

COVID-19 Rapid Evidence Profile #26 (18 March 2021)

Question

When and in what order can COVID-19-related public-health measures be lifted (or stringency be reduced) as vaccination rates and seasonal temperatures increase?

What we found

To inform plans for lifting public-health measures, we identified evidence and experiences from eight countries (Australia, China, France, Germany, Israel, New Zealand, the U.K., and the U.S.) that are advanced in their roll-out of the COVID-19 vaccine and/or are ahead of Canada in seasonal temperature increases, as well as from all Canadian provinces and territories (see Box 1 for a description of our approach). We organized our findings using the framework below.

Organizing framework

- When (i.e., triggers for lifting)
 - Case rates
 - Vaccination-related factors (e.g., proportion of population vaccinated, proportion of high-risk populations vaccinated)
- In what order
 - Balance among individual, organizational, public-health authority, and government measures
 - Individual measures (e.g., wearing masks, physical distancing and hand washing)
 - Among those who have been fully vaccinated
 - All people
 - Organizational measures (e.g., using signage, barriers and occupancy limits to support physical distancing; disinfecting surfaces)
 - Public-health authority measures (e.g., testing strategy, quarantine length, case management, and contact tracing)

Box 1: Our approach

We identified evidence addressing the question by searching the COVID-END [inventory of best evidence syntheses](#) and the COVID-END [guide to key COVID-19 evidence sources](#) on 16 and 17 March 2021. We identified jurisdictional experiences by searching jurisdiction-specific sources of evidence listed in the same COVID-END guide to key COVID-19 evidence sources, and by hand searching government and stakeholder websites. We selected eight countries (Australia, China, France, Germany, Israel, New Zealand, the U.K., and the U.S.) that are advanced in their roll-out of the COVID-19 vaccine and/or are ahead of Canada in seasonal temperature increases.

We searched for guidelines that were developed using a robust process (e.g., GRADE), full systematic reviews (or review-derived products such as overviews of systematic reviews), rapid reviews, protocols for systematic reviews, and titles/questions for systematic reviews or rapid reviews that have been identified as either being conducted or prioritized to be conducted. Single studies were only included if no relevant systematic reviews were identified.

We appraised the methodological quality of full systematic reviews and rapid reviews using AMSTAR. Note that quality appraisal scores for rapid reviews are often lower because of the methodological shortcuts that need to be taken to accommodate compressed timeframes. AMSTAR rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial or governance arrangements within health systems or to broader social systems.

This rapid evidence response was prepared in three business days to inform next steps in evidence synthesis, guideline development and/or decision-making related to the question that was posed.

- Government measures (e.g., service limitations, gathering sizes, travel restrictions and lockdowns)

We identified 19 evidence documents relevant to the question, of which we deemed 11 to be highly relevant. The highly relevant evidence documents are:

- one guideline developed using a robust process (e.g., GRADE);
- five guidelines developed using some type of evidence synthesis and/or expert opinion; and
- five single studies that provide additional insight.

We outline in narrative form below our key findings related to the question from highly relevant evidence documents, and based on experiences from other countries and from Canadian provinces and territories. This is complemented by key findings from the highly relevant evidence documents, which are organized by target groups in Table 1, the type and number of all documents that were identified in Table 2, experiences from other countries in Table 3, and experiences from Canadian provinces and territories in Table 4. In addition, we provide a detailed summary of our methods in Appendix 1, the full list of included evidence documents (including those deemed of medium and low relevance) in Appendix 2, and hyperlinks for documents excluded at the final stage of reviewing in Appendix 3.

Key findings from highly relevant evidence sources

Three of the guidelines we identified from the U.S. Centers for Disease Control and Prevention (CDC) provide recommendations that cut across the organizing framework as they provide public-health guidance for people who have been vaccinated, with recommendations that are specific for [healthcare settings](#) and [non-healthcare settings](#), and that provide the [background rationale and evidence for these recommendations](#).

In addition to these guidelines, we also found:

- a guideline from the Emergency Care Research Institute indicating that [higher vaccination rates may result in social distancing being less critical to prevent COVID-19 disease](#), but it is beneficial to maintain social distancing if the vaccine does not prevent the spread by asymptomatic carriers (published 1 March 2021);
- another guideline from the Health Information and Quality Authority in Ireland that addresses the topic of [movement restrictions \(quarantine\) for healthcare workers who have received two doses of a COVID-19 vaccine, but have been close contacts of an individual with confirmed COVID-19 infection](#) (published 27 January 2021); and
- a World Health Organization (WHO) guideline that [provides five steps and a list of useful tools for countries to implement non-pharmaceutical interventions \(NPIs\)](#) for COVID-19 (published 17 December 2020).

The five single studies (each are published as pre-prints) all provide models that focus on when to lift public-health measures and/or the order in which they should be lifted. These studies specifically focus on:

- [when and how public-health measures could be relaxed](#) as vaccination becomes more widespread in the U.S. (pre-print – last edited 13 March 2021);
- [the impact of different degrees of waning immunity, vaccine efficacy and population coverage of COVID-19 vaccination on cases and deaths](#) to determine the vaccine coverage needed to prevent a possible COVID-19 resurgence (pre-print – last edited 26 January 2021);

- how lifting of public-health measures of any kind for both high and lower vaccine efficacy will require [continuous monitoring of case counts for both unvaccinated and vaccinated populations](#) (pre-print – last edited 20 January 2021);
- the [relative effect of different schemes of vaccination](#) (i.e., combinations of social distancing, testing intensity, and vaccination coverage and rate) on the progression of COVID-19 pandemics in densely populated urban areas (pre-print – last edited 9 January 2021); and
- the lifting social distancing (LSD) index that decision-makers can use as a quantitative assessment of whether and when to ease or implement social distancing (and found that [decision-makers could consider lifting social-distancing policies if the LSD index is less than one](#)) (published 17 September 2020).

These sources of evidence can also be informed prospectively through key global sources of data such as the [COVID-19 Government Measures Dataset](#), and country-specific sources such as the [COVID-19 State Policy Tracker](#) and the [Coronavirus Restrictions and Mask Mandates for All 50 States](#) provided by the New York Times.

Note that while we found two systematic reviews and three rapid reviews, they were older in the context of the question (lifting public-health measures in response to vaccination), with searches conducted in spring and summer 2020, and therefore were not classified as highly relevant for the purpose of this rapid evidence profile. Findings from these reviews are provided in Appendix 2. In addition, we excluded several evidence documents that provide insights about lifting public-health measures that were not conducted in the context of the vaccine roll-out or provide insights specific to this context. The hyperlinked titles to these documents are provided in Appendix 3.

Key findings from the jurisdictional scan

Key findings from other countries

In terms of when COVID-19-related public-health measures can be lifted (or stringency be reduced), we found that:

- case rates remain the major determining factor for lifting public-health measures for most countries, regardless of the level of vaccination;
- China's CDC, in particular, recommends that prevention and control measures should continue to be implemented to prevent a resurgence of the pandemic, considering the time required to produce protective antibodies for individuals, limited protective effect of COVID-19 vaccines for individuals, and the possibility of transmission when herd immunity has not yet been built;
- Israel introduced new measures for vaccinated residents once the proportion of the population that had received at least one dose of COVID-19 vaccine surpassed 50%; and
- in the United States, several states have reportedly lifted restrictions based on high rates of vaccination and decreasing rates of hospitalizations.

In terms of in what order COVID-19-related public-health measures can be lifted (or stringency be reduced), we found that:

- most countries have not indicated how they will lift public-health measures for vaccinated individuals or once specific proportions of their populations are vaccinated, with the exception of Israel and the United States which have increased their vaccination rates significantly within the last two months;

- in Israel, a “Green Pass” system was introduced in late February 2021 that allows fully vaccinated (one week after last dose) or those recovered from COVID-19 to enter specific businesses with a “green pass/certificate” and photo ID and, as of 7 March 2021, fully vaccinated Israeli residents do not have to quarantine after entering the country;
- Israel has announced mutual agreements with both Cyprus and Greece which allow fully vaccinated Israeli residents to travel freely between these countries;
- on 9 March 2021, the U.S. CDC announced modified public-health measures for fully vaccinated individuals in the U.S. that permit indoor gatherings with other fully vaccinated people without wearing masks, indoor gatherings with unvaccinated people from one other household without masks if none of the unvaccinated individuals have an increased risk of severe illness from COVID-19, and routine activities even if the individual has been around someone with COVID-19 (unless they have symptoms or live in a group setting); and
- the U.S. CDC’s recommendations for fully vaccinated people were updated on 10 March 2021 with changes to visitation restriction of post-acute care facilities and work restriction policies for asymptomatic healthcare personnel, and quarantine policies for asymptomatic residents and patients.

