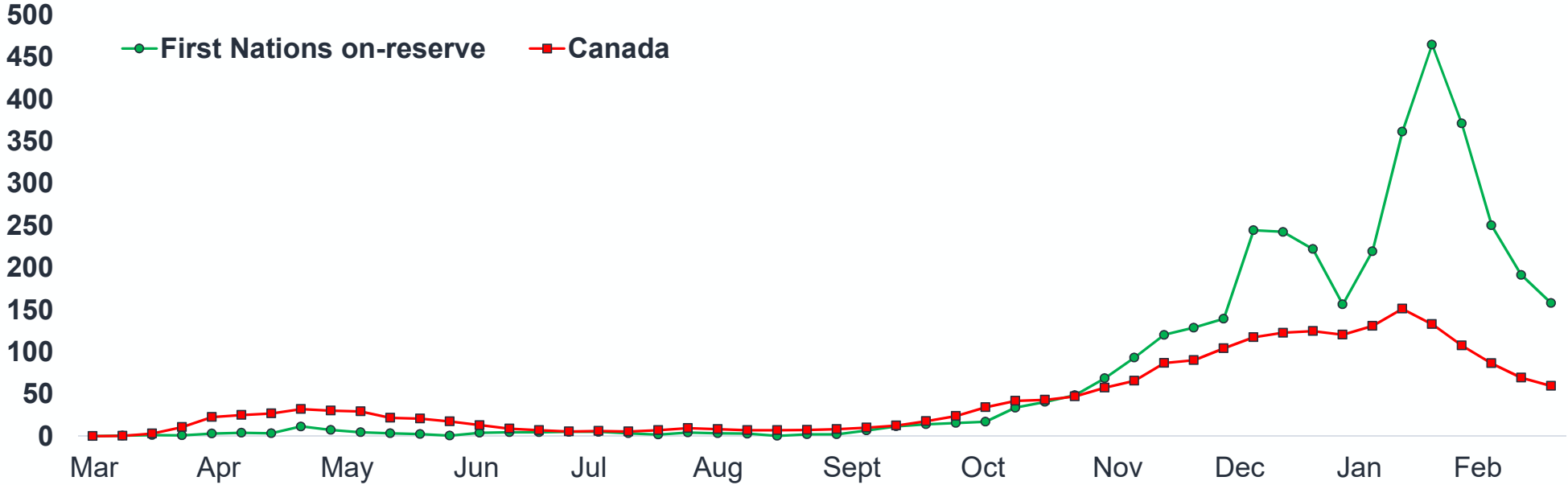
Data as of February 10, 2021

*Note: By date outbreak was first reported publicly. Including retirement residences. Data for the month of February is incomplete.

