

# A “No More Waves” strategy for COVID-19 in Canada

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Canada is in the midst of a second wave of the coronavirus disease 2019 (COVID-19) pandemic. The dominant strategy for managing the pandemic in Canada has been mitigation, where the goal is to titrate public health measures to simultaneously balance viral transmission and its effects on health, economic and social risks. This current strategy is failing to keep the COVID-19 reproduction number,  $R_t$ , below 1, meaning there can be no expectation of a sustained reduction in cases of COVID-19 over the winter months. Instead, we can expect further waves, especially given uncertainty regarding timelines for effective vaccination of most Canadians. We discuss why and how Canadian jurisdictions should immediately prioritize a stronger suppression of viral spread and pursue a “No More Waves” strategy to manage COVID-19.

A “No More Waves” strategy in Canada, although not aiming for zero cases, would be more stringent than the current mitigation approach. It would require an immediate period of strong suppression, targeting sustained low regional incidence and an  $R_t$  of comfortably less than 1.<sup>1</sup> Various countries and regions have successfully used a strategy of maximum suppression, where the goal was to keep the COVID-19 case count as close to zero as possible (e.g., Australia, South Korea, Uruguay, Vietnam and Atlantic Canada).<sup>2-5</sup> Although this may have meant harsh economic and social effects in the short term, many of those jurisdictions’ economies have been able to safely open up without the need for ongoing, draconian public health measures. On the other hand, there are many countries in Europe that locked down to address their first waves, relaxed public health measures too quickly and, unwilling or slow to take such stringent measures a second time, have experienced devastating second waves. Admittedly, the long-term effects of different strategies to address COVID-19 on economic, social and health outcomes require further study. In the meantime, we must act on what we now know.<sup>6</sup>

A “No More Waves” strategy for Canadian jurisdictions would require 3 basic elements:

- 1) Strengthened enforcement of nonpharmacological interventions (NPIs) to contain severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) transmission (i.e., universal masking; mandatory isolation of cases and contacts; support for people and businesses to maximize adherence to NPIs; and strict international, interprovincial and regional travel restrictions for nonessential travel, with testing and assured quarantines for essential travellers).

## KEY POINTS

- Canada is in a second wave of the coronavirus disease 2019 (COVID-19) pandemic, and the current mitigation strategy is failing to keep case numbers low.
  - More severe public health measures may have harsh social and economic impacts in the short term, but will have better health outcomes with possible social and economic benefits in the long term.
  - A stringent “No More Waves” strategy that enforces nonpharmacological interventions (e.g., universal masking, physical distancing, closure of nonessential businesses, regional and international travel restrictions) and escalates COVID-19 surveillance, testing and screening according to transmission risk and social and economic impact is required to suppress viral spread.
  - Large-scale implementation of a vaccination program in Canada will take time and resources and will be much easier to roll out with the pandemic under good control.
- 2) Evidence-based reduction of gatherings according to transmission risk and social and economic effects, with the use of lockdowns (i.e., stay-at-home orders or curfews for all but essential services and activity) and primary school closures only as a last resort.
  - 3) Urgent escalating of the infrastructure required for COVID-19 surveillance and screening that includes widescale rapid testing, contact tracing and isolation of cases and contacts.
- A “No More Waves” strategy in Canada would likely reduce the overall need for prolonged lockdowns and economic and social hardship compared with the current mitigation strategy. However, the window to do this is rapidly narrowing as cases continue to rise exponentially in many parts of the country.
- Lockdowns are necessary when exponential growth in cases has overwhelmed the capacity of the health care system to identify cases and trace contacts, which means that less stringent NPIs are insufficient. However, lockdowns are not needed in regions where the incidence of cases has not outstripped public health and health care capacity, and where  $R_t$  can be kept lower than 1. The choice of public health measures for a given jurisdiction can be determined by the quality of the test–trace–isolate–support system, the desired rate of decline in cases and the acceptability of

the proposed public health NPIs, with different NPIs expected to have different levels of effectiveness.<sup>7,8</sup> Choice of NPIs should be based on scientific evidence, local epidemiology, context and preferences, but should also consider the health, economic and social impact of the interventions.