Key findings from Canadian provinces and territories

In terms of when and in what order COVID-19-related public-health measures can be lifted (or stringency be reduced), we found that:

- Canada’s Federal/Provincial/Territorial Special Advisory Committee on COVID-19 provided guidelines for a measured approach to easing public-health restrictions since April 2020, however, these guidelines have not been revised in recent weeks considering vaccination-related factors;
- most provincial reopening plans have been developed prior to vaccine roll-out and benchmark the lifting of public-health measures on COVID-19 case numbers and hospitalizations, at least until there is evidence that vaccinations are having an impact on these factors within their populations; and
- all provincial governments have indicated that vaccinated individuals must continue to follow public-health measures.

Table 1: Key findings from highly relevant evidence documents about when and in what order COVID-19-related public-health measures can be lifted (or stringency be reduced)

Organizing framework domains		Key findings from highly relevant evidence documents
General/cross-cutting insights		<i>Guidance developed using some type of evidence synthesis and/or expert opinion</i> • A guideline from the U.S. CDC updates healthcare infection-prevention and control recommendations for all healthcare personnel (HCP), and all patients and residents in healthcare settings in response to the COVID-19 vaccination, and the CDC continues to evaluate the impact of vaccination and the emergence of novel SARS-CoV-2 variants, and update recommendations regularly as new information becomes available (U.S. Centers for Disease Control and Prevention; published 10 March 2021) • The same guideline also indicates that indoor visitation for unvaccinated residents should be limited solely to compassionate-care situations if the COVID-19 county positivity rate is >10% and if <70% of residents in the facility are fully vaccinated, and that facilities in outbreak status should follow related guidance on when visitation should be paused • Another guideline from the U.S. CDC provides the first set of public-health recommendations for fully vaccinated people in non-healthcare settings and will continue to be updated based on community levels of COVID-19, proportion of the population that is vaccinated, and the evolving evidence of COVID-19 vaccines (U.S. Centers for Disease Control and Prevention; published 8 March 2021) • One scientific brief from the U.S. CDC provides background rationale and evidence for currently authorized COVID-19 vaccines and public-health recommendations including steps for relaxed measures for fully vaccinated people (U.S. Centers for Disease Control and Prevention; published 8 March 2021)
When can COVID-19-related public-health measures be lifted (or stringency be reduced)	Case rates	<i>Guidelines developed using a robust process (e.g., GRADE)</i> • A WHO guideline provides five steps and a list of useful tools for countries to implement non-pharmaceutical interventions (NPIs) for COVID-19, which includes: assessing healthcare capacity; categorizing NPIs based on effectiveness, socio-economic costs and public perception; determining trend of COVID-19 epidemic; deciding on strengthening, maintaining, or relaxing NPI measures (and which to lift or re-implement first); and monitoring changes in the COVID-19 monitoring and evaluation systems (World Health Organization; last updated 17 December 2020) <i>Single studies that provide additional insight</i> • A study conducted in the U.S. used a transmission model to analyze when and how public-health measures could be relaxed as vaccination becomes more widespread (pre-print – last edited 13 March 2021)

		• Another study developed a compartmental model to examine the impact of different degrees of waning immunity, vaccine efficacy and population coverage of COVID-19 vaccination on cases and deaths, to determine the vaccine coverage needed to prevent a possible COVID-19 resurgence (pre-print – last edited 26 January 2021) • One modelling study found that relaxation measures of any kind for both high and lower vaccine efficacy will still require continuous monitoring of case counts for both unvaccinated and vaccinated populations (pre-print – last edited 20 January 2021) • Another modelling study used a simple epidemiological model that can be implemented in an Excel spreadsheet to evaluate the relative effect of different schemes of vaccination (i.e., combinations of social distancing, testing intensity, and vaccination coverage and rate) on the progression of COVID-19 pandemics in densely populated urban areas (pre-print – last edited 9 January 2021) • Another study created a model for the lifting social distancing (LSD) index for decision-makers to use as a quantitative assessment of whether and when to ease or implement social distancing, and found that decision-makers could consider lifting social distancing policies if the LSD index is less than one (published 17 September 2020)
	Vaccination-related factors	<i>Guidance developed using some type of evidence synthesis and/or expert opinion</i> • One guideline states that herd immunity is integral to achieving a post-COVID transition, and higher vaccination rates may result in social distancing being less critical to prevent COVID-19 disease, but it is beneficial to maintain social distancing if the vaccine does not prevent the spread by asymptomatic carriers (Emergency Care Research Institute; published 1 March 2021) • Another guideline addresses the topic of movement restrictions (quarantine) for healthcare workers who have received two doses of a COVID-19 vaccine, but have been close contacts of an individual with confirmed COVID-19 infection (Health Information and Quality Authority; published 27 January 2021) <i>Single studies that provide additional insight</i> • A modelling study indicated that vaccination can allow widespread easing of public-health measures within two to nine months along with significantly reduced death burden on health systems, as compared to relaxing the same measures without vaccination, and determining the timing to safely lift public-health measures depends primarily on the rate of vaccine roll-out, and secondarily on the protection against asymptomatic infection that vaccination provides (pre-print – last edited 13 March 2021) • Another modelling study used Toronto, Canada as a case study and found that the introduction of vaccines, a vaccine effectiveness of 70-90%, and late relaxation of non-pharmaceutical interventions (e.g., physical distancing, wearing masks, hand hygiene) will reduce the number of cases and deaths (pre-print – last edited 26 January 2021)

		- One modelling study found that a highly effective vaccine of 80% efficacy or greater can allow vaccinated people to be immediately cleared to resume normal life, including travelling, with no significant increase in COVID-19 case counts, and vaccinated persons who have received a vaccine of 60% efficacy should follow selective relaxed measures (pre-print – last edited 20 January 2021) - One modelling study showed that social-distancing measures, including the use of face masks and restriction of regular social and economic activities, must not be lifted during at least the first three months of any vaccination campaigns (Pre-print – last edited 9 January 2021)
In what order can COVID-19-related public-health measures be lifted (or stringency be reduced)	Balance among individual, organizational, public-health authority, and government measures	<i>Guidelines developed using a robust process (e.g., GRADE)</i> - A WHO guideline recommends implementing a ‘new normal’ phase at least until the end of the COVID-19 pandemic (e.g., personal protective behaviours, staggered commuting, physical distancing, ventilated offices and facilities), and including public-health measures as part of the reopening plan for businesses (World Health Organization; last updated 17 December 2020) <i>Guidance developed using some type of evidence synthesis and/or expert opinion</i> - One guideline recommends that the use of telehealth and new disinfection processes may be important to continue into post-COVID; and recommends the continued use of social distancing, masking, and other public-health measures to ensure that the U.S. is on track to normalcy (Emergency Care Research Institute; published 1 March 2021) <i>Single studies that provide additional insight</i> - One modelling study found that under epidemic conditions with few public-health restrictions and increased contact rates in the community, early relaxation of non-pharmaceutical interventions will result in a 30% increase in cases and deaths when compared to late relaxation (Pre-print – last edited 26 January 2021)
	Individual measures (e.g., wearing masks, physical distancing and hand washing) - Among those who have been fully vaccinated - All people	No specific evidence identified beyond what is included in the category above
	Organizational measures (e.g., using signage, barriers and occupancy limits to support	<i>Guidance developed using some type of evidence synthesis and/or expert opinion</i> One guideline recommends that derogation from movement restrictions for vaccinated healthcare workers can be considered for those who have received two doses and passed the indicated time period to achieve full immunity within the past two months, and any approval for derogation

	physical distancing; disinfecting surfaces)	should be followed by conditions for testing, active monitoring, and supervision (Health Information and Quality Authority; published 27 January 2021)
	Public-health authority measures (e.g., testing strategy, quarantine length, case management, and contact tracing)	<i>Single studies that provide additional insight</i> • One modelling study found that reducing household transmission and increasing the number of positive tests returned within 24 hours are necessary to keep epidemic spread under control (Pre-print – last edited 26 January 2021)
	Government measures (e.g., service limitations, gathering sizes, travel restrictions, and lockdowns)	• No highly relevant evidence documents identified

Table 2: Overview of type and number of documents that were identified about when and in what order COVID-19-related public-health measures can be lifted (or stringency be reduced)

Type of document	Total	When can COVID-19-related public-health measures be lifted (or stringency be reduced)	In what order can COVID-19-related public-health measures be lifted (or stringency be reduced)
Guidelines developed using a robust process (e.g., GRADE)	3	3	3
Full systematic reviews	2	1	2
Rapid reviews	3	2	3
Guidelines developed using some type of evidence synthesis and/or expert opinion	5	5	5
Protocols for reviews that are underway	-	-	-
Titles/questions for reviews that are being planned	-	-	-
Single studies that provide additional insight	6	6	0

Table 3: Experiences in other countries with when and in what order COVID-19-related public-health measures can be lifted (or stringency be reduced)