**Underestimated due to reduced reporting in December.

Impact of COVID-19 is higher among Indigenous populations

Rate of reported cases per 100,000 population

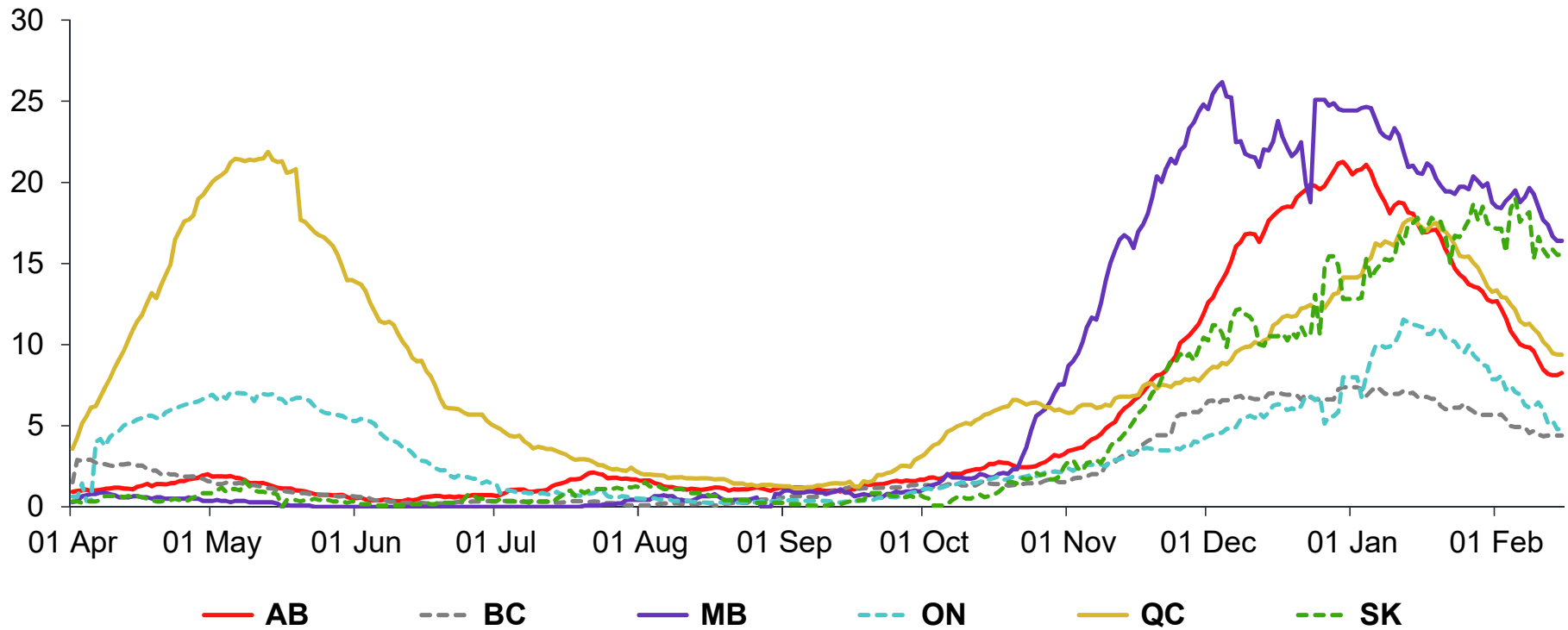


COVID-19 incidence in First Nations on reserve and general Canadian population

Data as of February 16, 2021
Note: By episode date

Hospitalization rates declining in most provinces across the country

