

## KEY FINDINGS

### Status of the epidemic in Canada

- Short range statistical forecasting suggests the number of cases reported will range between 244,273 and 253,831 (mean = 248,882) and the number of deaths will range from 10,136 to 10,348 (mean = 10,229) by the end of November 5, 2020.
- Long-range dynamic modelling forecasting suggest that the trajectory is for continuing resurgence of the epidemic over the coming months.
- National  $R_t$  based on data of onset from end of August to beginning of October was  $>1$  indicating that nationally the epidemic continues to expand, but there are variations amongst provinces.
- For the week of October 18 to 24, 2020 a mean estimated  $472 \pm SD 34$  infected travellers arrived in Canada from 42 countries reporting COVID-19. The top most likely contributing countries are the United States of America (USA), France, and the United Kingdom/Netherlands.

## Modelling

### Assessing the risk of gatherings

- This is an update on the gathering risk modelling first published in the Modelling Report dated September 3, 2020. The goal of this work is to provide a pragmatic approach to help support high-level decision-making.
- A modelling framework built on very general principles can provide insight on the different factors impacting the epidemiological risk of gatherings.
- Introduction and transmission risk at a gathering are primarily impacted by the population prevalence and the size of the gathering.
- The number of secondary transmissions at gatherings saturates with the contact rate.
- For recurrent gatherings, “cohorting” has the potential to substantially limit transmission within the gathering (e.g., schools, workplaces) if the cohorts are well isolated.
- Recurrent gatherings face a near certainty of disease introduction even in communities with modest prevalence.

## PHAC scenarios for the COVID-19 epidemic in Canada for planning Autumn/Winter 2020-2021

Three broad scenarios for the COVID-19 epidemic in Canada over the coming year have been proposed as a basis for planning purposes, based on scenarios of the Centre for Infectious Disease Research and Policy (University of Minnesota CIDRAP, April 30, 2020):

1. “Fall-Winter Peak” – an unchecked resurgence of the epidemic in Canada due to alternative public health measures (case detection and isolation, contact tracing and quarantine, and personal distancing) being insufficient to control the epidemic as restrictive closures are lifted.

## PHAC Modelling Group Report

2. “Peaks and Valleys” – the same as for the “Fall-Winter Peak” but rather than letting the resurgence of the epidemic continue unchecked, restrictive closures are re-instated to bring it back under control. Subsequent cycles of lifting and re-imposing restrictive closures (without ramping up alternative public health measures) produces the “peaks and valleys”.
3. “Slow Burn” –the epidemic in Canada remains under control due to alternative public health measures of case detection and isolation, contact tracing and quarantine, and personal distancing being sufficient to control the epidemic as restrictive closures are lifted.

Modelling Group members have altered models (deterministic model and agent-based model) to allow them to recreate these scenarios to produce projected numbers.