Country	Experiences with when COVID-19-related public-health measures can be lifted (or stringency be reduced)	Experiences about the order that COVID-19-related public-health measures can be lifted (or stringency be reduced)
Australia	- Published in November 2020, the Framework for National Reopening highlights specific indicators to guide the lifting of public-health measures in Australia: - Step 1 occurs when there is a green indicator for “new acquired cases” on the Common Operating Picture that lasts for 14 days, and fewer than three reported cases in high-transmission locations or hard-to-reach populations - Step 2 occurs when there is a green indicator for “new acquired cases” that lasts 14 days on the Common Operating Picture, and no reported cases in high-transmission locations or hard-to-reach populations - Step 3 occurs when only green indicators that last for 14 days are present on the Common Operating Picture - A green indicator refers to fewer than 50 cases per day in the country, and limited geographic spread	- In conjunction with the Australian Health Protection Principal Committee, the National Cabinet launched a “3-step plan” to help guide the easing of public-health restrictions in Australia - Decisions surrounding the lifting of specific measures are at the discretion of each state or territory - On 26 February 2021, the state of Victoria announced that it will be modifying its public-health measures under the new COVIDSafe settings: - Face masks are only mandatory in transport (e.g., public transportation, rideshare, and taxis), sensitive settings (e.g., hospitals and long-term care facilities), and certain retail stores - No mandatory face masks in schools, early childhood education, and private study areas - No density limit restriction exist for small operations, provided that they maintain fewer than 25 patrons - Indoor gatherings (e.g., home visits) can now have up to 30 individuals - As of 22 February 2021, no changes in public-health restrictions were made for those who have been vaccinated - Vaccinated Australians are still required to adhere to physical distancing, appropriate hand hygiene, and gathering limits - International travel regulations remain unchanged - As per Workplace Health and Safety Queensland, both employers and employees are still required to practise COVID-19 infection-control measures even after being vaccinated

China	- On 7 January 2021, China CDC indicated that the prevention and control measures, which include wearing masks, hand hygiene, ventilation and social distancing, should continue to be implemented to prevent pandemic rebound, even though the COVID-19 vaccination campaign has started, given the: - Time required to produce protective antibodies for individuals - Limited protective effect of COVID-19 vaccines for individuals - Possibility of transmission when herd immunity has not yet been built	- China's State Council Joint Prevention and Control Mechanism against COVID-19 continues to revise a series of COVID-19-related guidance to adjust the public-health measures according to the current pandemic situation (including population and areas with different infection risks) and response mode - On 26 February 2021, China National Health Commission and Ministry of Education developed the third version of prevention and control guidelines against COVID-19 pandemic for daycare/pre-school, primary school, secondary school, colleges and universities in the spring semester, according to the current pandemic situation and characteristics of the school - On 19 January 2021, the guidance on pandemic prevention and control in rural areas in winter and spring was issued - On 18 January 2021, the guidance to further prevent and control the pandemic was issued with 22 measures in seven aspects that considers recent local clusters of cases, the current pandemic response situation in China, and ongoing severe pandemic in other countries, and includes: - Strengthening screening - Implementing strict quarantine policies for close contacts - Strengthening prevention and control measures in rural areas - Strengthening health education about normalized prevention and control measures - On 12 March 2021, China Ministry of Culture and Tourism issued the guidance on normalized prevention and control against the pandemic in theatres and other entertainment places, that indicates: - The cancellation of unified limitation for number of customers in low-risk areas, which is now decided by local governments based on local pandemic situation - The ongoing need to control the scale for large activities - Other public-health measures remain unchanged
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France	• According to a news source (which was not verified on a government website), the lifting of public-health measures in France is dependent on the incidence rate in the respective region: ○ High incidence rates are classified by the red designation ○ Average incidence rates are classified by the orange designation ○ Low incidence rates are classified by the green designation • Curfew restrictions remain mandated as long as the incidence rate continues to be greater than 200 new COVID-19 cases per 100,000 residents	• The Government of France continues to mandate existing measures to residents regardless of vaccination status (i.e., vaccinated individuals must still adhere to public-health restrictions) • As of 11 March 2021, France has eased its restrictions to permit travel, “without a compelling reason”, to and from the following countries: ○ Australia ○ Japan ○ Israel ○ New Zealand ○ Singapore ○ South Korea ○ United Kingdom • In accordance with the High Council for Public Health, infection-control measures have eased in long-term care facilities as of 13 March 2021, and activities may include, but are not limited to, indoor and outdoor visits, walks and meals in small groups
Germany	• The Government of Germany released a five-stage plan to help ease public-health measures according to COVID-19 incidence rates: ○ In Stage 3 and Stage 4, the resumption of certain activities is permitted (e.g., reopening of retail stores, museums, outdoor dining, theatre, and outdoor sports), provided that there is a consistent or decreasing seven-day incidence rate of less than 100 new cases per 100,000 residents; restrictions will further be relaxed if the weekly rate reaches fewer than 50 new cases per 100,000 residents ○ In Stage 5, the resumption of recreational events and indoor sports will be permitted if there is a consistent or decreasing seven-day incidence rate between 35 and 100 new cases per 100,000 residents; restrictions for these activities will be relaxed if the weekly incidence rate reaches less than 50 new cases per 100,000 residents	• In a press release issued by the German Ethics Council, public-health measures remain unchanged and will not be lifted for vaccinated individuals • As of 8 March 2021, private gatherings can consist of two households, for a combined total of five individuals • This restriction can be modified and increased to three households for a maximum of 10 individuals, provided that residents are located in a region where the weekly infection rate is lower than 35 new cases per 100,000 residents

	An “emergency brake” can be applied in any of the stages if the seven-day incidence rate climbs over 100 new COVID-19 cases per 100,000 residents	
Israel	- Israel’s rate of infection dropped 95.8% among people who received both doses of the Pfizer-BioNTech vaccine - Israel is starting to return to routine based on a COVID-19 vaccination roll-out that has now reached almost half of its population	- As of 7 March 2021, fully vaccinated Israeli residents do not have to quarantine after entering the country (while unvaccinated individuals are required to isolate in designated hotels or in an alternate location using an electronic bracelet) - Up to 3,000 Israelis will be allowed to enter the country per day - All Israeli residents will be able to leave the country (with restrictions to high-morbidity countries) - Israel has announced mutual agreements with both Cyprus and Greece, which allow fully vaccinated Israeli residents to travel freely between these countries - As restrictions continue to ease, the Ministry of Health unveiled a “Green Pass” system that allows fully vaccinated (one week after last dose) or those recovered from COVID-19 to enter specific businesses with a “green pass/certificate” and photo ID (failure to comply will result in a fine) - The Green Pass is valid for six months - Israeli residents with a “Green Pass” can attend cultural and sports events, gyms, exhibitions, hotels, tourist areas, and worship houses (with restrictions) - Fully vaccinated Israeli residents receive a vaccination certificate one week after receiving the second dose - The certificate expires after six months - The certificate is valid only with photo ID (identity card, passport, driver’s licence) - The General Security Service (GSS) will continue to operate cellular tracing in the event that an individual infected with COVID-19 does not comply with epidemiological investigations, and will cease its use once morbidity is negligible

New Zealand	- New Zealand has implemented an Alert Level framework that specifies the public-health and social measures and that is based on the level of COVID-19 transmission in the country or in a region: - Level 1 has very low or no transmission and there are no restrictions on domestic transport or workplaces and services - Level 2 is defined by active clusters of cases in one region; physical distancing and face masks are required in public and there are limitations on event facilities with more than 100 people - Level 3 has multiple active clusters in multiple regions; residents are instructed to stay home and within their immediate household bubble, non-essential services are not allowed, and there are restrictions on in-person school - Level 4 has widespread outbreaks and sustained community transmission; all events and gatherings are cancelled, schools are closed, and people are instructed to stay home unless they must go out for essential reasons - All of New Zealand is under Alert Level 1 as of 17 March 2021 and all residents are required to follow the applicable public-health measures - There was no evidence found that suggests New Zealand officials are discussing how public-health measures can be lifted as their vaccination roll-out progresses, or even if there are any differences in the public-health measures that vaccinated individuals should follow compared to unvaccinated individuals - New Zealand began its COVID-19 vaccination in mid-February 2021 and is therefore in the very early stages of its vaccine roll-out.	- On 13 March 2021, New Zealand's Prime Minister announced that passengers from the island country of Niue could resume quarantine-free travel in New Zealand on 24 March 2021 under certain conditions: - Not having been outside Niue or New Zealand in the past 14 days - Not having contact with a confirmed COVID-19 case within the past 14 days - Having maintained physical distancing and worn a face covering during their travel to New Zealand - There is no reasonable grounds to believe that the person has COVID-19 - This decision was made based on Niue's elimination of COVID-19 cases in recent months and its strict border controls
United Kingdom	On 11 May 2020 (last updated 24 July 2020), the United Kingdom government released an updated guidance document titled 'Our plan to rebuild: The UK Government's COVID-19 recovery strategy'	The guidance document on the U.K.'s COVID-19 recovery strategy outlined three steps to guide the order of the lifting of public-health measures:

	○ Lifting of measures are determined by the effective reproduction number and the number of COVID-19 cases at any one time ● The following levels are used by the United Kingdom Government to guide decisions of their public-health response measures: ○ Level 1 (green): COVID-19 is not present in the United Kingdom ○ Level 2: Number of cases and transmission are low ○ Level 3: Epidemic is in general circulation ○ Level 4: Transmission is high or rising exponentially ○ Level 5 (red): Same as level 4, but there is a risk of healthcare services being overwhelmed ● The United Kingdom Government released indicators to guide the movement between alert levels ○ Indicator for escalating from alert level one to level two: ▪ Are there any confirmed infections that cannot be traced to importation to the United Kingdom? ○ Indicator for de-escalating from alert level two to level one: ▪ Is there reliable evidence and consensus that COVID-19 is no longer endemic in the United Kingdom? ○ Indicators for escalating from alert level two to level three: ▪ Are there greater than 2,000 confirmed new infections in the United Kingdom per day? ▪ Is the national effective reproduction number reliably estimated to be greater than or equal to one and/or doubling time less than seven days? ▪ Has the number of COVID-19 outbreaks notified in care homes, prisons or schools increased by 50% or more over the previous seven days? ▪ Are there any cases or clusters detected through sentinel surveillance not linked to a known transmission chain? ○ Indicators for de-escalating from level three to level two:	○ Step 1: Workers should continue to work from home whenever possible; schools should remain closed, with the exception of vulnerable children or the children of critical workers who would benefit from attending in person; everyone should avoid public transport wherever possible; everyone should wear face-coverings in enclosed spaces where social distancing is not possible; people can spend time outdoors as long as they are not meeting up with people outside of their household and they comply with social distancing and hygiene guidelines; vulnerable populations should take extra precautions and avoid contact with individuals outside of their households; and restrictions to the United Kingdom borders to significantly reduce travel ○ Step 2: A phased return for childcare and schools; opening of non-essential retail; permitting cultural and sporting events to take place indoors; and reopening more local public transport subject to strict measures ○ Step 3: open more businesses and premises that have been closed, including personal care, hospitality, public places and leisure facilities
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	▪ Are there less than 2,000 estimated new infections per day? ▪ Is the estimated R lower than at the same point in each of the last four weeks? ▪ Has the total count of defined outbreaks been in decline in all regions for at least four weeks? ▪ Have the number of new daily COVID-19 infections, hospital admissions and deaths been on a downward trend for the last four weeks? ○ Indicators for escalating from level three to level four: ▪ Are there >20,000 confirmed new infections in the United Kingdom per day? ▪ Is $R > 1$ and/or doubling time less than seven days? ▪ Are COVID-19-related hospital and/or ICU admissions and/or total deaths increasing greater than or equal to 50% over the same period? ○ Indicators for de-escalating from level four to level three: ▪ Are there estimated to be less than 10,000 new infections per day? ▪ Does the national contact tracing system have the capacity to perform contact tracing for all new confirmed infections? ▪ Has the community estimate of R been consistently < 1 for at least two to three serial intervals? ▪ Has the observed number of new daily COVID-19 infections, hospital admissions, ICU admissions and deaths been on a downward trend for the last four weeks?	
United States	• On 5 March 2021, CNN reported that some states are lifting mask mandates, reopening business sectors, and/or lifting stay-at-home orders or advice ○ Rationales for lifting business restrictions included high rates of vaccination and decreasing rates of hospitalization • Last updated 16 March 2021, MultiState hosts a COVID-19 Policy Tracker to monitor each state's vaccination roll-out plan, reopening policies and business restrictions, mask	• As businesses reopen, the CDC continues to update its Guidance for Businesses & Employers (last updated on 8 March, 2021) • On 9 March 2021, the CDC announced that the following public-health measures have been lifted, relaxed or modified for those who have been fully vaccinated: ○ Indoor gatherings with other fully vaccinated people are permitted without wearing masks

	requirements and mandates, travel restrictions, stay-at-home orders, state legislation on COVID-19, and impact of COVID-19 on legislative sessions • Some states provide information on tiered or staggered reopening policies, which may include reopening based on COVID-19 prevalence at the level of state or individual county, rules or protocols for entering subsequent stages/levels/tiers of reopening, and descriptions of the stages/levels/tiers and when they might be triggered	○ Gathering indoors with unvaccinated people from one other household without masks is permitted if none of the unvaccinated individuals have an increased risk of severe illness from COVID-19 ○ It is not necessary to self-isolate or get tested if the individual has been around someone with COVID-19 (unless they have symptoms or live in a group setting) • On 10 March 2021, the CDC provided updated recommendations with implications for those who are fully vaccinated, including: ○ Relaxing visitation rules for post-acute care facilities, including long-term care facilities ○ Modifying work-restriction policies for asymptomatic healthcare personnel and quarantine policies for asymptomatic residents and patients • The New York Times Tracks COVID-19 restrictions and mask mandates for all 50 states as well as Washington, D.C. and Puerto Rico (last updated 15 March 2021) ○ Eight states, Washington, D.C., and Puerto Rico were categorized as ‘mixed’ in terms of their restrictions for businesses, while 42 states were categorized as “mostly open” ○ Thirty-one states, Washington, D.C., and Puerto Rico have “mandatory” mask mandates, five states were identified as masks being “sometimes required”, and 14 states were characterized as having “no restrictions” related to wearing masks ○ Puerto Rico is currently under stay-at-home orders, while four states currently have stay-at-home advisories and 46 states and Washington, D.C. have no restrictions around stay-at-home orders • The CDC provides guidance for reopening and operational procedures during the COVID-19 pandemic across several sectors and services, including childcare, K-12 schools, homeless service providers and employers
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Table 4: Experiences in Canada with when and in what order COVID-19-related public-health measures can be lifted (or stringency be reduced)

Country	Experiences with when COVID-19-related public-health measures can be lifted (or stringency be reduced)	Experiences about the order that COVID-19-related public-health measures can be lifted (or stringency be reduced)
Pan-Canadian	- On 30 April 2020, Canada's Federal/Provincial/Territorial Special Advisory Committee on COVID-19 released recommendations for the lifting of restrictive public-health measures - The Special Advisory Committee released a set of seven criteria and 13 indicators to help inform government decisions on the readiness for transition of any measures, which are as follows: - Covid-19 transmission is controlled - Indicator 1.1: Number of cases, hospitalizations, intensive-care unit admissions and deaths per day - Indicator 1.2: Reproduction number, absolute and relative changes in cases, hospitalizations and deaths - Sufficient public-health capacity is in place to test, trace and isolate all cases - Indicator 2.1: Testing capacity - Indicator 2.2: Resources to trace contacts - Indicator 2.3: Ability to isolate all cases - Indicator 2.4: Ability to quarantine all contacts - Expanded healthcare capacity exists: the incidence of new cases should be maintained at a level that the health system can manage including substantial clinical-care capacity to respond to surges - Indicator 3.1: Critical-care capacity - Indicator 3.2: Availability of personal protective equipment - Supports are in place for vulnerable groups/communities and key populations to minimize outbreak risks	- Canada's Federal/Provincial/Territorial Special Advisory Committee recommended that, in the first phase of lifting restrictive public-health measures: 1) some non-essential businesses be able to open; 2) daycare and education settings/camps be able to operate/open; 3) additional outdoor activities/recreation be able to resume; 4) non-urgent health care services be able to resume; 5) small critical cultural ceremonies be permitted - It was also recommended that, as governments develop plans to gradually lift restrictions, areas of focus should include: i) protecting the health of Canadians; ii) easing restrictions gradually; iii) protecting high-risk groups; iv) ensuring our public-health capacity remains strong to prepare for and respond to future waves of the pandemic; v) supporting a broad range of economic sectors - Specific conditions for lifting public-health measures were also proposed: - Some non-essential business able to be open - Core personal practices supported to the extent possible - Maintain physical distancing whenever possible - Efforts directed towards preventing the entry of sick individuals - Employ physical barriers and other engineering controls - Increase environmental cleaning - Daycare and education settings/camps to operate/open