Number of cases in hospital per 100,000 population

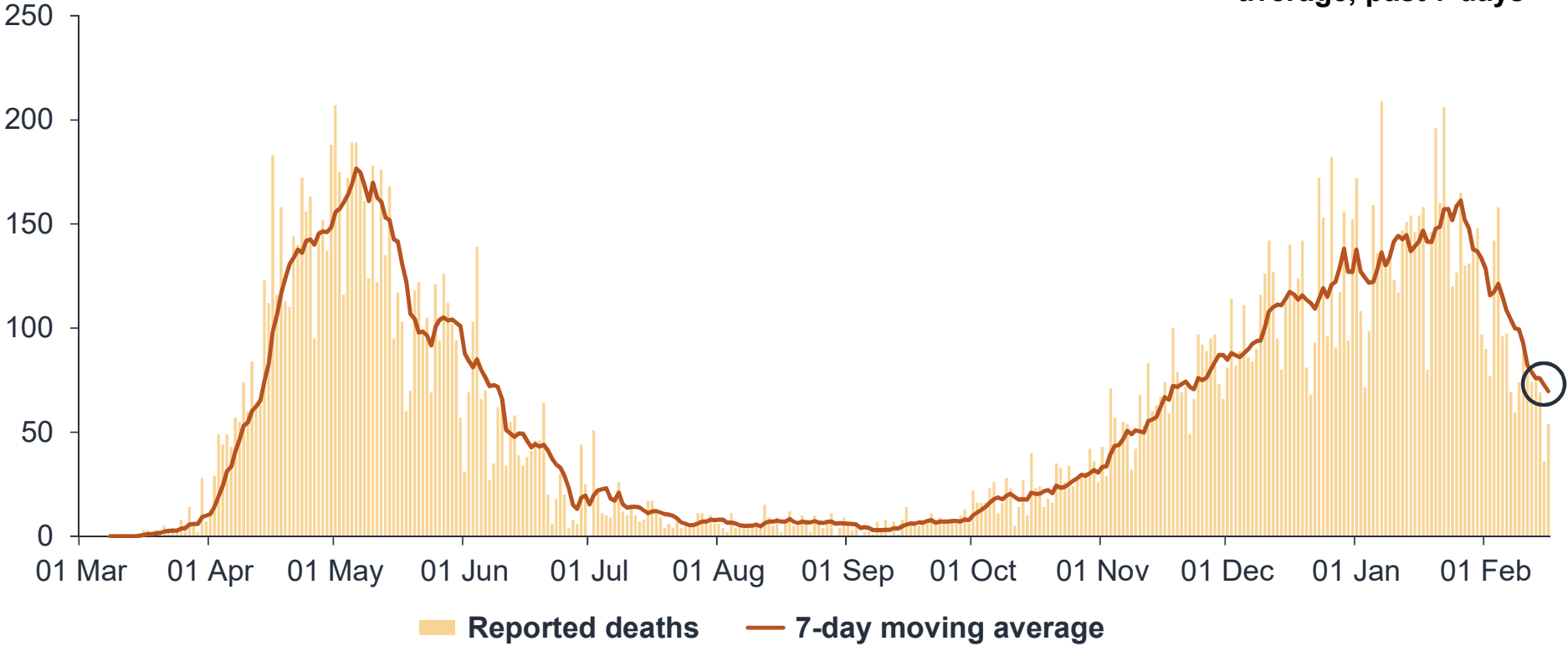


Data as of February 16, 2021
Note: 7-day moving average

Daily COVID-related deaths continuing to decline nationally

Number of deaths

70 deaths daily on average, past 7 days



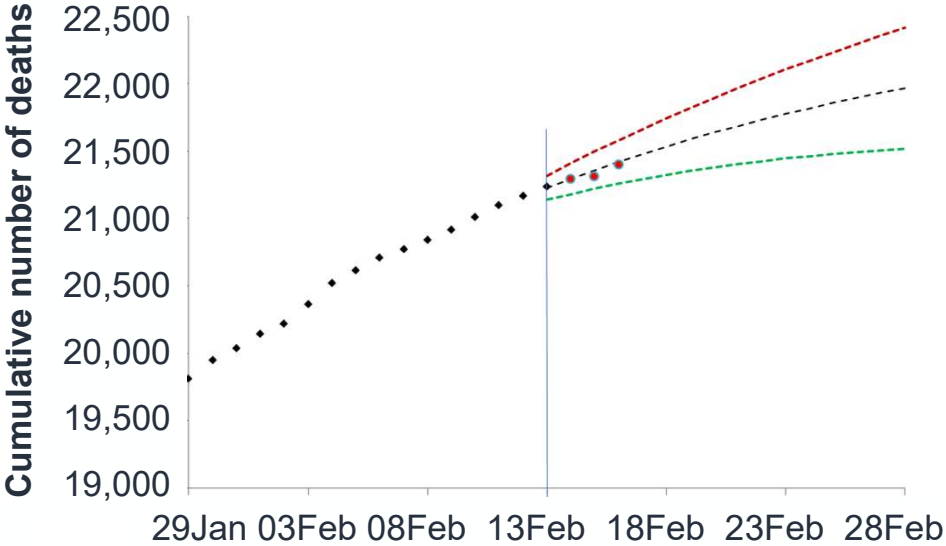
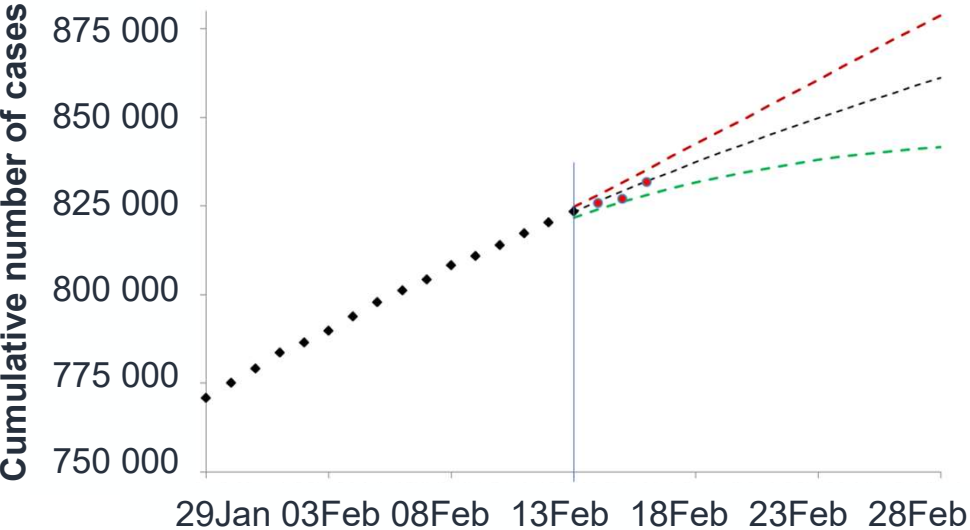
Data as of February 16, 2021



