# 01 EXECUTIVE SUMMARY AND CONTEXT

## EXECUTIVE SUMMARY

This is the March 11, 2021 overview of findings of modelling studies conducted and collated by the PHAC Modelling Group.

### Current situational awareness

*The effective reproduction number (Rt)* for Canada on February 27, 2021, estimated using date of illness onset is <1 and is <1 in all provinces. Lack of reporting of cases from some provinces means that for these, and for Canada as a whole, *Rt* this week is estimated from test result data.

*The short-range statistical forecast* in Canada up to March 18, 2021 is:

- 920,457 cumulative cases (range: 916,242 to 924,976)
- 22,521 cumulative deaths (range 22,376 to 22,643)

Overall, mean case incidence is projected to remain stable throughout the projection period in Canada. The incidence of new deaths is also projected to decrease.

*The nowcast of the force of infection* suggests that the epidemic is stable in most provinces, except in for MB, QC and NB where the force of infection suggests a decline and SK where increasing force of infection is forecasted.

*The long-range dynamic modelling forecast* for Canada, not accounting for variants of concern (VOC), suggests ~4,000 cases by end of April without enhancements to control.

*The long-range dynamic modelling forecast including the introduction of variants of concern* in Canada suggests that nationally, and in all major provinces, current controls may not be sufficient to fully control more transmissible variants of concern.

*Importation risk modelling* for the week of February 28 to March 3, 2021, an estimated 2,897 people with COVID-19 came to Canada, primarily from the US, Lebanon and India. For the top 10 countries estimated to contribute infected travellers to Canada for that week, the percent contribution from variants of concern (VOC) are the United Kingdom (UK) variant at 12%, the Californian variant at 4%, the South African (SA) variant at 1%, and the Brazilian variants (P1 and P2) at <1%.

*Assessment of the impact of interventions* on the COVID-19 epidemic in Canada and other countries by Oxford University's stringency index:

- Canada's sustained (~8 week long) and relatively high stringency index (75) has been successful in reducing the incidence of reported cases, since the peak of the second wave on January 10, 2021. The current

weekly rolling average of daily cases (2,973) is still ~7 times higher than the 2020 summer lows of <400 cases.

- There is variation in both magnitude and trends in the stringency index across Canadian provinces and territories. Although cases are decreasing or holding steady in many regions, the stringency index may be too low in some regions to prevent resurgence of the epidemic.

## Dynamic modelling

The study *The impact of Canada's vaccination rollout with a regular 28-day interval and an extended 4-month interval between doses on the timing of when restrictive measures can be lifted safely* explored five scenarios for the efficacy of vaccines against disease and infection based on current estimates of approved vaccines in Canada. Results suggest that an extended 4-month delay between vaccine doses results in better outcomes if the efficacy of the first dose against infection and symptoms is high (≥70%). However, a 28-day delay interval between vaccine doses produced better outcomes if the efficacy of the first dose against infection is lower (≤60%). Given the uncertainty in vaccine effectiveness against infection and disease, lifting public health measures at 75% vaccination coverage provides a more cautious approach until there is a better understanding of vaccine effectiveness. In the 28-day interval, 75% coverage is reached by the end of July if vaccine rollout is optimal, whereas in the 4-month interval, 75% coverage is reached by early June.