	▪ Indicator 4.1: Availability of guidance for staff and residents to prevent transmission among vulnerable groups/settings ▪ Indicator 4.2: Number, size and status of outbreaks in high-vulnerability settings ○ Workplace preventive measures are established to reduce risk ▪ Indicator 5.1: Availability of guidance for workers and employers to prevent transmission of COVID-19 in the workplace ▪ Indicator 5.2: Number of workplace outbreaks ○ Avoiding risk of importation cases ▪ Indicator 6.1: Number of international travel-related cases ○ Engage and support communities to adjust to the new normal ▪ Indicator 7.1: Communications strategies in place ● It is recommended that the transition between public-health measures be slow, gradual and tailored to jurisdictional contexts with sufficient time between each phase to detect changes ● While lifting measures, the core personal public-health practices (staying informed, being prepared and following public-health advice, practising good hygiene, maintaining physical distancing, increased cleaning and ventilation of public spaces, staying away from others if symptomatic or ill, staying at home if at high risk of severe illness, wearing masks, and reducing non-essential travel) should be enforced	▪ Maintain the provision of online learning as an option for students vulnerable to the impacts of COVID-19 ▪ Core personal practices supported ▪ Screening for all staff and students/campers ▪ Maintain physical distancing as much as possible ▪ Staff and students/campers at higher risk of severe illness remain at home ▪ Environmental cleaning ▪ Consider non-medical masks ○ Additional outdoor activities/recreation to resume ▪ Core personal practices supported to the extent possible ▪ Maintain physical distancing between members of different households when participating in outdoor recreation ▪ No large gatherings ▪ Only allow sports that can maintain physical distancing ▪ No sharing of equipment and/or clean equipment in between each use ○ Non-urgent healthcare services to resume ▪ Core personal practices supported ▪ Physical distancing measures in place ▪ Scheduling to protect patients at higher risk of severe illness ▪ Environmental cleaning ○ Small critical cultural ceremonies to take place ▪ Core personal practices supported ▪ Screening of individuals prior to entering the gathering ▪ Persons at higher risk of severe illness should not attend ▪ Physical distancing should be maintained ▪ Limit size of gathering ▪ No receptions or buffet meals
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		▪ Ceremonies are held outdoors when possible • The Government of Canada released a document building on the recommendations of Canada's Federal/Provincial/Territorial Special Advisory Committee which included recommended progressions for different setting, service and activities • The recommended progressions included in this document were: i) settings for vulnerable populations (closed settings with populations at higher risk for severe illness and other congregate-living environments); ii) workplaces, businesses and services that are independent with childcare and public transit (workplaces/businesses providing essential services, non-urgent healthcare services, workplaces/businesses providing non-essential services); iii) schools and childcare settings; iv) outdoor spaces; v) indoor sports, recreation and community spaces; vi) gatherings of families and friends and mass gatherings; vii) transportation and travel ○ The progressions were broken down into the current state of the measure, step 1 (near-term), step 2 (short-term), step 3 (medium-term), step 4 (longer-term) and step 5 (significant population immunity) • The steps range from continue (as per current state) to lift all conditions
British Columbia	• On 6 May 2020, the Government of British Columbia released a living guidance document, titled the 'British Columbia Restart Plan' • The Restart Plan stated that for different organizational sectors to move forward, they will be asked to develop enhanced protocols aligned with public Health and Safety Guidelines that will be reviewed by the Provincial Health Officer • The British Columbia government webpage stated that public-health measures are to be eased based on consideration of the following: i) 14-day incubation period in relation to policy changes; ii) the number of confirmed	• The British Columbia Restart Plan included four phases for lifting public-health measures: ○ Phase 1 - Essential services operating during COVID-19 ▪ Essential healthcare and health services, law enforcement, public safety, first responders and emergency-response personnel, vulnerable-population providers, critical infrastructure, food and agriculture service providers, transportation, industry and manufacturing, sanitation, communications and information technology, financial institutions, non-health essential service providers

	and recovered COVID-19 cases; iii) monitoring whether outbreaks are connected to their location, size and severity; iv) how other jurisdictions are responding to the pandemic	○ Phase 2 – Under enhanced protocols ▪ Restoration of health services (re-scheduling elective surgery, medically related services), retail sector, hair salons, barbers and other personal service establishments, in-person counselling, restaurants, cafes, pubs, museums, art galleries, libraries, office-based worksites, recreation/sports, parks, beaches and outdoor spaces, childcare ○ Phase 3 – Under enhanced protocols ▪ Hotels and resorts, parks, film industry, select entertainment, post-secondary education, K-12 education ○ Phase 4 – Conditional on at least one of: wide vaccination (community immunity) or broad successful treatments ▪ Activities requiring large gatherings, international tourism
Alberta	• The government of Alberta is easing public-health restrictions based on hospitalization benchmarks defined in the province's reopening plan, 'A Path Forward', as well as the growth rate of cases and the growth of variants of concern • There is no indication that vaccinations in the province factor into the reopening plan	• The stepped phases of Alberta's reopening plan, 'A Path Forward', are: ○ Step 1 (<600 hospitalizations) eases restrictions for restaurants, indoor fitness, and children's sport and performance activities ○ Step 2 (<450 hospitalizations) eases restrictions in libraries, events facilities, collegiate recreation activities, and retail ○ Step 3 (<300 hospitalizations) eases restrictions in adult-team sports, casinos and bingo halls, more youth recreational activities, indoor social gatherings and events, museums and art galleries, zoos, and places of worship ○ Step 4 (<150 hospitalizations) eases restrictions in amusement parks, concerts and festivals, funeral and wedding receptions, tradeshow, workplaces, and day and night overnight camps • Alberta has been in Step 2 since 1 March 2021

		• The Alberta government advises that individuals who have received the COVID-19 vaccine must still follow all public-health measures, including: ○ Following guidelines of when to wear a mask or other personal protective equipment ○ Washing hands often ○ Staying two metres away from others ○ Isolating yourself at home when you are sick ○ Staying home for 14 days after having close contact with someone who has COVID-19 or after returning from travel outside of Canada
Saskatchewan	• Saskatchewan released a ‘Re-Open Saskatchewan’ plan in April 2020 that was built on a phased approach to slowly lifting public-health restrictions on businesses and services based on the risk of COVID-19 transmission and socio-economic factors • Since the government anticipates that the province will not see vaccine available for the general public until mid-2021, all public-health measures will remain in place and those measures will be increased and decreased based on the rates of transmission • There have been no updates to the reopening plan that factor in COVID-19 vaccination-related factors	• The government of Saskatchewan’s information page responds to several questions related to possible changes to public-health measures for individuals and groups after vaccination: ○ Residents are advised that even if an individual is vaccinated, they must continue to follow all public-health measures in the province ○ Factors that will be considered before changing public-health measures include the number of people vaccinated and how the virus is spreading in communities ○ Visitations to long-term care and personal-home residents will be lifted based on what is observed with COVID-19 spread in the community
Manitoba	• No relevant information regarding the lifting of public-health measures was identified	• The Manitoba COVID-19 vaccine webpage contains a question-and-answer section which addresses questions regarding individual public-health measures following vaccination ○ The guidance states that vaccinated individuals are to continue to adhere to basic hygiene measures (physical distancing, handwashing, mask wearing, staying at home when sick) • The guidance notes that even if people have been vaccinated, they still may be able to spread COVID-19 to others

Ontario	No relevant information regarding the lifting of public-health measures was identified	- The Ontario COVID-19 vaccination webpage provides guidance for individuals to stay safe following vaccination - The webpage states that vaccinated individuals should continue to wear a mask, physically distance, and avoid contact with people from outside their household
Quebec	- The Quebec COVID-19 vaccination campaign webpage states that “[the] start of vaccination does not mean the end of health measures. It will take several months to protect a sufficiently large proportion of the population with the vaccine” - The Quebec Immunization Committee recommends that vaccinated individuals are informed about the 14- to 28-day interval required to achieve optimal immunity against COVID-19, and advised to maintain individual public-health measures	The Quebec vaccination question-and-answer webpage states that vaccinated individuals should continue to physically distance, wear a mask, and practise handwashing
New Brunswick	No relevant information regarding the lifting of public-health measures was identified	No relevant information regarding the lifting of public-health measures was identified
Nova Scotia	The Nova Scotia COVID-19 vaccination webpage states that “[until] vaccines are more widely available, we need to continue to follow public health measures to help stop the spread of COVID-19”	- A frequently asked questions memo regarding Nova Scotia’s COVID-19 vaccination roll-out states that individual and governmental public-health measures will remain in place during the current phase of the vaccine roll-out - Vaccinated individuals are advised to wear masks, practise hand hygiene, follow gathering limits, maintain physical distancing, and stay at home when feeling unwell - All travellers (except those from Prince Edward Island) entering Nova Scotia - vaccinated or unvaccinated - are required to self-isolate for 14 days upon arrival to the province
Prince Edward Island	- Prince Edward Island’s government is considering the impact that COVID-19 vaccinations will have on public-health measures such as isolation, travel restrictions, masking, and testing - Health officials continue to learn new information about the impact of vaccines, including how long the	Public-health measures remain in place in P.E.I. for all residents, regardless of vaccination status, and include self-isolation when entering P.E.I., wearing masks indoors, physical distancing, and getting tested when experiencing COVID-19 symptoms

	vaccines provide protection against severe disease, their effectiveness against COVID-19 variants, and how well the vaccines prevent someone from spreading COVID-19 to others, even if the person does not get sick • P.E.I. implements circuit-breaker measures based on rates of COVID-19 transmission in the population and eases restrictions once cases are under control	
Newfoundland and Labrador	• Newfoundland and Labrador released its COVID-19 immunization plan that outlines the approval process for vaccines, the dose schedule, and their phased approach to vaccinate the population • The immunization plan and its three phases are subject to change with emerging evidence, changes in virus transmission, vaccine availability and coverage rates • The plan states that until more evidence emerges, the population must continue to comply with the Special Measures Order and the public-health guidance for all alert levels, even after vaccination	• Until further evidence emerges, the population will continue with the public-health guidance for all alert levels, even after vaccination ○ The guidance states that vaccinated individuals are to continue wearing masks, practising hand hygiene, following gathering limits, maintaining physical distancing, and stay at home when feeling unwell
Yukon	• As per A Path Forward: Next Steps, the Yukon will be creating a bubble with other jurisdictions in Canada, lifting travel and physical distancing/mask requirements when: ○ There is a high vaccination rate in the Yukon and the other jurisdiction ○ There are less than 10 cases per 100,000 population in the other jurisdiction ○ There are healthcare and economic partnerships with the other jurisdiction ○ Vaccines are shown to be effective ○ There is a better understanding of COVID-19 variants and jurisdictions are able to better control variants • Education and childcare facilities will have restrictions removed when children can receive COVID-19 vaccinations • Recreation facilities will be open once there is a high vaccination rate in the Yukon	• In general, Yukon plans to lift public-health measures when: ○ There is evidence that supports lifting public-health measures ○ Businesses, tourism sites, venues and other facilities have developed and implemented operational plans that allow for safety ○ There is compliance to safety measures that have been implemented • To help limit transmission when social gatherings have restrictions eased, a wedding/funeral liaison position will be created to ensure events take place safely • There will be a return to previous public-health measures if there is a concerning rise in cases