Short-term forecast predicts a flattening of the trajectory, reflecting the slowdown in the rate of epidemic growth

Cumulative cases predicted to February 28, 2021:
841,650 to 878,850

Cumulative deaths predicted to February 28, 2021:
21,510 to 22,420

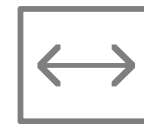
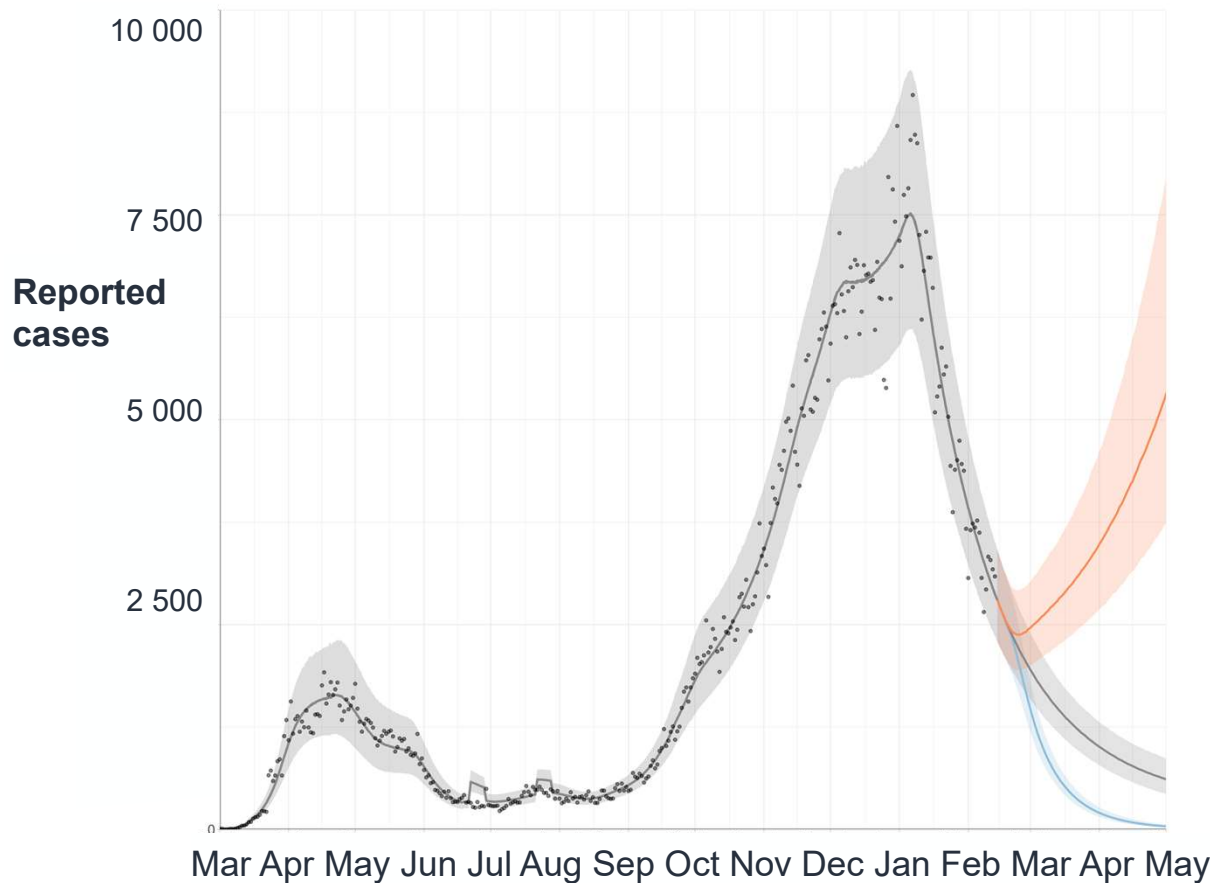


