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ENVIRONMENTAL SCAN

Public Health Measures and COVID-19 Epidemiology in Select International Jurisdictions (Current up to May 4, 2022)

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Key Findings

- Throughout April 2022, some jurisdictions (e.g., California, Italy, Israel, and Portugal) continued to ease public health measures including mask mandates. Of note, many jurisdictions maintain a mask mandate in healthcare settings and on public transport. France and Italy maintain a health pass system.
- Some jurisdictions increased vaccine eligibility for a second dose in April 2022 (e.g., France, Norway, and the Netherlands), while Denmark announced that it will be suspending its mass vaccination campaign. This means that they will not send invitations to individuals that are eligible for a vaccine (e.g., individuals 18 years and older who are eligible for a booster dose); however, individuals still have the opportunity to get the vaccine if they choose.
- Many jurisdictions experienced decreasing or relatively stable COVID-19 case rates and hospitalizations throughout April 2022. There was variation in COVID-19 death rate trends across the jurisdictions throughout April 2022.
- Non-pharmacological prevention strategies that reduce the risk of transmission can be layered with a vaccination strategy to reduce the number of cases driven by a more transmissible dominant variant. Non-pharmacological prevention strategies include improving ventilation, moving outdoors as the weather permits, indoor masking, and communication on the importance of wearing masks with good fit and filtration for personal and population-level protection (e.g., in indoor "3-C" settings that are closed spaces, crowded, and involve close contact, and/or settings where distancing may be challenging).

Objectives and Scope

This environmental scan highlights public health measures for select international jurisdictions. It summarizes epidemiological trends (i.e., COVID-19 cases, hospitalizations, and deaths) and additional contextual factors (e.g., vaccination rates and variants of concern [VOCs]) at a high level. Out of scope for this scan was testing and case and contact management strategies which may be an important contextual difference across jurisdictions. In addition, county- and city-level public health measures were out of scope.

Background

As of April 24, 2022, 85.1% of the total population in Ontario had received at least one dose of a COVID-19 vaccine, and 82.0% of the total population received two doses.[1] The 5 – 11 years age group has the lowest vaccination coverage with only 35.4% fully vaccinated as of May 4, 2022.[2] As of May 4, 2022, 49.3% of the total population in Ontario had received a third dose.[3] Individuals 5 years or older are eligible to complete their primary vaccination series, while individuals 12 years or older who received their second dose at least three months prior are eligible for a booster vaccination.[1,4]

the Omicron BA.2 sub-lineage has been dominant in Ontario since mid-March, 2022.[5] In the most recent reporting, the proportion of whole genome sequencing samples identified as BA.2 in Ontario increased over the past several weeks to 83.8% for the week of April 10 to 17, 2022.[6] The rolling 7-day average of daily new COVID-19 cases per 100,000 people increased throughout the first half of April, at which point it slightly decreased and then remained relatively stable later in the month.[7] Confirmed case numbers are an underestimate of the true epidemiology given limited access to molecular and rapid antigen tests (RAT) and no required reporting of positive RATs for the general population.[8] COVID-19-related hospitalizations including intensive care unit admissions generally increased throughout April 2022.[9] The number of new COVID-19 related deaths fluctuated throughout April 2022, but generally increased in the beginning of the month, followed by a decrease, with the the 7-day average daily number appearing to increase again towards the end of the month.[9,10] Hospitalizations and death rates are lagging indicators and require additional time to observe their trends following a change in public health measures.[11]

In Ontario, masks are still required on public transit, in health care settings, and in highest risk social service settings (e.g., shelters, retirement homes).[12] Like many jurisdictions, Ontario is navigating the next stage of the COVID-19 pandemic with ongoing levels of sustained community transmission of SARS-CoV-2. Evidence from earlier in the pandemic suggests it takes a median of 8 days after introducing a public health measure to observe 60% of the maximum reduction in the reproduction number (R), and a median of 17 days following relaxation to observe 60% of the maximum increase in R.[13] When public health measures are lifted, there is evidence to support a staged approach, with at least three weeks before lifting more measures. Tracking public health measures and epidemiology in jurisdictions with similar contexts (e.g., vaccination coverage, type of vaccines, and dominant SARS-CoV-2 variants), may be helpful in order to learn from their experience.

Methods

This environmental scan reports on publically available information up to May 4, 2022 for select international jurisdictions (i.e., Denmark, England, Finland, France, Germany, Ireland, Israel, Italy, Norway, Portugal, the Netherlands, and United States [US]). Since public health measures are often enacted at the state-level, the states of California and New York are included as examples from the US. A jurisdictional scan of public health measures and epidemiology in the Canadian provinces of British Columbia (BC), Alberta, Saskatchewan, Manitoba, Quebec, and Prince Edward Island (PEI) was performed.