Northwest Territories	• As per NWT's Emerging Wisely plan, public-health measures will be lifted when a large proportion of the population has been vaccinated against COVID-19 • Triggers for re-implementing public-health measures include: ○ If cases occur due to violation of public-health protocols ○ There is evidence for community spread ○ There are cluster outbreaks ○ It is not possible to do contact tracing ○ The health system is strained, and service delivery becomes impossible due to surge	• NWT is currently in Phase 2 of public-health measures • In general, Phase 3 will include: ○ Encouraging physical distancing and hand hygiene ○ Keeping infection-control procedures in place ○ Developing altered business plans with limited capacity • Workers' Safety and Compensation Commission (WSCC) risk assessments will determine to what extent colleges, adult classes, trade schools and businesses can open
Nunavut	• No relevant information regarding the lifting of public-health measures was identified	• As of 1 March 2021, Nunavut has announced eased public-health measures for Qikiqtani, Kitikmeot and Kivalliq: ○ Schools will operate under full-time, in-class learning ○ Capacity for halls, conference spaces, theatres and places of worship, food and licensing establishments has been increased to 75% ○ Two-metre distancing has been implemented ○ Capacity for gyms, fitness centres, pools, libraries, museums, and galleries has been raised to 50% • As of 9 March 2021, COVID-19 restrictions for Arviat have been eased to allow for outdoor and indoor gatherings with limits, based on availability of vaccine to all residents and there being no evidence of community spread • It is unclear in what order public-health measures will be lifted

Wilson MG, Bain T, Wang Q, Al-Khateeb S, Bhuiya A, Alam S, DeMaio P, Gauvin FP, Ahmad A, Sharma K, Whitelaw S, Lavis JN. COVID-19 rapid evidence profile #26: When and in what order can COVID-19-related public-health measures be lifted (or stringency be reduced) as vaccination rates and seasonal temperatures increase? Hamilton: McMaster Health Forum, 18 March 2021.

To help health- and social-system leaders as they respond to unprecedented challenges related to the COVID-19 pandemic, the McMaster Health Forum is preparing rapid evidence profiles like this one. This rapid evidence profile is funded by the Public Health Agency of Canada. The opinions, results, and conclusions are those of the McMaster Health Forum and are independent of the funder. No endorsement by the Public Health Agency of Canada is intended or should be inferred.



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Appendix 1: Methodological details

We use a standard protocol for preparing each rapid evidence profile (REP) to ensure that our approach to identifying research evidence as well as experiences from other countries and from Canadian provinces and territories are as systematic and transparent as possible in the time we were given to prepare the profile.

Identifying research evidence

For each REP, we search our continually updated [inventory of best evidence syntheses](#) and [guide to key COVID-19 evidence sources](#) for:

- 1) guidelines developed using a robust process (e.g., GRADE);
- 2) full systematic reviews;
- 3) rapid reviews;
- 4) guidelines developed using some type of evidence synthesis and/or expert opinion;
- 5) protocols for reviews or rapid reviews that are underway;
- 6) titles/questions for reviews that are being planned; and
- 7) single studies (when no guidelines, systematic reviews or rapid reviews are identified).

Each source for these documents is assigned to one team member who conducts hand searches (when a source contains a smaller number of documents) or keyword searches to identify potentially relevant documents. A final inclusion assessment is performed both by the person who did the initial screening and the lead author of the rapid evidence profile, with disagreements resolved by consensus or with the input of a third reviewer on the team. The team uses a dedicated virtual channel to discuss and iteratively refine inclusion/exclusion criteria throughout the process, which provides a running list of considerations that all members can consult during the first stages of assessment.

During this process we include published, pre-print and grey literature. We do not exclude documents based on the language of a document. However, we are not able to extract key findings from documents that are written in languages other than Chinese, English, French and Spanish. We provide any documents that do not have content available in these languages in an appendix containing documents excluded at the final stages of reviewing.

Identifying experiences from other countries and from Canadian provinces and territories

For each rapid evidence profile we collectively decide on what countries to examine based on the question posed. For other countries we search relevant sources included in our continually updated guide to key COVID-19 evidence sources. These sources include government-response trackers that document national responses to the pandemic. In addition, we conduct searches of relevant government and ministry websites. In Canada, we search websites from relevant federal and provincial governments, ministries and agencies (e.g., Public Health Agency of Canada).

While we do not exclude countries based on language, where information is not available through the government-response trackers, we are unable to extract information about countries that do not use English, Chinese, French or Spanish as an official language.

Assessing relevance and quality of evidence

We assess the relevance of each included evidence document as being of high, moderate or low relevance to the question and to COVID-19. We then use a colour gradient to reflect high (darkest blue) to low (lightest blue) relevance.

Two reviewers independently appraise the methodological quality of systematic reviews and rapid reviews that are deemed to be highly relevant. Disagreements are resolved by consensus with a third reviewer if needed. AMSTAR rates overall methodological quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. High-quality reviews are those with scores of eight or higher out of a possible 11, medium-quality reviews are those with scores between four and seven, and low-quality reviews are those with scores less than four. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to health-system arrangements or to economic and social responses to COVID-19. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered 'high scores.' A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8.

Preparing the profile

Each included document is hyperlinked to its original source to facilitate easy retrieval. For all included guidelines, systematic reviews, rapid reviews and single studies (when included), we prepare declarative headings that provide a brief summary of the key findings and act as the text in the hyperlink. Protocols and titles/questions have their titles hyperlinked given that findings are not yet available. We then draft a brief summary that highlights the total number of different types of highly relevant documents identified (organized by document), as well as their key findings, date of last search (or date last updated or published), and methodological quality.

Appendix 2: Key findings from evidence documents that address the question, organized by document type and sorted by relevance to the question

Type of document	Relevance to question	Key findings	Recency or status
Guidelines developed using a robust process (e.g., GRADE)	• When ○ Case rates • In what order ○ Balance among individual, organizational, public-health authority, and government measures	• The comprehensive guide is aimed at decision-makers at national and sub-national authorities or governments • The guide provides five steps for countries to implement non-pharmaceutical interventions (NPIs) for COVID-19: 1) assess healthcare capacity; 2) categorize NPIs based on effectiveness, socio-economic costs and public perception; 3) determine trend of COVID-19 epidemic; 4) decide on strengthening, maintaining, or relaxing NPI measures (and which to lift or re-implement first); 5) monitor changes in the COVID-19 monitoring and evaluation systems ○ The guide provides a list of useful tools to address for each step • The WHO recommends implementing a ‘new normal’ phase at least until the end of the COVID-19 pandemic (e.g., personal protective behaviours, staggered commuting, physical distancing, ventilated offices and facilities) • WHO recommends that countries reopen businesses that contribute significantly to the economy, create more employment, and represent low risk of transmission ○ Public-health measures such as physical distancing and limiting the number of people entering the businesses should be included as part of the reopening plan for businesses • As part of other public-health measure considerations (e.g., contact tracing, use of technologies for monitoring and evaluation, health systems strengthening, legal and ethical steps, treatments and vaccines), scaling up testing	Last updated 17 December 2020

Type of document	Relevance to question	Key findings	Recency or status
		capacity may reduce case burden and risk of infection by increasing accessible sites outside of healthcare (e.g., drive-through centres) Source (World Health Organization)	
	• When ○ Case rates • In what order ○ Government measures	• This interim guidance provides considerations for implementing a risk-based approach to international travel in the context of COVID-19 • As countries gradually resume international travel, the introduction of risk-mitigation measures aiming to reduce travel-associated exportation, importation and onward transmission of SARS-CoV-2 should not unnecessarily interfere with international traffic, and should be based on a thorough risk assessment that is conducted systematically and routinely • Decision-makers in the member states can conduct risk assessments through a mixed-methods approach (with an accompanying risk assessment tool) to calculate the additional burden presented by possible importation of COVID-19 cases, and decide policies on the basis of whether they have the capacity to cope with this burden • WHO does not recommend to regard travellers as a priority group for testing or use “immunity certificates” for international travel in the context of COVID-19 Source (World Health Organization)	Published 16 December 2020
	• When ○ Case rates • In what order ○ Organizational measures ○ Public-health authority measures	• This interim guidance provides considerations for implementing and adjusting public-health and social measures (PHSM) in the context of COVID-19, including school-related public-health measures • The decision to introduce, adapt or lift PHSM should be based primarily on a situational assessment of the intensity of transmission and the capacity of the health system to respond, and	Published 4 November 2020