- ◆ Cumulatively reported cases in Canada by Feb 13, 2021
- Cases added since Feb 13 when the prediction was made
- Prediction to Feb. 28, 2021
- - - - Lower 95% prediction limit
- - - - Upper 95% prediction limit

Data as of February 16, 2021
 Note: Extrapolation based on recent trends using a forecasting model (with ranges of uncertainty).



Longer-range forecast based only on non-variant COVID-19 indicates Canada's epidemic is on track to come under control



If we **maintain** the current number of people we contact each day – the epidemic is on track to come under control: **Grey line**



If we **increase** the current number of people we contact each day, e.g. by easing restrictions – 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**

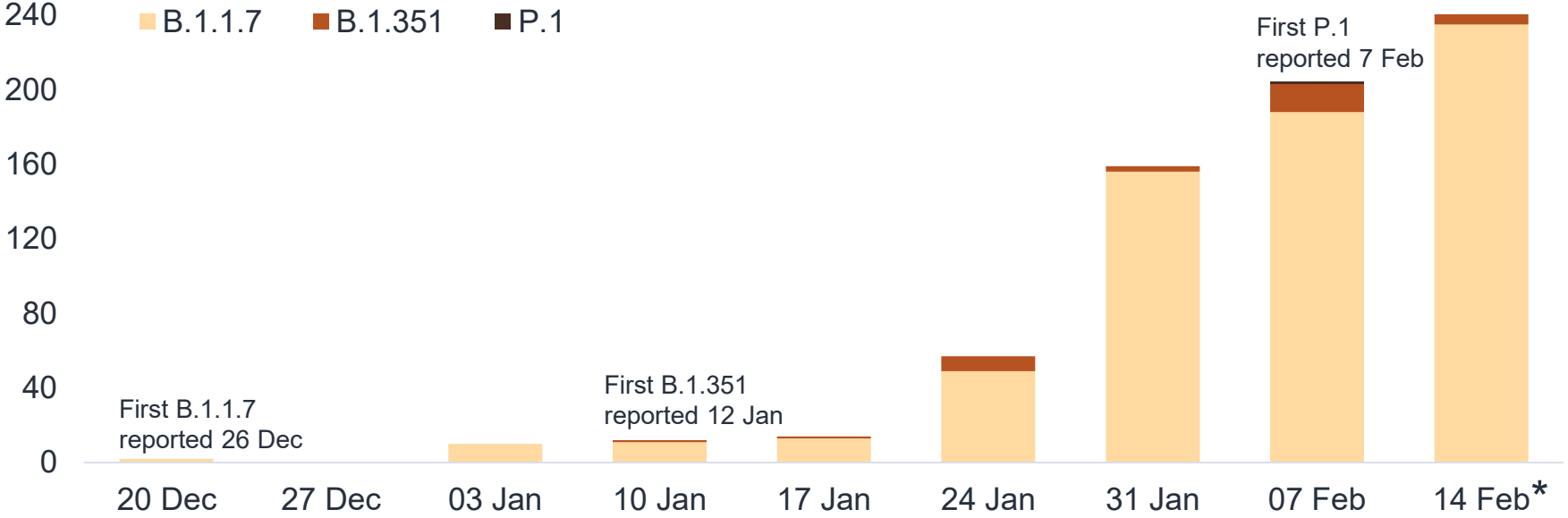
Data as of February 16, 2021

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>

More contagious SARS-CoV-2 Variants of Concern detected in all provinces, with increasing prevalence and spread

	B.1.1.7 (first identified in UK)	B.1.351 (first identified in South Africa)	P.1 (first identified in Brazil)
Canada	664	39	1