To illustrate the strategy, we include a qualitative matrix that considers some NPIs according to an analysis of their economic and social impact, as well as their effects on  $R_t$  (Table 1). Priorities for instituting NPIs are indicated by colour, with early preference given to those in green, and late preference given to those in grey. Implementation of these NPIs should be based on epidemiologic data. We contend that draconian lockdowns and primary school closures should be last resorts and employed judiciously given their economic and social consequences.<sup>9,10</sup>

A successful “No More Waves” strategy should aim for a sufficiently low incidence of COVID-19 that testing–contact tracing–isolation–support can be optimized, with an  $R_t$  that is consistently and confidently below 1. For instance, targeting 3 new cases/100 000 population/day (or < 3 cases/day for populations < 50 000) of community-acquired cases or those with an

unknown source might be acceptable with an effective test–trace–isolate–support system in place.<sup>11</sup> With few cases, and confidence in our ability to find and isolate new cases, the economy can be more open, and life can be more normalized than when  $R_t$  is more than 1 and the case count is threatening to explode. Implicit in any target setting is the understanding that safe economic and social activity is inversely proportional to the incidence of disease. Pandemics put strains on health, the economy and social activity. These 3 elements cannot be separated.

SARS-CoV-2 vaccines are anticipated to start to become available in Canada in early 2021. The timeline of effective vaccination of the public in pursuit of herd immunity, however, remains uncertain. Rolling out a public vaccination program during a subsequent wave of COVID-19, with a stretched health care system and fatigued public health and health care personnel, will be undeniably challenging. Embarking on a “No More Waves” strategy now to avoid such a future scenario, as well as to optimize immediate economic and social wellbeing, is the only sensible approach.

**Table 1: Prioritizing nonpharmacologic interventions according to short-run economic impact, social impact and effect on viral transmission**

		Social impact					
		Low		Medium		High	
		Large $R_t$ effect	Small $R_t$ effect	Large $R_t$ effect	Small $R_t$ effect	Large $R_t$ effect	Small $R_t$ effect
Short-run economic impact	Low	<ul style="list-style-type: none"> <li>• Nonessential border restrictions</li> <li>• Enhance detection/surveillance systems</li> <li>• Universal mask mandates</li> </ul>	<ul style="list-style-type: none"> <li>• Requests to follow public health guidelines by leaders</li> <li>• Temperature and symptom checks (airport, workplace)</li> </ul>	<ul style="list-style-type: none"> <li>• Small indoor gathering cancellation</li> </ul>	<ul style="list-style-type: none"> <li>• Small outdoor gathering cancellation</li> <li>• Restaurant/bar crowding restrictions or reduced hours</li> </ul>	<ul style="list-style-type: none"> <li>• Gym (high occupancy) closures</li> <li>• Indoor team sport/dance restrictions</li> </ul>	<ul style="list-style-type: none"> <li>• Gym (low occupancy) closures</li> <li>• Outdoor team sport/dance restrictions</li> </ul>
	Medium	<ul style="list-style-type: none"> <li>• Mass gathering cancellation</li> <li>• Government assistance to vulnerable populations for isolation support and pay</li> </ul>	<ul style="list-style-type: none"> <li>• Nonessential business crowding restrictions</li> </ul>	<ul style="list-style-type: none"> <li>• Restaurant/bar closures</li> <li>• Guaranteed quarantining (e.g., quarantine hotels, daily in-person checks, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Quarantine on entry to country/region</li> </ul>	<ul style="list-style-type: none"> <li>• Nonessential regional travel restrictions</li> <li>• High school and postsecondary school closures</li> </ul>	<ul style="list-style-type: none"> <li>• Daycare closures</li> <li>• Primary school closures</li> </ul>
	High	<ul style="list-style-type: none"> <li>• Essential border restrictions</li> </ul>		<ul style="list-style-type: none"> <li>• Nonessential high-density retail closure</li> <li>• Nonessential manufacturing closures</li> </ul>	<ul style="list-style-type: none"> <li>• Nonessential low-density retail closures</li> <li>• Nonessential low-density manufacturing closures</li> </ul>	<ul style="list-style-type: none"> <li>• Essential high-density retail closures</li> <li>• Essential high-density manufacturing closures</li> </ul>	<ul style="list-style-type: none"> <li>• Essential low-density retail closures</li> <li>• Essential low-density manufacturing closures</li> <li>• Public transit closures</li> </ul>

Note: We used a qualitative approach to categorization.<sup>7,8</sup>

The intent of the table is to identify relative priorities, with the effectiveness of any nonpharmacologic interventions and the magnitude of their economic and social impact being dependent on local contexts. Interventions in green should be introduced earlier; those in grey should be used when aggressive and rapid reductions in case numbers are required.

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