Type of document	Relevance to question	Key findings	Recency or status
		the possible effects of these measures on the general welfare of society and individuals - Indicators and suggested thresholds are provided to gauge both the intensity of transmission and the capacity of the health system to respond, which provide a basis for guiding the adjustment of PHSM - PHSM must be continuously adjusted to the intensity of transmission and capacity of the health system in a country and at sub-national levels - Communities should be fully consulted and engaged when PHSM are adjusted Source (World Health Organization)	
Full systematic reviews	- In what order - Government measures	- The review aims to identify the types of indoor and outdoor settings that result in transmission clusters to inform future ‘exit strategies’ - A wide range of mostly indoor settings were found to be linked to SARS-CoV-2 clusters, such as hospitals, elderly care settings, households and schools - These possible places should be closely monitored and/or remain closed in the first instance following the progressive removal of lockdown restrictions Source	Literature last searched 26 May 2020
	- When - Case rates - In what order - Balance among individual, organizational, public-health authority, and government measures	- The review describes several population-wide strategies (e.g., social distancing, testing, and contact tracing), and highlights how each strategy should be based on epidemiological evidence and local contexts - The evidence identified was mostly based on mathematical models and a small number of observational studies that provided broad guiding	Literature last searched 25 May 2020

Type of document	Relevance to question	Key findings	Recency or status
		principles or general criteria and lacked operational solutions It was identified that if public-health restrictions could be lifted, the epidemiological situation (i.e., reproduction and infection rate) needs to be under control, and large-scale testing, contact tracing and isolation strategies will be essential components during the easing of a lockdown Source	
Rapid reviews	- When - Case rates - Vaccination-related factors - In what order - Balance among individual, organizational, public-health authority, and government measures	- Country-level responses to easing public-health measures have been varied with some quickly easing restrictions on schools and businesses and with others extending restrictions and continuing with lockdown measures - Triggers for beginning to ease restrictions in countries included declining or stabilizing case rates or deaths, having capacity in hospitals, and/or testing and tracing potential outbreaks - The restrictions that have typically enduring waves of lifting public-health measures include restrictions on schools, entertainment venues and large-scale events, which continue to be combined with physical-distancing measures and hygiene guidelines, maintaining travel restrictions and limiting the number of people who can gather in groups Source	Literature last searched 14 July 2020)
	- When - Case rates - In what order - Individual measures - All people	- The review examined evidence focused on the initiation and lifting of physical and social distancing and identified 10 observational and mathematical modelling studies - Most of the studies emphasized the importance of using an iterative and staggered approach based on infection rates to ease public-health restrictions, and that lifting lockdown measures should be combined with continued use of	Literature last searched April 2020

Type of document	Relevance to question	Key findings	Recency or status
		personal protective equipment, limiting workdays, and wide-scale testing Source	
	- In what order - Individual measures - All people - Organizational measures	- This review aimed to describe the main measures planned for the 2020-21 academic year within the WHO European Region based on official documents and academic papers - This review showed that the recommendations and guidelines for reopening primary and secondary schools in the 2020-21 academic year were mostly in agreement considering the measures of prevention and management of suspected and confirmed cases, but there was no strict consensus on the criteria for the return to school of students who tested positive Source	Literature last searched 20 October 2020
Guidance developed using some type of evidence synthesis and/or expert opinion	- When - Case rates - Vaccination-related factors - In what order - Balance among individual, organizational, public-health authority, and government measures - Individual measures - Among those who have been fully vaccinated - Organizational measures - Public-health authority measures	- This guidance provides updated healthcare infection-prevention and control recommendations in response to the COVID-19 vaccination - This guidance is targeted for all healthcare personnel (HCP), all patients and residents in healthcare settings - CDC continues to evaluate the impact of vaccination and the emergence of novel SARS-CoV-2 variants on healthcare infection-prevention and control recommendations, and updated recommendations regularly as new information becomes available - Indoor visitation could be permitted for all residents except as noted below: - Indoor visitation for unvaccinated residents should be limited solely to compassionate-care situations if the COVID-19 county positivity rate is >10% and <70% of residents in the facility are fully vaccinated	Published 10 March 2021

Type of document	Relevance to question	Key findings	Recency or status
		○ Indoor visitation should be limited solely to compassionate-care situations, for vaccinated and unvaccinated residents with SARS-CoV-2 infection. until they have met criteria to discontinue transmission-based precautions, or vaccinated and unvaccinated residents in quarantine until they have met criteria for release from quarantine ○ Facilities in outbreak status should follow guidance from state and local health authorities and Centers for Medicare & Medicaid Services on when visitation should be paused ○ Ideally, unvaccinated residents who wish to be vaccinated should not start indoor visitation until they have been fully vaccinated (i.e., at least two weeks following receipt of the second dose in a two-dose series, or at least two weeks following receipt of one dose of a single-dose vaccine) ● Updated recommendations about work restrictions for asymptomatic healthcare personnel and quarantine for asymptomatic patients and residents: ○ Fully vaccinated healthcare providers with higher-risk exposures who are asymptomatic (except those who have underlying immunocompromising conditions) do not need to be restricted from work for 14 days following their exposure ○ Fully vaccinated inpatients and residents in healthcare settings should continue to quarantine following prolonged close contact with someone with SARS-CoV-2 infection ○ Quarantine is no longer recommended for residents who are being admitted to a post-acute care facility if they are fully vaccinated	

Type of document	Relevance to question	Key findings	Recency or status
		and have not had prolonged close contact with someone with SARS-CoV-2 infection in the prior 14 days Recommendations for SARS-CoV-2 testing for HCP, residents and patients, and for use of personal protective equipment by HCP remain unchanged Source (U.S. Centers for Disease Control and Prevention)	
	- When - Case rates - Vaccination-related factors - In what order - Individual measures - Among those who have been fully vaccinated - Public-health authority measures	- This guidance provides the first set of public-health recommendations for fully vaccinated people and will continue to be updated based on community levels of COVID-19, proportion of the population that is vaccinated, and the evolving evidence of COVID-19 vaccines - For these recommendations, people are considered fully vaccinated for COVID-19 if it has been more than or equal to two weeks after they have received the second dose of the Pfizer-BioNTech or Moderna two-dose vaccine series, or if it has been more than or equal to two weeks after they have received the single-dose Johnson and Johnson vaccine - The following recommendations apply to non-healthcare settings and state that fully vaccinated people can do the following: - Indoor visit with other fully vaccinated people without wearing masks or physical distancing - Indoor visits with unvaccinated people from a single household who are at low risk of severe COVID-19 symptoms without wearing masks or physical distancing - Fully vaccinated people with COVID-like symptoms do not need to quarantine or be tested following exposure to someone with suspected or confirmed COVID-19	Published 8 March 2021

Type of document	Relevance to question	Key findings	Recency or status
		○ However, in public spaces fully vaccinated people should continue to follow public-health guidance such as wearing a mask, physical distancing, and other prevention measures when visiting unvaccinated people from multiple households • Until vaccination coverage rates increase, public-health prevention measures will need to still be maintained regardless of vaccination status • There is potential benefit that relaxing some measures such as quarantine requirements will outweigh the residual risk of vaccinated people falling ill with COVID-19 or transmitting it to others • Relaxing measures may help increase vaccination acceptance and uptake Source (U.S. Centers for Disease Control and Prevention)	
	• When ○ Case rates ○ Vaccination-related factors • In what order ○ Balance among individual, organizational, public-health authority, and government measures ○ Individual measures ▪ Among those who have been fully vaccinated ○ Public-health authority measures	• This scientific brief provides evidence for currently authorized COVID-19 vaccines and public-health recommendations including steps for relaxed measures for fully vaccinated people • It is highly advisable that public-health preventive measures such as mask use and physical distancing continue to be maintained, however a balanced approach can be followed in which vaccinated persons are allowed to resume lower-risk activities • Increasing vaccination coverage rates may allow the relaxing of some prevention measures as coverage continues to increase • Relaxing certain measures for fully vaccinated persons can help boost vaccine acceptance and uptake Source (U.S. Centers for Disease Control and Prevention)	Published 8 March 2021