Number of cases

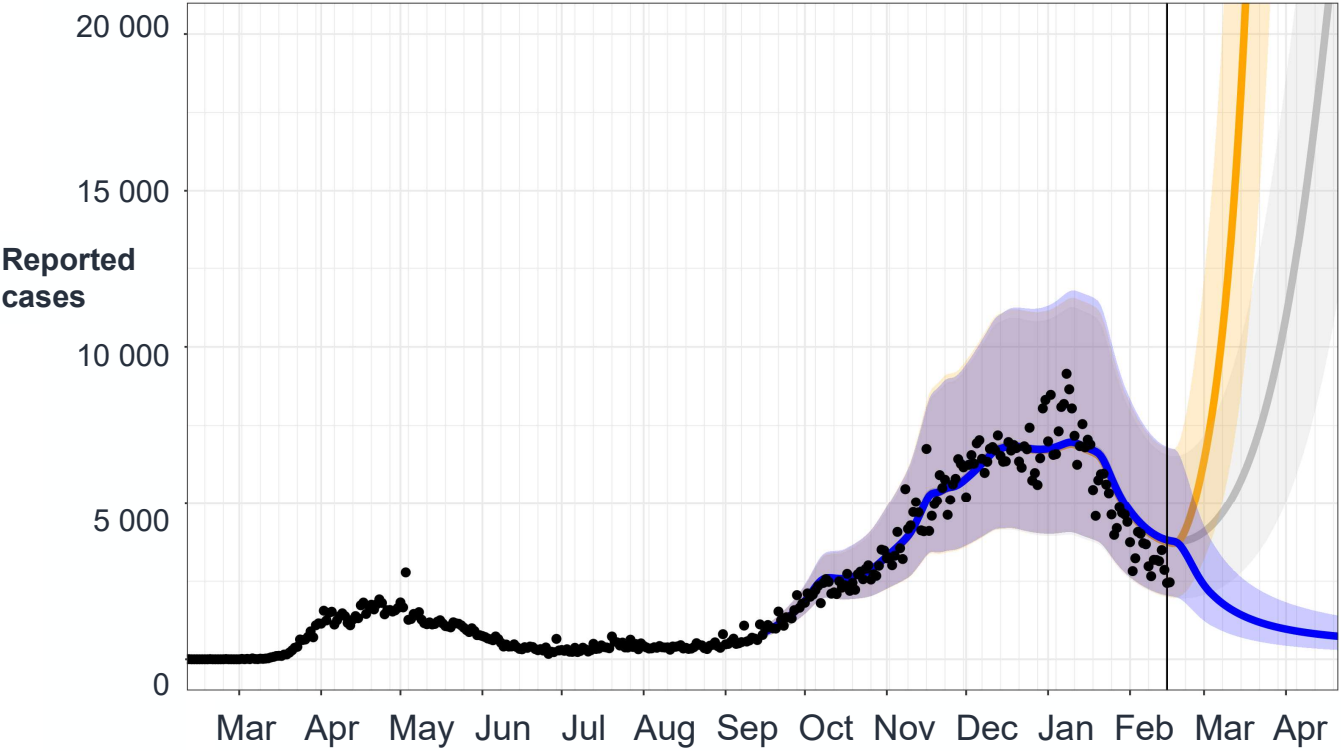


Variants of concern by week of report (n=704)

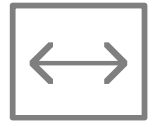
Data as of February 18, 2021
 Data sources: Official provincial and territorial press releases *Week of February 14th includes data from February 14-18, 2021.