This scan was informed by previous Public Health Ontario (PHO) reports, scanning of key government websites, as well as general Google searches for items related to public health measures, COVID-19 epidemiology and vaccination coverage. A formal bibliographic database search was not conducted due to time constraints; thus, some relevant articles may not be included.

The public health measures and overall epidemiology of select jurisdictions will be described and their relevance to Ontario will be discussed. For the context of this paper, the terms “immunity pass” (i.e., a system that requires proof of vaccination and/or recovery) and “health pass” (i.e., a system that requires proof of vaccination, recovery, and/or negative test result) will be used.

Detailed data on changes to public health measures for jurisdictions included in this scan are available upon request.

Results

Summarized Epidemiology and Vaccine Coverage in Select Jurisdictions

- The jurisdictions included in this scan have a high proportion of their total population vaccinated, similar to Ontario, ranging between 74% and 94% receiving at least one dose of a COVID-19 vaccine and between 66% and 92% of the population receiving two doses.[14-17] All jurisdictions have authorized COVID-19 vaccines for individuals five years and older.[18-29]

- The jurisdictions included in this scan have between 30% and 67.5% of their population receiving an additional dose of a COVID-19 vaccine.[14,17] There are minor differences between jurisdictions regarding eligibility for third and fourth doses, as well as the interval between doses.[18,20,21,30-42] Of the jurisdictions included in this scan, England, Italy, and Germany have the highest additional dose coverage, at 67.5%, 66% and 64%, respectively.[14,17]

- COVID-19 case rates in April 2022 varied across the jurisdictions:[43-46]

    - Denmark, England, France, Ireland, Israel, Italy, and Norway experienced a decreasing case rate throughout April.

    - Finland and Portugal experienced a fluctuating but generally decreasing rate at the beginning of April followed by an increasing case rate later in the month.

    - Germany and the Netherlands experienced a decreasing rate at the beginning of April followed by a plateauing rate later in the month.

    - California and New York State experienced an increasing case rate throughout April.

- The number of COVID-19 patients in hospital in April 2022 varied across the jurisdictions:[45,47-49]

    - Denmark, England, Finland, Germany, Ireland, Israel, Norway, and the Netherlands experienced a decreasing number of COVID-19 patients in hospital throughout April.

    - France experienced an increasing number of COVID-19 patients in hospital at the beginning of April followed by a decreasing number of patients later in the month.

    - Italy and Portugal experienced a relative plateau in the number of COVID-19 patients in hospital throughout April.

    - California experienced a decreasing number of COVID-19 patients in hospital at the beginning of April followed by a plateau later in the month.

    - New York State experienced an increasing number of COVID-19 patients in hospital in April.

- COVID-19-related death rates in April 2022 varied across the jurisdictions.[45,49-51]
    - Denmark, Norway, Netherlands, and California experienced a decreasing death rate throughout April.
    - England, Finland, Germany, Ireland, Italy, and New York State experienced a fluctuating death rate.
    - France and Israel experienced a fluctuating, but generally increasing death rate in the beginning of April followed by a decreasing rate later in the month.
    - Portugal experienced a fluctuating, but generally decreasing death rate in the beginning of April followed by an increasing rate later in the month.
- In the week ending on April 16, 2022, the Omicron variant (B.1.1.529) was the dominant variant across the jurisdictions, accounting for 98.9% to 100% of cases.[52,53]

Status of Public Health Measures in Select Jurisdictions

The current status of public health measures is described below for each jurisdiction.

DENMARK

Denmark did not change its public health measures since the last scan, which was current up to April 6, 2022. Despite a rising case rate, Denmark reopened public venues on January 16, 2022[54] and lifted all remaining COVID-19 protective measures on February 1, 2022.[55] Effective March 17, 2022, Denmark no longer required masks in airports nor hospitals, social service, nursing and adult care facilities.[56] Denmark announced that it will be suspending its mass vaccination campaign effective May 15, 2022.[18] This means that they will not send invitations to individuals that are eligible for a vaccine (e.g., individuals 18 years and older who are eligible for a booster dose); however, individuals still have the opportunity to get the vaccine if they choose.[18]As of May 4, 2022, Denmark has no public health measures in place.