Type of document	Relevance to question	Key findings	Recency or status
	• When ○ Vaccination-related factors • In what order ○ Balance among individual, organizational, public-health authority, and government measures	• Herd immunity is integral to achieving a post-COVID transition ○ Higher vaccination rates may result in social distancing being less critical to prevent COVID-19 disease, but it is beneficial to maintain social distancing if the vaccine does not prevent the spread by asymptomatic carriers ○ The U.S. requires 66% herd immunity level for a vaccine with 90% effectiveness (based on an R_0 of 2.5 for COVID-19) ○ The current vaccination rate of 1.4 million shots per day in the U.S. will result in herd immunity by mid-November 2021 (or two million doses/day to reach herd immunity by late August 2021) • Use of telehealth and new disinfection processes may be important to continue into post-COVID • The authors recommend the continued use of social distancing, masking, and other public-health measures to ensure that the U.S. is on track to normalcy Source (Emergency Care Research Institute)	Published 1 March 2021
	• When ○ Vaccination-related factors • In what order ○ Organizational measures	• This guidance document addresses the topic of movement restrictions (quarantine) for healthcare workers who have received two doses of a COVID-19 vaccine, but have been close contacts of an individual with confirmed COVID-19 infection • The Irish Health Information and Quality Authority's COVID-19 Evidence Synthesis Team stresses that there is limited evidence to definitively address this question, but puts forward an assessment of the evidence alongside expert opinion	Published 27 January 2021

Type of document	Relevance to question	Key findings	Recency or status
		- It is noted that restricting the activities of healthcare workers who have potentially been exposed to COVID-19 is one factor contributing to the strain on acute and secondary health services, and there is limited evidence available regarding the effectiveness of vaccines at preventing onward transmission of SARS-CoV-2 (though this evidence base is growing) - The recommendations made by the Health Information and Quality Authority are as follows: - Derogation from movement restrictions for vaccinated healthcare workers can be considered for those who have received two doses and passed the indicated time period to achieve full immunity within the past two months (given that there is limited follow-up data) - Derogation should only be considered for healthcare workers essential to maintain critical services and, when considered, following a risk-based assessment - Any approval for derogation should be followed by conditions for testing, active monitoring, and supervision - When multiple healthcare workers are being considered for derogation, a preferential approach should be used and take into account prior history of COVID-19 infection, vaccination, and the specific exposure risk that led to identification as a close contact - A single derogation should be applied to all health and social-care settings and be reviewed as new evidence emerges Source (Health Information and Quality Authority)	
Protocols for reviews that are underway	No relevant protocols identified		

Type of document	Relevance to question	Key findings	Recency or status
Single studies that provide additional insight	- When - Case rates - Vaccination-related factors	- A transmission model was used to analyze when and how public-health measures could be relaxed in the United States as vaccination becomes more widespread - Scenarios for relaxing public-health measures were compared across different timelines (0-9 months after start of the vaccination roll-out), for a one-dose and two-dose vaccination strategy, and using historical levels of social interaction starting at one month to one year into the vaccine roll-out - The model indicates that vaccination can allow widespread easing of public-health measures within two to nine months along with significantly reduced death burden on health systems, as compared to relaxing the same measures without vaccination - Vaccinated individuals can safely begin to relax public-health measures sooner than those who are not vaccinated - Determining the timing to safely lift public-health measures depends primarily on the rate of vaccine roll-out, and secondarily on the protection against asymptomatic infection that vaccination provides - If a vaccination rate similar to the roll-out for seasonal influenza is achieved (roughly three million doses/day) the model indicates that public-health measures could begin to be safely relaxed within two to three months, and with a vaccination rate of one million doses/day, a six- to nine-month delay would be required - For dosing strategies, the model indicates that a one-dose strategy is preferred if relative efficacy is similar to two doses (but the relative benefit may be minimal when vaccine roll-out is fast) and, given this, a two-dose strategy with an initial delay	Preprint (last edited 13 March 2021)

Type of document	Relevance to question	Key findings	Recency or status
		of at least three months in relaxing restrictions is recommended Source	
	- When - Case rates - Vaccination-related factors	- This modelling study looks at the different reported efficacy findings for COVID-19 vaccines and their effect on continued social restrictions, including travel - The findings show that a highly effective vaccine of 80% efficacy or greater can allow vaccinated people to be immediately cleared to resume normal life, including travelling, with no significant increase in COVID-19 case counts - Vaccinated persons that have received a vaccine of 60% efficacy should follow selective relaxed measures, which does not include travelling and are not adequate to be issued immunity passports - Relaxation measures of any kind for both high and lower vaccine efficacy will still require continuous monitoring of case counts for both unvaccinated and vaccinated populations Source	Preprint (last edited 20 January 2021)
	- When - Case rates - Vaccination-related factors - In what order - Balance among individual, organizational, public-health authority, and government measures - Public-health authority measures	- A compartmental model was developed for this study to examine the impact of different degrees of waning immunity, vaccine efficacy and population coverage of COVID-19 vaccination on cases and deaths to determine the vaccine coverage needed to prevent a possible COVID-19 resurgence - Using Toronto, Canada as a case study, it was found that the introduction of vaccines, a vaccine effectiveness of 70-90%, and late relaxation of non-pharmaceutical interventions (e.g., physical distancing, wearing masks, hand hygiene) will reduce the number of cases and deaths - Under epidemic conditions with few public-health restrictions and increased contact rates	Pre-print (last edited 26 January 2021)

Type of document	Relevance to question	Key findings	Recency or status
		in the community, early relaxation of non-pharmaceutical interventions will result in a 30% increase in cases and deaths when compared to late relaxation The study also found that reducing household transmission and increasing the number of positive tests returned within 24 hours are also necessary to keep epidemic spread under control Source	
	- When - Case rates - Vaccination-related factors	- A simple epidemiological model that can be implemented in an Excel spreadsheet was used to evaluate the relative effect of different schemes of vaccination (i.e., combinations of social distancing, testing intensity, and vaccination coverage and rate) on the progression of COVID-19 pandemics in densely populated urban areas - The model predicted that effective containment of pandemic progression in densely populated cities would be more effectively achieved by vaccination campaigns that consider the fast distribution and application of vaccines (i.e., 50% coverage in six months) while social-distancing measures are still in place - The modelling results showed that social-distancing measures, including the use of face masks and restriction of regular social and economic activities, must not be lifted during at least the first three months of any vaccination campaign - The simple model was envisioned as a friendly, readily accessible, and cost-effective tool for assisting governments and local health officials to rationally design vaccination campaigns Source	Preprint (last edited 9 January 2021)
	- When (i.e., triggers for lifting) - Case rates	The lifting social distancing (LSD) index was created for decision-makers to use as a	Published 17 September 2020

Type of document	Relevance to question	Key findings	Recency or status
		quantitative assessment of whether and when to ease or implement social distancing • Reopening policy depends on three determinants: 1) transmission rate using the basic reproductive number using the SIR or SEIR models to evaluate the effect of social distancing; 2) optimal management of patients with COVID-19 to determine rate of recovery; 3) preventing mild or moderate patients from becoming patients with severe infection and death • The LSD was developed based on the SEIRD compartment model (susceptible-exposed-infected-recovered-death) • If the LSD index is greater than one, then it is necessary to maintain social distancing, but if it is less than one then the authors recommend that decision-makers consider lifting social-distancing policies Source	
	• When ○ Vaccination-related factors	• A mathematical model was developed to capture the dynamics of the SARS-CoV-2 dissemination aligned with social distancing, isolation measures, and vaccination • The modelling results based on a case study in Rio de Janeiro showed that the phased roll-out of the vaccination program should proceed along with maintaining social distancing and case isolation in all scenarios Source	Preprint (last edited 31 January 2021)

Appendix 3: Documents excluded at the final stages of reviewing

Type of document	Hyperlinked title
Guidelines developed using a robust process (e.g., GRADE)	None identified
Full systematic reviews	Healthcare systems strategies to manage pandemics transition phases: a systematic review
Rapid reviews	Evidence of the effectiveness of travel-related measures during the early phase of the COVID- 19 pandemic: A rapid systematic review
Guidance developed using some type of evidence synthesis and/or expert opinion	None identified
Protocols for reviews that are underway	Healthcare system strategies to manage pandemic transition phases: A systematic review
Titles/questions for reviews that are being planned	None identified
Single studies that provide additional insight	Analyzing the impacts of public policy on COVID-19 transmission: A case study of the role of model and dataset selection using data from Indiana Predicting and interpreting COVID-19 transmission rates from the ensemble of government policies Lifting mobility restrictions and the effect of superspreading events on the short-term dynamics of COVID-19 Between lives and economy: Optimal COVID-19 containment policy in open economies Response to COVID-19 in South Korea and implications for lifting stringent interventions Staggered release policies for COVID-19 control: Costs and benefits of relaxing restrictions by age and risk COVID-19: How to relax social distancing if you must Data-driven simulation and optimization for Covid-19 exit strategies Modelling the impact of relaxing COVID-19 control measures during a period of low viral transmission Is it safe to lift COVID-19 travel bans? The Newfoundland story

Type of document	Hyperlinked title
	How much leeway is there to relax COVID-19 control measures? When and how to lift the lockdown? Global COVID-19 scenario analysis and policy assessment using compartmental Gaussian processes Modelling SARS-COV2 spread in London: Approaches to lift the lockdown Impact of lockdown on COVID-19 epidemic in Île-de-France and possible exit strategies A framework for identifying and mitigating the equity harms of COVID-19 policy interventions Considerations for Institutions of Higher Education (IHE) Sustainable border control policy in the COVID-19 pandemic: A math modeling study Relaxation of social distancing restrictions: Model estimated impact on COVID-19 epidemic in Manitoba, Canada