New longer-range forecast that includes Variants of Concern indicates a strong resurgence unless we have stringent measures and strict adherence



With spread of VOC and **further lifting of public health measures**, the epidemic is forecast to resurge rapidly - **Orange line**



With spread of VOC, **current public health measures** will be insufficient, and epidemic resurgence is forecast – **Grey line**



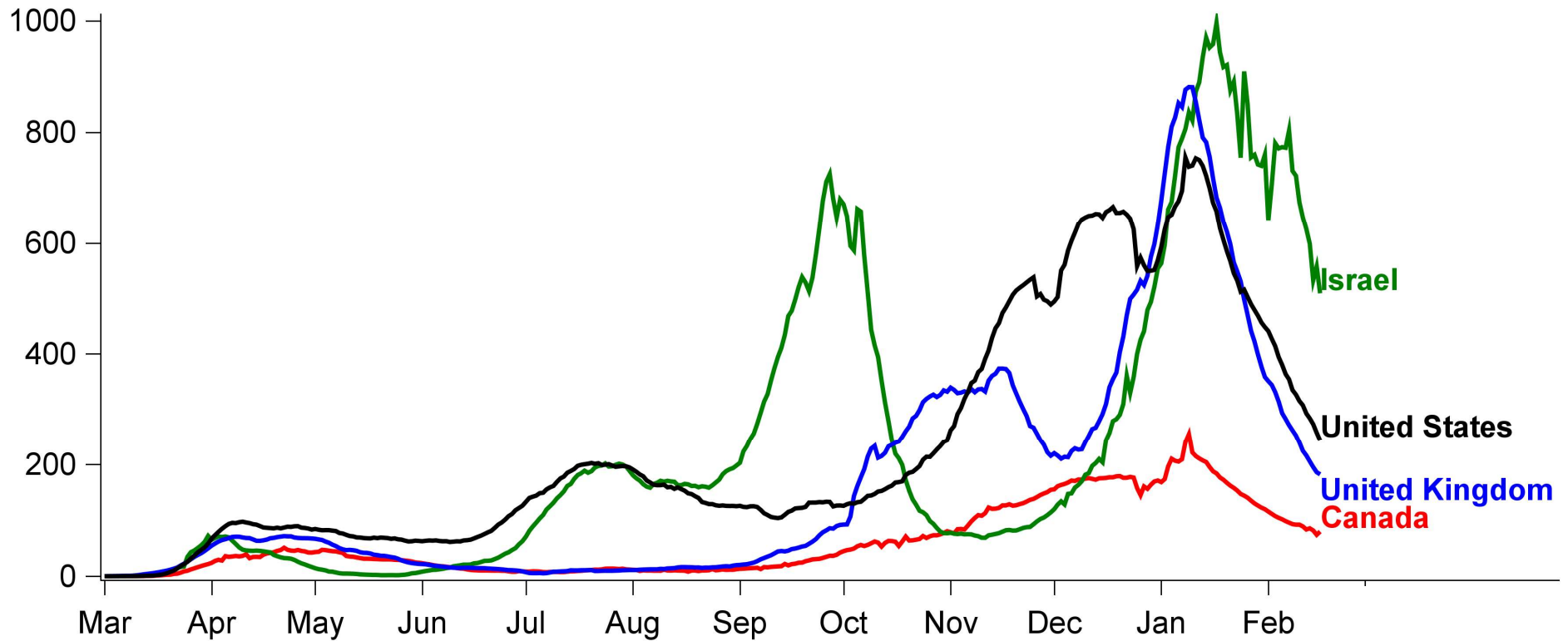
With spread of VOC and if **enhanced, combined public health measures and individual precautions** are implemented, epidemic control is forecast – **Blue line**

Data as of February 16, 2021

Notes: Variants of concern introduced in mid-Dec (~1 week prior to first detected case in Canada) at very low prevalence. Variants of concern assumed to be 50% more transmissible compared to wildtype. The growth rates AND replacement rate are negatively correlated with the strength of public health measures in place.

International experience shows that stringent measures and strict adherence can control spread of variants of concern while vaccine programs expand

Rate per 1 million population



Data as of February 16, 2021
Note: 7-day moving average

Variants of Concern increase the threat for a spring resurgence, but a strong collective effort can see us through