ENGLAND

England did not change its public health measures since the last scan, which was current up to April 6, 2022. England gradually lifted public health measures in January 2022 after experiencing a decreasing case rate.[57] As of May 4, 2022, England does not have any public health measures in place; however, it is recommended to wear a mask in crowded, enclosed spaces.[58]

FINLAND

Finland did not change its public health measures since the last scan, which was current up to April 6, 2022. Finland gradually lifted public health measures throughout February 2022.[57] As of May 4, 2022, Finland has the following public health measures in place:[59]

- Masks are recommended on public transport and in all indoor public spaces for individuals that suspect they have COVID-19 infection, have symptoms of a respiratory infection, or have been exposed to COVID-19.
- COVID-19 vaccines are mandatory for health and social care workers.[60,61]

FRANCE

France did not change its public health measures since the last scan, which was current up to April 6, 2022. France eased its public health measures in March 2022.[62] As of May 4, 2022, France has the following public health measures:[62]

- A health pass is required for access to health facilities and places of care.
- Masks are required in health facilities, places of care, and public transit for individuals six years and older.

GERMANY

Germany did not change its public health measures since the last scan, which was current up to April 6, 2022. Germany lifted most of its public health measures on March 20, 2022.[41] As of May 4, 2022, Germany has the following public health measures:[63]

- Masks are required in facilities for vulnerable groups and on public transportation.
- Health care workers are required to show proof of vaccination, convalescence, or an exemption certificate. Unvaccinated health care workers may be subject to fines and/or bans on activities or entering the workplace.

IRELAND

Ireland did not change its public health measures since the last scan, which was current up to April 6, 2022. Ireland lifted most of its national public health measures, in January 2022 after experiencing a decreasing case rate.[64] On February 28, 2022, Ireland lifted its mask mandate. However, face masks are still recommended on public transportation and in healthcare settings.[64]

ISRAEL

Israel lifted most of its public health measures on March 1, 2022 (i.e., health pass system, capacity limits).[57] On April 23, 2022, Israel eased its mask mandate. As of May 4, 2022, Israel has the following public health measure:

- Masks are required in higher risk settings (i.e., healthcare settings and nursing homes).[65]

ITALY

Italy's state of emergency was lifted on March 31, 2022, which included the lifting of masking in classrooms and easing the use of the immunity pass system.[66,67] Italy further eased public health measures on May 1, 2022 including lifting the health pass system for access to shops and eased the mask mandate (i.e., no longer required in all indoor settings). As of May 4, 2022, Italy has the following public health measures:[68]

- A health pass is required for access to hospitals and nursing homes.[69]
- Individuals are required to wear FFP2 masks on public transportation and in some indoor spaces (e.g., sports events, indoor performances in theatres, cinemas, and concert halls). Masks are highly recommended in all indoor places.
- Vaccinations are mandatory for law enforcement, military, healthcare workers, pharmacists, and all school employees.[70,71]

NORWAY

Norway did not change its public health measures since the last scan, which was current up to April 6, 2022. Norway lifted most of its public health measures on February 1, 2022 and its mask mandate on February 12, 2022.[72] As of May 4, 2022, Norway does not have any public health measures in place.[73]

PORTUGAL

Portugal eased public health measures in February 2022 including lifting capacity limits and proof of vaccination.[74] On April 22, 2022, Portugal eased its mask mandate (i.e., masks are no longer required in all indoor spaces). As of May 4, 2022, Portugal has the following public health measure:[74,75]

- Face masks are mandatory in healthcare settings, nursing homes, and on public transportation.[76]

THE NETHERLANDS

The Netherlands did not change its public health measures since the last scan, which was current up to April 6, 2022. The Netherlands lifted most of its public health measures in February and March 2022.[77] As of May 4, 2022, the Netherlands has the following public health measures:[78]

- Face masks remain mandatory in airports.
- It is recommended that employers make agreements with staff to allow working from home to continue.

CALIFORNIA, US

California lifted its mask mandate on April 20, 2022.[79] As of May 4, 2022, California has the following public health measures:

- Masks are recommended on public transit and in transportation hubs for all individuals, regardless of vaccination status.[79]
- All health care workers and students/staff at some post-secondary schools are required to get the COVID-19 vaccine booster vaccine.[80]

NEW YORK STATE, US

New York State did not change its public health measures since the last scan, which was current up to April 6, 2022. New York State eased public health measures in February 2022.[81,82] As of May 4, 2022, New York State has the following public health measures:

- Masks are required in high-density places (e.g., health care and correctional facilities, shelters, and transportation).[81]

CANADIAN PROVINCES

Since the last environmental scan, which was current up to April 6, 2022, Quebec announced that it will be easing its mask mandate effective May 14, 2022.[83] There were no changes to public health measures across the other included Canadian provinces (i.e., BC, Manitoba, Saskwatchewan, and Alberta) since the last scan. Currently, all included provinces have removed capacity limits and proof of vaccination. Masking requirements vary by province and include:

- BC, Manitoba, and Saskatchewan have all lifted their mask mandate.
- Alberta still requires masks on public transportation.
- Quebec requires masks in all indoor settings except for the classroom. Effective May 14, 2022, masks will no longer be required in most indoor settings. Masks will still be required on public transit and in healthcare settings.[83]

Summary of Findings

Table 1. Overview of Public Health Measures Implemented in Select International Jurisdictions, as of May 4, 2022

Jurisdiction	Immunity Pass* or Health Pass**	Mask Mandate	Capacity/ Gathering Limits	Setting-specific Closures	Remote Work
Denmark	No	No	No	No	No
England	No	Rec	No	No	No
Finland	No	Rec	No	No	No
France	Yes	Yes	No	No	No
Germany	No	Yes	No	No	No
Ireland	No	Rec	No	No	No
Israel	No	Yes	No	No	No
Italy	Yes	Yes	No	No	No
Norway	No	No	No	No	No
Portugal	No	Yes	No	No	No
Netherlands	No	No	No	No	Rec
California	No	Rec	No	No	No
New York	No	Yes	No	No	No

Table Legend: "Yes" indicates the measure is currently mandated. "Rec" indicates the measure is recommended. "No" indicates the measure is not currently mandated, nor officially recommended.
*Immunity Pass: a system that requires proof of vaccination and/or recovery.
**Health Pass: a system that requires proof of vaccination, recovery, and/or negative test result.

Discussion

Most of the international jurisdictions included in this scan lifted nearly all of their public health measures in February and March 2022.[84] Throughout April 2022, some jurisdictions (e.g., California, Italy, Israel, and Portugal) continued to ease public health measures including mask mandates. Of note, most jurisdictions maintain a mask mandate in healthcare settings and on public transport. In the current context of high case rates and percent positivity, population-level measures, particularly in essential indoor public settings, can minimize inequitable impacts on those at highest risk of severe disease (e.g., immunocompromised, older adults, racialized, and low income populations).[5] On May 3, 2022, the Centers for Disease Control and Prevention (CDC) reissued its recommendation for masks on planes and public transit, and added a recommendation for masking of toddlers two years and older in these settings.[85] The CDC has also urged mask use in 37 counties in New York State due to high COVID-19 levels.[86]

Some jurisdictions increased vaccine eligibility for a second dose in April 2022 (e.g., France, Norway, and the Netherlands),[62,87,88] while others have suspended their mass vaccination campaigns (e.g. Denmark). It will be important to monitor if suspending components of vaccination programs used to date impacts the burden of COVID-19.

Most of the included jurisdictions experienced a decreasing or relatively stable COVID-19 case rate throughout April 2022. However, confirmed case numbers are an underestimate of the true epidemiology given changes in testing eligibility across some jurisdictions.[89-91] COVID-19 hospitalizations also decreased or remained relatively stable throughout April 2022 across many jurisdictions; however, hospitalizations are a lagging indicator and may require more time to view the impact of removing public health measures.[84] Further, high vaccine uptake among adults and immunity from previous SARS-CoV-2 infections may attenuate the overall number of severe cases.[5] A complete primary series and for those eligible, the recommended booster dose(s), provide optimal protection against severe outcomes.[5]

Implications For Practice

- Changes to testing, reporting, and how variables are defined (e.g., COVID-19 hospitalizations and deaths) have necessitated recalibration of epidemiological models and deeper understanding of new data sources (e.g., wastewater). Triangulation across indicators can provide greater confidence in trends and should continue to be used.

- Non-pharmacological prevention strategies that reduce the risk of SARS-CoV-2 transmission can be layered with a vaccination strategy to reduce the number of cases driven by a more transmissible dominant Omicron variant. Prevention strategies include improved ventilation, moving outdoors as the weather permits, indoor masking in essential settings, and communication on the importance of wearing masks with good fit and filtration for personal and population-level protection (e.g., in indoor “3-C” settings that are closed spaces, crowded, and involve close contact, and/or settings where distancing may be challenging).

- The evidence that a new SARS-CoV-2 VOC could emerge and alter the course of the pandemic again, continues to grow.[92-94] The emergence of the BA.2 sub-lineage when jurisdictions were experiencing the decline of the BA.1 and BA.1.1 waves, and the recent identification of BA.3 in Ontario, BA.1.12.1 in New York State, and BA.4 and BA. 5 in South Africa, underscore the need for continuous high quality surveillance.[95,96] It is essential that we monitor and learn from prior use and removal of public health measures and increase efforts toward vaccine equity as we prepare for the next stages of the CsOVID-19 pandemic.

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