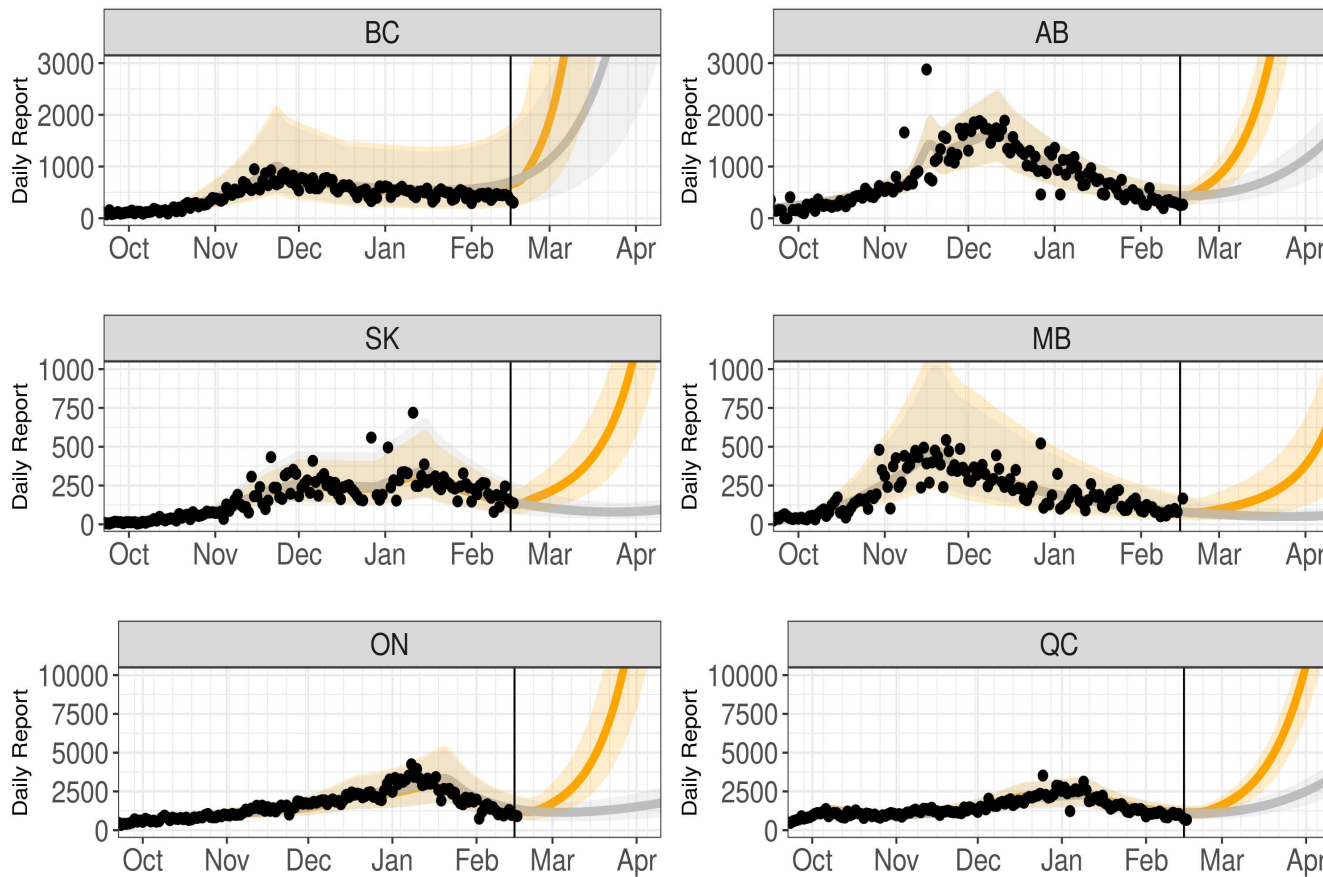
- With a combination of strong **public health measures** AND strict adherence to **individual precautions**, we can prevent a resurgence.
- For individual Canadians, this means following public health advice and doing our personal best by aiming to have:
 - the FEWEST interactions,
 - with the FEWEST people,
 - for the SHORTEST time,
 - at GREATEST distance possible,
 - while wearing the best-fitting face-mask.



The path to control COVID-19 may not be easy, but WE are stronger!

Appendix

Longer-range forecasts predict strong resurgence with Variants of Concern unless stringent public health measures in place and sustained



- In all provinces current controls may not be sufficient to fully control the variants of concern
- The early lifting of public health measures could lead to a resurgence of the epidemic, including the community transmission of variants of concern

— With lifting of public health measures
— With current public health measures

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